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**THE TRANSFORMATION OF FARMER TRAINING IN CHINA
(1949-2022): STATE, COMMUNITY, TECHNOLOGY AND THE
"NEW FARMERS"**

ZHOU QI

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The Hong Kong Polytechnic University

Department of Applied Social Sciences

**The Transformation of Farmer Training in China (1949-2022): State,
Community, Technology and the "New Farmers"**

Zhou Qi

A thesis submitted in partial fulfilment of the requirements for the degree

of Doctor of Philosophy

August 2023

CERTIFICATE OF ORIGINALITY

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Zhou Qi (Name of student)

Abstract

Farmer training has long been a focus of attention of government and scholars as one of the important means to help solve the “San Nong” (三农) issues. In 2017, the Ministry of Agriculture promulgated a plan to train at least 20 million “new farmers” by 2020. This is not the first time in the history of the People’s Republic of China that government policies imagined “new farmers.” In what way does the government see the training of “new farmers” a compelling mission now? What relationship do “new farmers” forge with the government, agribusiness, technology and rural communities? By examining the ways in which “new farmers” were shaped during the Mao-era of rural collective economy, the Reform-era of household responsibility system, and the contemporary “new-era” of socialism with Chinese characteristics, this thesis conducts a sociological study from a political economic perspective about the on-going training of “new farmers” in China. The study shows the choice of paradigms for agricultural modernisation in China at different periods. It also explores the social consequences of the formation of "new farmers" from the perspectives of ideological transformation and techno-politics.

The study shows that the path of agricultural modernization in China has undergone a transformation from over-determination (多元决定论) to economic determinism. In terms of the understanding of modern farmers, it has undergone a shift from a popular mass line to a specialized elite line. And the role of farmer education has undergone a shift from the means of social revolution to the means of technological advancement.

Moreover, the study found that the unequal distribution of power and authority in technological trends played the initial role within market conditions that drove the renewed polarisation of rural China. This force even predated the class differentiation caused by internal competition among farmers. At the same time, the study also proves the elaboration on the dialectical relationship between ideology and relations of production, superstructure and economic base of over-determination. That is to say, although state policy has a certain coercive effect on the formation of new ownership systems, the basis of their stable development lies in the relations of production. As a reflection of relations of production, the birth of new ownership systems in policy is not exactly the same as the establishment of new relations of production. When the ideology of the majority of people remains at the previous stage, it may become an obstacle to the development of the new relations of production, or even a decisive factor leading to the failure of new production relations. This process took place not only in the Mao-era when ideology was "politicized", but also in the post-Maoist era.

This thesis argues that the establishment of relations of production and economic foundations is a complex process that does not entirely depend on a single factor such as economic conditions or science and technology, and the role of ideology in this process should be given due attention.

Acknowledgements

During the period of my PhD, I completed a very important transition in my life - becoming a mother. I had always been a relatively sunny and positive person, but within 1.5 years of becoming a mother, I had become sensitive, sad, irritable, and had no interest in anything other than my child. However, I know that it is not just a psychological problem, but also related to my physical condition. So, when the baby was one and a half years old and I was able to get a good night's sleep, things improved a lot. However, this experience has given me a lot of inspiration, that is, do not ignore the helplessness and anxiety, confusion and hesitation, longing and expectation of individuals and groups when the fate changes, social transformation.

If the transformation of the fortunes of urban workers in social change is obvious. The life of the peasant is often imagined as the routine of each day in the field. However, the sun rises and sets, and today is different from yesterday. When did farmers' fortunes turn? How did it happen? Why does the stigma of "underprivileged" always accompany them? These questions used to bother me until I met my supervisor, Professor Yan Hairong.

Hairong not only laid the foundation for my PhD study, but also opened the door to my academic and research career. With Hairong's help, I gained a deeper understanding of agrarian change and Marxist political economy. I have gradually been able to connect the phenomena I had seen and the problems I encountered with the political and economic system. With the support of Hairong, I participated in the volunteer work of the People's Food Sovereignty Network. I enriched myself in

book clubs and lectures, and reshaped myself in article editing and filedwork. If Hairong led the way to me, the people's food sovereignty network is the way I grew up. I would like to thank Hairong and all my friends in Food Sovereignty for their unlimited tolerance and support over the past five years.

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List of research locations

Period	location		
Mao-Era	She, Hebei	Xiao Jin Town, Tianjin	
Early Reform and Opening Era	Tao Jiang,Hunan	Tang Shan, Hebei	
New Era	Wu Chuan, Hebei	San Jiang,Hebei	Tai Zhou,Hebei

Chapter 1: Introduction

This chapter focuses on the research background, research questions and research methodology of the thesis. The first section will provide a brief overview of the background and current situation of farmers' training in order to clarify the background and purpose of the study. The second section will start with a theoretical dialogue, taking the paradox of the existence of farmer training paths as an entry point, and summarizing the research progress in this field. Section 3 will discuss the research questions of the thesis and briefly outlines the main research thrust and relevance of the thesis. Section 4 will show the basic situation of the field sites while specifying the research methodology of the thesis. Section 5 focuses on the basic arrangement of the chapters in the whole text, briefly presenting the overall framework of the thesis and the content of the relevant arguments.

1.1 "New farmers" and agricultural modernisation

In February 2021, the "Opinions of the State Council of the Central Committee of the Communist Party of China on Comprehensively Promoting the Revitalisation of the Countryside and Accelerating Agricultural Modernisation" was released, which made a number of recommendations on how to modernise agriculture and identified the "family farm cultivation programme" and "cultivating highly qualified farmers" as the key to improving the quality of agricultural operators and optimising the agricultural business system. Of course, this is not the first time that the Chinese government has made specific demands on the strategy for modernising agriculture, which has been a very important topic throughout the history of People's Republic of

China. How farmers, as the bridge between technology and production, can master modern technology and how they can apply it to actual production has attracted a great deal of attention from government and scholars.

In recent years, the Chinese government has been attempting to transform traditional farmers into "modern farmers" through farmer training programmes. For example, On 9th January 2017, the Ministry of Agriculture promulgated the "13th Five-Year Plan for the Development of New Vocational Farmers Training in China" (referred to as "the plan"). For the first time, the ministry made a clear deployment of "new vocational farmers" training that by 2020, the total number of new vocational farmers in the country should exceed 20 million (The number of people trained in 2015 was 12.72 million, an increase of 55% over 2010). Among them, the proportion of farmers with high school education and above should reach more than 35%, the number of young farmers to be trained should reach more than 63,000, and the number of trainees for rural practical talent leader training should be higher than 167,000. This is to cultivate a new vocational farmer team with higher cultural quality, skill level, and management ability. The plan also gives suggestions on the selection of trainees, the setting of training content, and the methods of training development.

It can be said that the government's vision of agricultural modernisation relies on the "new farmers", and the government's vision of the "new farmers" relies on farmer training to complete it. Therefore, understanding the meaning of farmer training and the way in which it is carried out and developed is a prerequisite for the complete reshaping of the "new farmers" and a key to

grasping the Chinese government's vision of agricultural modernisation.

Based on different perspectives, people will have different understandings of farmer training. Liberal economists (Samuelson, 2008) often assess a country's development in terms of growth in Gross Domestic Product (GDP), and see productivity growth as the fundamental means of increasing GDP. Other scholars (McClelland, 1999) emphasise the role of education and technology diffusion in national development. Although they have different emphases, they both see science and technology as the driving force behind the modernisation of the country. Then, farmer training, a major component of agricultural extension, is often seen as an important means of promoting agricultural production and helping farmers to increase their yields and incomes (Vollrath, 2007; Reimers & Klasen, 2013; Wouterse, 2016). Scholars have advocated that a sound system of farmer education should be established to promote agricultural economic development and thus contribute to national development (Alam, et al.,2009). However, since the agricultural sector has a much lower GDP than other sectors and a disproportionate input-output ratio (Alam, 2008). Some scholars argue that investing in agriculture is not a wise choice for developing countries. Farmer education may also not help to increase crop yields for peasants, but only for large specialized households (Le, 2021).

At present, economic development is regarded as the center of national political and economic activities, leading to the imagination of some countries for agricultural modernization often related to "capital" and "technology". That is, the construction of modern agricultural system should be based on capital investment and technology investment (Mellor, 2001) . The main aim of

modernising agriculture is to increase the profitability of agriculture and to contribute to economic growth. In China, these theories seem to be widely accepted, and some scholars advocate investing in new factors of production such as technology and knowledge in rural areas, and training family farmers (家庭农场主) and large specialized households (专业大户) to transform them into "vocational farmers" (职业农民) in order to modernise agriculture. (Chen & Han, 2012 ; Li, 2016). It can be said that new type of agricultural operating entity (新型农业经营主体) with capital and technology have been regarded as the main force for agricultural modernization, while the improvement of the quality of new agricultural operating entity is considered as the main way to achieve agricultural modernization.

In fact, China's agricultural modernisation has undergone several paradigm shifts, each of which has been accompanied by changes in the purpose, form and content of farmers' training. The "Rural Scientific Experiment Movement" (农村科学种田运动) during the Mao-era of rural collective economy, as well as the "Integration of Agricultural Science and Education" (农科教结合) and the "Prairie Fire (Liaoyuan) Plan" (燎原计划) during the Deng-era of household responsibility system both promoted the transformation of "old farmers" to "new farmers". In each case, "new farmers" with different characteristics were created. How did these trainings come about? Why was the "new farmers" reshaped again and again at different times? How do these "new farmers" relate to government, agribusiness, technology and rural communities? What role do they play in the process of modernising agriculture? Based on these questions, this study will conduct sociological research on the process of shaping the "new farmers" from the perspective of Marxist political economy, which is not only a summary of the characteristics of

the “new farmers” in different development contexts, but also an exploration of the path to agricultural modernisation. As a globally important country with a large population, insufficient arable land and limited water resources, China's vision of agricultural modernisation and the path to its realisation are also of great importance to theories of agricultural development worldwide.

This thesis places the formation of "new farmers" in different periods of China, namely the Mao-era of rural collective economy, the Reform-era of household responsibility system, and the contemporary “new-era” of rural revitalization. The aim is to explore the role of different types of farmer training in shaping the “new farmers” and the changing relationship between the transformed farmers and the state, the village community and agricultural technology. The process of transformation of farmers through training, the individual experiences of the “new farmers”, their labour processes and the changes in their social relations are the focus of this study.

1.2 Divergences and paradoxes in current farmer training research

In recent years, research on farmer training has been increasing rapidly, and some scholars, based on a technical perspective, regard “farmers” as an undifferentiated “workers mainly engaged in agricultural production”(Hao, 2012). Researchers assume that farmer training is to provide farmers with skill training and technical guidance to develop modern agriculture (Zhang & Wang, 2016). Some scholars believe that three factors are affecting the effectiveness of farmer training: farmers’ education level, the scale of farmers’ agricultural production, and their level of satisfaction with the government (Zhou & Dai, 2017). Some others regard trainees' interest, education level, and learning ability to have the greatest impact on the training effect (Zhang &

Liu,2005). Still, others see individual factors and training designs play a major role in the success or failure of training (He, 2019). Based on these attributions, farmer training is often treated as the problem of pedagogy and technology. For example, some suggest that China should make use of foreign experiences to improve the patterns and methods of farmer education in China (Fan, 2014); some others propose the need to research on farmer training methods from the perspective of learning platform construction (Gao & Lin, 2019).

However, other studies have argued that farmer training should be based on a classification of 'farmers', 'farmers' should be classified by age, education, production scale and economic status, and show that only those who meet the criteria can obtain training qualifications. Some scholars believe that compared with ordinary farmers, large specialised households (专业大户), family farmers (家庭农场主) and returned migrant workers (返乡农民工) are better educated and better able to successfully obtain qualifications. Hence, they should be trained as new vocational farmers (Li, 2014). Such training will nurture the vanguard of "new farmers" and contribute to economic growth (Guo, 2018). In 2021, the General Office of the Ministry of Agriculture and Rural Affairs' Circular on Cultivating High-Quality Farmers in 2021 mentions that in the process of cultivating farmers, it should implement actions such as "skill training for capable breeders, training of rural innovators and entrepreneurs, cultivation of leaders in rural governance and social development, and demonstration training for leaders of practical rural talents, so as to cultivate a team of high-quality farmers who are in urgent need of industrial development and rural construction." It can be seen that the Chinese government is more in favour of the second pathway of farmer training than the first, namely that there are differences between farmers and that farmer training

should be based on the classification of farmers. Based on this, both the new vocational farmer training (新型职业农民培训) , which has been implemented for many years, and the current high quality farmer training (高素质农民培训) reflect the classification of training targets.

The comparison of the two types of farmer training reflects the different perspectives of disciplines. From the perspective of pedagogy, the former scholar focuses on the impact of the change of educational function on the improvement of farmers' skills. The latter, however, relies on economics and focuses on the impact of human capital accumulation on economic development. The difference in understanding of rural society leads to the divergence between them. The former perspective disregards the differences between farmers. Therefore, farmer training should be provided to all farmers without distinction. Training "new farmers" only requires updating the training systems and improving teaching methods. Although latter scholars have touched on the differences between farmers in their discussions, trying to filter out those who meet the criteria through 'indicators' (age, income level and scale of production) and giving them more training opportunities. However, it should be pointed out that the implementation of both has encountered difficulties.

When discussing training as a whole, it would be inaccurate to disregard other factors such as the social environment of rural areas and the social status of farmers. It can be seen that attributing the success or failure of training to personal factors and training system factors, and just relying on the improvement of training technologies will not only fail to train "new farmers", but it will also lead to the prejudice that farmers are reluctant to participate in training because they are lazy and

uncultured. Although some scholars have touched on the differences between farmers in their discussions, they have adopted a “standardised farmers” approach to having control over “personal factors” that affect training effectiveness. The so-called training “new farmers” is merely training of “standardised farmers”, whereas the vast majority of non-standard people will not be included in the training system. This has created a paradox: The more economically developed areas and the more affluent farmers live, although they have abundant training opportunities, their training enthusiasm is rather low (Chen, 2007). Migrant workers who are depending on non-agricultural activities and incomes have little interest in training. For large specialised household farmers with ample agricultural income, their eagerness in training is also not great. On the contrary, it is the agrarian practitioners with the heavier household economic burden that t are more eager to receive training (Wang, 2014). In other words, the group that should receive training is also a group with low willingness to train, while agrarian practitioners with strong training desires and needs are excluded.

Although the emphasis of the two views are different, they both presupposes an important premise, that is, measuring the modern state by its economic growth. In this sense, both pedagogical and economic perspectives believe that the input of science and technology should ultimately serve economic development. Farmer training is seen as a technical means to promote agricultural production and help farmers increase their output. However, the influence of educational practice on different groups of farmers has been ignored.. In contrast, sociology centres its research on civil society, focusing on the relationships between citizens and between citizens and the politics and economy of the state. This concern for the social consequences of farmer training drives this

thesis to bring a sociological perspective to the field of farmer training research.

To explore the influence and the social consequences of educational activities and farmer training on different groups of farmers, it is necessary to examine the internal and external changes of farmers. The internal change mainly refers to the change of farmers' ideology, while the external change mainly refers to the change of farmers' behavior, such as the change of production and life style. Taking farmer education/training as the starting point, it is possible to analyze farmers from both internal and external perspectives. This is because farmer training, as a form of education, is closely related to the reform of farmer ideology. At the same time, as an important means to popularize agricultural technology, farmer training can directly affect the formation of farmers' skills system, and then affect the agricultural production mode. Therefore, this thesis will discuss the impact of farmer training on rural society, agriculture and farmers from two perspectives of ideology and skill formation system.

1.2.1 Understanding and divergence of "ideology"

For many years, the production mode of peasants, which is characterized by private ownership and dispersion, determines the farmers' consciousness of small producers in their moral concepts and behavior habits. However, it should be noted that in the era of people's communes after 1949, which is often referred to as the Mao era, collectivism, as opposed to individualism, became the dominant ideology among Chinese farmers. History gives us an important reminder: the reformation of farmers' ideology is closely related to the reformation of agricultural production

mode. This link is summarised by Marx as the relationship between the 'economic foundation' and the 'superstructure'.

At present, there are still theoretical divergences on the relationship between superstructure and economic foundation, especially the reaction of superstructure to economic foundation. The debate is centred on three types of determinism: economic determinism, ideology determinism and over-determination. The promotion of technology is influenced by economic determinism, which regards "economic" development as the sole determinant of social development. It can be said that economic determinism takes productive forces as a prerequisite for the formation of new production relations and ideologies. In contrast, ideology determinism emphasizes the role of superstructure. It holds that the superstructure can exist independently of the economic foundation, and ideology can unconditionally determine material world. Unlike the two unidirectional determinisms mentioned above, in which one determinant replaces the other, over-determination holds that the development of the material world is determined by multiple factors. While recognising the decisive role of the economic foundation on the superstructure, over-determination also emphasises the retroaction of ideology on the economic foundation. The retroaction means that when ideology fails to adapt to the economic foundation, it severely impedes the development of the economic base. Then, ideology becomes the main aspect of contradiction and plays a decisive role in the direction and trend of social development.

In contrast to the fierce criticism of ideology determinism (Lenin, 1960: 256), economic determinism was widely accepted. The reason is that "the changes in the economic foundation

lead, sooner or later, to the transformation of the whole, immense, superstructure” (Marx, 1977) has become a consensus in academic world. This consensus has led to a greater emphasis in research on changes in agricultural productivity. Some studies simply mechanically equate productivity with production technology, taking technological progress as the only effective way to achieve agricultural modernization. This view was popularized by the proponents of the Green Revolution in the context of the neoliberal market economy.

However, to ignore the role of ideology in production is to abandon the exploration of production habits, consumption habits and value orientation that have an important impact on agricultural production mode. It is easy to ignore the endogenous differentiation force of rural society by blindly emphasizing the role of external rural economic forces in transforming production relations. This not only makes the research lack of practical significance, but also prevents us from understanding the complete interaction process between the economic base and the superstructure.

Unfortunately, the role of ideology in rural society has been theoretically explored mostly from a macro perspective, but few studies have gone into the specific educational and production fields to explore the process of ideological development. The neglect of concrete practical activities has led to research remaining at the stage of theoretical constructs. The disconnection from the exploration of practical motives is one of the main reasons why over-determination is often criticised as voluntarism or superstructural determinism. The determining factor in historical processes is ultimately the production and reproduction of real life (Engels, 2009:591). Therefore, it is necessary to return to the production process and a micro-level research horizon is essential.

Burawoy (1985 : 25) explored the formation of the ideology of the working class based on the labor process. Through the study of the micro-production process, he found that the production process in the capitalist factories prevented the formation of working class consciousness. The game of making out, the internal labour market and the internal state in the production process created workers' consent, compromise and taming of the bourgeoisie. Burawoy developed the production regime theory, which demonstrates how the bourgeoisie relies on the political and ideological institutions that exist in the labour process to control the ideology of the workers, and then, to achieve the purpose of maintaining production order and production relations. Production regime theory is generally accepted in sociological community. Burawoy's research of the labor process focuses on the capitalist factory, and takes the separation of "concept" and "execution" as an important premise. It can be said that industrial assembly line production is the main research object for scholars to study the labor process, while agricultural production processes have been neglected. In the prediction of many scholars, farmers are still regarded as a homogeneous whole, and the main participants in agricultural production are still peasants, whose labour output depend on the size of the family, the composition of the family, and the productivity of the unit (People's Food Sovereignty Network, 2018). In this sense, peasants are more like shrewd "entrepreneurs" (Schultz, 1932), even belonging to a 'feudal' organization of production, whose labour processes do not reveal a separation between 'concept' and 'execution'. Therefore, there is no "production regime" that controls the ideology and production process in agriculture.

However, In the view of other scholars, small-scale family farming is associated with agricultural

capitalism (Yan & Chen, 2015). Through regulating the distribution networks of agricultural products, commercial capital not only grabs profits but also regulates the revenue of peasants, thereby losing the management autonomy and being active in different ways in the agricultural capitalist system (Yan & Chen, 2015). However, these studies have tended to examine the development of agricultural capitalization and to observe the transformation of agricultural production and rural social relations. The studies have neglected the process of internal transformation of peasant ideology and the role of ideological transformation on agricultural production.

Althusser's interpretation of ideology provides a theoretical framework for this thesis. In modern society, education has become an important ideological vehicle. Through education, the individual acquires an ideology and becomes a capable subject. At the same time, ideology has become a kind of material existence, which influences the objective world through people's practical activities (Althusser, 1983: 45). Althusser also explored the relationship between the political system, the state apparatus and ideology. The state apparatus works through ideology as well as repression. In a hierarchical society, for example, the superstructure functions in two ways. First, exploitation is guaranteed through the repressive state apparatus. Secondly, the ideological state apparatus is used to ensure the reproduction of exploitative relations. He noted that the dominant ideology is the ideology of the "ruling class". No class can hold political power for a long time unless it holds the ideological state apparatus at the same time. Thus, the ideological state apparatus is actually the area of class struggle. The dominant ideological state apparatus that has been established after a class struggle against the old ideological state apparatus is education. By

flooding the students with its ideology, the ruling class reproduces the relations of production it desires. However, he also noted that after the old repressive state apparatus is destroyed, the old ideological state apparatus remains intact, in whole or in part. The old ideological state apparatus will continue to indoctrinate the people with the old ideology of the bourgeoisie and the petty bourgeoisie. Even in socialist countries, if the old ideologies are not eradicated, they are constantly reproduced, with the most dangerous consequence of invading the productive and political relations of the state (Althusser, 1983). Therefore, it is not enough to destroy the repressive state apparatus; the ideological state apparatus must also be destroyed and replaced.

The relations between ideology and economic base is the main argument in this thesis. In this thesis, an examination of Chinese context reaffirms this assertion: peasant training, as the main form of peasant education, has always been closely linked to the transformation of farmers' ideology. This link is sometimes explicit and sometimes implicit. Through farmer training, national politics and modern technology can act on rural society and agricultural production through the direct producers - the farmers. In this sense, farmer training has the potential to have a significant impact on the shaping of rural social relations and agricultural production modes. This thesis will explore this process.

1.2.2 Techno-political perspective and Peasant question

Unlike the industrial working class, which emerged in recent industrial societies, the peasant class has a long history and has passed through many social stages. The "peasant question" has also become one of the key issues of social research. In Marx's view, the peasantry was very complex

under a private, decentralised mode of production. In particular, the large number of peasants could be "natural allies" of the urban proletariat, but they could also be influenced by small producer's mentality and move towards the opposite side of the revolution in a wavering manner. Lenin and Mao Zedong had analysed the farmer class in their countries according to the possession of the means of production and the use of agricultural labour respectively. For example, Lenin (1987: 150-159) divided the farmer into the class of proletariat and the class of farm owner. In Xunwu Survey, Mao Zedong divided the peasants into large, medium and small landlords, rich peasants, medium peasants, poor peasants, hired peasants and vagabonds. As revolutionaries, Mao and Lenin, through class analysis, found and united the most revolutionary forces in rural society, and eventually won the revolution. In this sense, the peasant question was not just a rural issue, but concerns the political and economic system of the country.

Sociological research on farmers in China has focused on two main areas: the survival of peasants and the differentiation of farmers. In response to the question of peasants survival, some scholars argue that Chinese agriculture will still be dominated by family farming (Huang, 2012). However, other scholars believe that through regulating the distribution networks of agricultural products, commercial capital not only grabs profits but also regulates the revenue of peasants, thereby losing the management autonomy and being active in different ways in the agricultural capitalist system. In this process, 'family farming' has been transformed. They abandoned the 'family-run operation' label in vain, but like proletarians, they earned only labour wages (Chen, 2016).

Based on a different understanding of the farmers, the peasant economists have always insisted

that capitalist relations of production are not generated in rural area. There is no serious differentiation among farmers. Marxist scholars argue that treating farmers as a homogeneous whole would be an unrealistic presumption. However, in both types of studies, the means of production, such as land and capital, have always been used as the main indicators to examine the nature of farmers and rural structure. Farmers' production mode have also often been the subject of research focus. However, the studies pay little attention to the state of application of another important resource in agricultural production --agricultural technology -- among different groups of farmers, and the corresponding social consequences.

However, the application of agricultural technology is not only related to the present and future of agricultural production, but the interaction of rights generated by farmers in the process of acquiring and using technology will also have an impact on the production relations of rural society. However, current research on agricultural technology promotion and farmers' skill formation pathways is often limited to the fields of education or natural sciences. In the field of sociology, Schmalzer (2012) and Yi (2019) have carefully depicted the relationship between peasants and science and technology in the "mass science" movement during the period of collectivisation based on a techno-political perspective. However, research on the direction of change in the agricultural technology system in different historical periods, especially under the political-economic turn, as well as the underlying logic and social impact of the choice of the modern agricultural paradigm, is still at a preliminary stage of exploration.

To fill this gap, this thesis will be based on a sociological perspective, and also focus on the

technological politics of the transformed farmer training system. The process of technology distribution and its social implications are explored within the framework of Marxist political economy. This is because farmer training systems in different political and economic contexts does not only encompass the transformation of farmers' ideology, but also cover the transformation of the process of forming farmers' skills. On the one hand, the reflection on and critique of the existence of technology constitutes a fundamental part of the politics of technology. As Marx argued, science and technology have their own interests, and the so-called 'neutrality' itself contains a specific political relationship. Understanding the changing system of farmer skill formation in terms of technological politics will help us to understand the national politics behind the shaping of the "new farmers".

On the other hand, techno-political is concerned with the arrangements of power and authority within large-scale, systemic technological trends and the broader politics that may occur within these arrangements. It is specifically manifested in the relationship between technological trends and social conditions, society's response to technology, and the way humans adapt to technological means (Winner, 1977). In fact, technology is not only constrained by politics, it is even a necessary way for politics to be embedded in production. The capitalists try to maintain their control over the working hours of the workers by designing the technology of production. In addition to increasing the productivity of labour, machines also make it impossible for workers to control their own labor in capitalism (Braverman, 1973). In other words, in the field of application of technology, the progress of science and technology does not liberate the workers, and the essence of the labor process under the condition of capital does not change. Moreover, in the

production field of technology, specific powers can interfere in the selection of researchers in a less obvious way through their influence on the ideas in the inventor's mind (Noble, 1993). A technological design "is not simply a technical or even economic evaluation but rather a political one. A technology is deemed viable if it conforms to the existing relations of power". The standard is deeply embedded in the engineer's 'craft' and determines their way of designing without the engineer even realizing it (Noble 1993:63). Based on the perspective of techno-political, politics uses technology as a medium to affect the field of production. As a common means of managing workers, the definition of labor skills is also a major problem to be solved in the design of production systems (Lazonick, [1990] 2007:205, Wang, 2011). The politics of technology provides a new perspective for my research. It helps me to understand the important influence of the political system on the formation of farmers' skills, and also helps me to deeply observe the changes in the formation system of farmers' skills, so as to form a complete understanding of "new farmers".

Changes in the farmer training system will directly reflect questions of who the modern state serves and who benefits from agricultural production. The social impact of technological innovation brought about by changes in the training system and technology application paths, that is, what kind of power interaction has occurred in rural society, and changes in the relationship between farmers, village communities, and the state have yet to be clarified. Generally speaking, this article will discuss the social consequences of the "new farmers" formation from two aspects, which are technological change and ideological transformation.

1.3 Research Questions and Significance of the Study

In the Chinese context, debates about ideology often focus on the Mao era, i.e. whether the Mao-era ideological revolution acted on social structures and production relations. Scholars opposed to the Mao-era dismissed the ideological revolution as voluntarism, arguing that the peasants' embrace of collective interests was due to the state's highly centralised management in rural areas (Hu, 2011). The subordination of individual interests to collective interests became the moral mainstream at that time because the production system severely constrained the freedom of labour. Farmers deprived of land ownership and control had no choice but to become labour tools on collective land. Through personal, material, and spiritual control of farmers, the state restructured the state's grassroots political system and achieved full penetration into rural society. And under the relevant strategies of the planned economy, such as unified purchase and marketing strategy, agriculture became a victim of industrial development (Jiang,2020) . Under such a view, the ideological transformation of farmers in the Mao era was only one of the ways the state's power was exercised for ideological dominance over farmers. It did not serve the primary goal of satisfying farmers' demands for cultural quality and production technology improvement. Naturally, it could not support productivity progressions and production relations. However, some scholars believe that the role of the ideological revolution in the Mao era cannot be described so simply. The great sustaining effect of collectivist ideology on collective economy should not be ignored. While carrying out socialist transformation, Mao era also instilled Marxist ideology in peasants, stimulated their class concept and collective consciousness, and thus realized the fundamental reform of ideology. The penetration of socialist ideology has promoted the process of

socialist transformation of production means. In spirit, the Chinese people are also moving from passive acceptance of management to active participation in management (Zhu, 2013; Wu, 2022). Since the two types of views are diametrically opposed, it is necessary for us to re-examine the ideological transformation process in Mao era, from policy formulation to policy implementation, from the purpose of ideological transformation to the content of transformation, from the subject of ideological transformation to the object of transformation, and make a clear statement. The re-understanding of the ideological revolution in the Mao era will also help us to examine the relationship between economic foundation and ideology.

It is important to note that this thesis not only focuses on the ideological revolution in the Mao era but also conducts an overall study of the ideological transformation in China's modernisation process, in order to achieve the purpose of examining the interaction process between the political and economic system and the ideology. At present, discussions on ideology after reform and opening revolve around the establishment of “core values” and the construction of a “discourse system” (Qiu, 2006; Sun, 2014; Zhang, 2008), with little attention paid to political and economic systems, the interactive process of ideology and production relations. Wang Hui (2007) once proposed "modernisation" , "marketisation" , "development" , "comprehensively well-off" , and other "anti-political" ideologies as mainstream ideologies of the post-Mao era, and summarised the ideology of the post-Mao era as a "depoliticised political ideology". This prevalence of concepts has led to the inability of people to carry out in-depth political thinking. Therefore, the research on ideology after reform and opening will primarily focus on the social basis of ideology formation and the ideology concepts embedding process in farmers' production and life concepts.

In general, in order to sort out the relationship between political and economic changes and ideological transformation, this thesis will use ‘farmer education/training’ which the main form of farmer ideological transformation as an entry point to examine the process of the Mao-era rural collective economy, the early Reform-era of household responsibility system, and the contemporary “new-era” of rural revitalization. By showing how different types of farmer training shape the “new farmers”, the thesis will explore the relationship between state, community, technology and farmers in transformation. Main argument on the relations between ideology and economic base is an issue too broad to tackle in this thesis. However, the achievement of the above-mentioned research aims relies on two main research questions:

1) how have production regimes in different historical periods shaped the definition of “new farmers” and the modes of training? What are the characteristics of these farmers?

To discuss this issue, this thesis takes the development of farmer training across three main eras in China as an entry point and analyses it from two aspects: The first is to explore the relationship between the political and economic systems and the construction of the farmer training system through the connotation and characteristics of the farmer training system investigation under different political and economic backgrounds. The second is to analyse the process by which "production politics" was introduced into agricultural production through farmer training through the discussion on farmers' ideology transformation methods under different farmers' training systems to fully explain the shaping of “new farmers” under diverse production systems.

2) *What was the role of the state and/or market in the shaping of “new farmers” in the Mao-era, the Early Reform era, and the contemporary “new-era”?*

The essence of this issue is a discursive analysis of the interaction between state, community, market and farmers. In the first meeting of the 5th National People's Congress held in February 1978, “four modernisations,” namely industrial modernisation, agricultural modernisation, national defence modernisation, and scientific and technological modernisation, were reiterated. Almost with immediate effect, in January 1979, the Central Committee of the Communist Party of China issued the “Decisions on Accelerating Agricultural Development (Draft)”, which highlighted the formation of agricultural science and technology workforce as the main task of agricultural modernisation. Specifically, it emphasized cultivation of rural cadres and agricultural technicians who possess modern scientific and technological knowledge. In this way, the direction of farmer training seems to have remained closely linked to the direction of national political and economic development. Then, what is the role of the state in the shaping of the “new farmers” ? And how does national politics influence rural society? In addition, after reform and opening, farmers participating in the agricultural science and technology extension programme tended to diversify. In addition to the official candidates, rural specialized cooperative, agribusiness and civil society organisations have become the main participants in both free and paid farmer training. Then, what role does the market play in the shaping of “new farmers” ? Based on this, this article will respectively examine the training motivation, content and methods of the main supply subjects in the training of farmers, to reveal the vision of different training supply subjects for shaping "farmers", and to show the political and economic implications behind the shaping of

“new farmers”. Simultaneously, this study will also examine the relationship between farmers, village communities, the state, and the market in different periods, paying particular attention to the rural governance methods dominated by the spirit of collectivism, combining the roles and functions of "new farmers" in it to illustrate the impact of ideological transformation on rural socio-political and economic relations.

Among the above two issues, the focus of research is on the transformation process of farmers by training, the individual experience of “new farmers”, the labour process and the changes in their social relations. At the same time, based on the problems mentioned above, this study will also examine the relationship between “new farmers” and science and technology in different periods from the perspective of technological politics. Some researchers believe that short training time is one of the main reasons behind the difficulty in improving the quality of farmers (Hao, 2012). Whereas others argue that farmers’ low enthusiasm for training is due to the impracticality of mid-to long-term training, because farmers will not give up production just for training (Wu, 2007). In my opinion, the issue here is not the choice of training mode, but whether training must be separated from production, and whether the innovation of science and technology is naturally independent of agricultural production. This article focuses on the interaction between new technologies and different groups of farmers in the Chinese context, that is, the position of farmers in technological innovation and science communication. In fact, in the confrontation between the Green Revolution and the Red Revolution (an agricultural revolution in Mao era, which modernization and scientific progress could not be divorced from politics), the "technological neutrality" advocated by the Green Revolution gained widespread acceptance under the support of

liberalism. On the contrary, the Red Revolution often receives criticism because of its contentious background and political attributes. People frequently believe that agricultural education in Red China (1949-1979, referring to as the Mao-era in this thesis) consists only of "ideological indoctrination," whereas technical education and technological promotion have received little attention throughout the Red Revolution. In response to this issue, this article will focus on the relationship between farmers and science and technology in the "mass science" movement during the collectivisation period, and at the same time, pay attention to the technology promotion under the household contract responsibility system, to facilitate **the third research question of this thesis: *What is the relationship between farmers and science and technology under different training systems?***

1.4 Research Methodology and Field Site Profiles

1.4.1 Research Methodology

This study adopted a qualitative research approach, specifically using archival research, observations and interviews for data collection.

1. Archival research: Archival research is one of the main research methods used in this thesis. In addition to the general sense of combing through academic and theoretical literature, this thesis focuses on the examination of historical archives as well as policy documents. In particular, archival research in the Mao era mainly refers to archival materials such as policy documents, teaching materials, compilations of learning experiences, compilations of educational documents,

newspapers, statistical yearbooks and local chronicles of the time; archival research in the early reform and opening period focuses on policy documents, newspapers, periodicals, statistical yearbooks and local chronicles; archival research in the new era focuses on policy documents, as well as the training plans (curriculum arrangements), training content, teacher profiles, teaching documents, trainees' backgrounds, examination documents, attendance, past visual materials and other archival materials were examined. The policy documents were reviewed in order to understand the general context in which the training was delivered and to explore the relationship between changes in the political and economic system and changes in the training system. The examination of documents related to farmers' education and training helps to grasp the actual situation of training implementation at the micro level, and facilitates the overall grasp of the different aspects of the farmers' training system at different times.

2. Observation: In my examination of the development of farmer training in the new era, I used the method of field observation by observing different training scenarios and the training process at the field sites. The observations focused mainly on the interactions between training organisers and farmers, teachers and farmers, and farmers and farmers. This specifically included observations of the training process, the training classroom and the training environment. In addition, participants' attitudes towards learning and the interactions between teachers, trainees and training organisers were also important observations. In this study, five farmer training venues of different natures were observed, of which two had the government as the main training provider, one had enterprises as the main training provider, one had professional cooperatives as the training provider, and one was based on a social organisation of public interest. The examination of several

farmer training venues of different nature lays the foundation for subsequent in-depth analysis of the roles and functions of the state and the market in the construction of the training system.

3. Interviews: As the main research method of this thesis, in-depth interviews were conducted mainly with government training support units, enterprises, teachers and farmers. The interviewees included training organisers, teachers, trainee farmers and non-trainees at the field sites, agricultural technicians and farmers during the Mao era, and agricultural technicians, training organisers, trainee farmers, non-trainees and teachers during the early reform and opening period (All names and places in this thesis have been anonymised). Specifically, I conducted interviews with relevant public officials in Wuchuan and Sanjiang counties in Hebei province during my pre-research from December 2018-January 2019. Among them, one interview was conducted with the head of the Wuchuan County Bureau of Agriculture and Animal Husbandry, one with the person directly responsible for the Agricultural Extension Centre, and one with the headmaster of the Agricultural Extension School. Interviews were conducted with one person in charge of the Sanjiang County Agricultural and Rural Bureau, one person in charge of the Agricultural Extension Office of the Vocational Education Centre, and one principal of the Agricultural Extension School. After gaining some understanding of the training situation in the field sites, I started the formal research in November 2019. By February 2021, the majority of the fieldwork was completed. In the following months, I also conducted several supplementary studies to compensate for the impact of the Covid-19 pandemic on the field surveys. During this period, I researched one agricultural extension school A and one agricultural cooperative D in Wuchuan County; one agricultural extension school B in Sanjiang County; and conducted

in-depth research and in-depth interviews with a new vocational farmer training conducted by a large agricultural enterprise F in Taizhou City and a training teacher, Mr. Wu, who serves a public welfare social organisation, as part of the supplementary research. I conducted in-depth interviews with 10 training organisers, 6 teachers and 22 trainees in the form of closed and open interviews when researching the main training suppliers.

To grasp the training process as a whole, I interviewed the organisers of the training. Organisers are divided according to various training providers: government, enterprise, cooperative and NGO. The focus of the interview surrounded the reasons for launching the training, the selection of the course content and the selection of participants. The reasons for the training often indicate the organiser's training vision, and the true purpose of the training is often hidden in the curriculum design – what do you want farmers to learn, why do you want farmers to learn this – and what kind of people you want to transform farmers into? Grasping the selection process of the participants will help to analyse the relationship between the organisers and different farmer classes. Of course, the orientation of training also implies that which farmer class is given priority and what is the priority, as well as whether the training vision of farmers and training organisers at this level is politically and economically relevant.

As a neighbouring municipality, sharing of teachers between Wuchuan and Sanjiang counties has occurred from time to time. The overlap of teachers in many of the field sites is a reflection of the relative lack of farmer training teachers. If interviews with training organisers can be a breakthrough in understanding the 'natural' purpose of training, interviews with teachers can help

us to understand the 'real' process of training. As an important part of the three elements of the teaching process (teachers, students, teaching content), teachers play a leading role in the selection of teaching content and the choice of teaching methods. Different teaching methods will produce different teaching outcomes, and the grasp of teaching content will also affect the implementation direction of training. Therefore, interviews with teachers are crucial. In this thesis, the interviews with teachers focus on educational philosophy, teaching methods and teachers' personal perceptions of their trainees and training. The grasp of the "ideas" of teachers' teaching will help to judge the actual cultivation direction of farmers. The teachers' perceptions of the trainees, on the other hand, helped me to understand the basic profile of the farmer trainees, especially the level of agricultural production skills.

Interviews with farmers are complex, and include both 'new era' farmer trainees and non-farmer trainees. In order to understand the trainees' personal backgrounds, production methods and their class affiliations, I selected a total of 22 farmer trainees from three regions for interviews, which focused on their motivations for attending the training, the process of application to acceptance, their needs for training, their family income and their farming situation. While deeply grasping the experience and characteristics of each student, it also further analyzes their attitudes towards training and science and technology. For the non-trainees, a total of eight farmers from Wuchuan and Sanjiang counties were selected for interviews. Similar to the trainee interviews, the questions focused on their personal background, household income, production methods, farming situation, and views on training and science and technology. In addition, the position of the two types of farmers mentioned above in the agricultural chain was also focused on.

In addition, I focused on the archival documentation of farmer training during the Mao and Reform and Opening Era, and also conducted interviews with four people who lived through both eras, two of whom were technicians and two of whom were farmers. The interviews in this section focused on the choice of training content, the way in which the training was delivered, and the interaction between farmers, cadres and technicians.

1.4.2 Field site

The analysis of the development of farmer training in the ‘new era’ in this study relies mainly on field surveys, taking two agricultural schools, one agricultural enterprise and one agricultural cooperative in Wuchuan County, Sanjiang County and Taizhou City as examples, to examine farmer training under different training supply entities.

As a product of reform and opening, Agricultural Broadcasting Schools (ABS) in many provinces and cities across China were established in 1981 as special units of the government to carry out education and training in science and technology for farmers. In order to implement vocational education for farmers, Agricultural Broadcasting Schools have successively established a four-tier system from the central government to the provincial level, and then to the local (municipal) and county levels, in order to plan and organise farmers' training at each level. In my research, I chose School A in Wuchuan County and School B in Sanjiang County as field sites. At present, both schools are in charge of “new vocational farmer training”, the difference is that ABS-A is responsible for new business entity training, and ABS-B is accountable for training in professional

skills and professional service of farmers. In 2018, the Hebei Provincial Department of Agriculture and the Provincial Department of Finance and other departments jointly issued the "New Vocational Farmers Cultivation (Rural Practical Talents Training) Project Implementation Plan", stipulating that the main leaders of the new agricultural management enterprises should be cultivated by large specialised households, family farm operators, backbones of farmer cooperatives, and returning farmer-related entrepreneurs. Professional skilled and professional service-oriented farmers in poor villages who have the ability to work and who are willing to be trained (including farmers who are still enjoying poverty alleviation policies) will be the target training participants. Therefore, Sanjiang County, as a poor county (which has been lifted out of poverty by 2020), needs to provide professional skills-based and service-oriented training for poor farmers. In contrast, Wuchuan County, as an economically developed area in the province, only conducts training for new business operators. In 2019, both schools A and B chose to conduct agricultural technology training during the agricultural leisure period (October to February), undertaking training for 270 and 220 people respectively. More details on the regions where the two schools are located and the specific training implementation will be discussed later.

In addition to the two agricultural schools, I also conducted a study of farmer training in which enterprises are the main providers of training. A total of one agricultural enterprise and one professional co-operative were investigated. Of these, professional co-operative D is located in Wuchuan County and agricultural enterprise F is located in Taizhou City. A brief description of each of the 2 research sites is given below.

Cooperative D is located in the town of Feng Shou in the south-western part of Wuchuan County. This town has a cultivated area of 88,500 mu, a population of 36,800 and 37 administrative villages under its jurisdiction, and is therefore a large agricultural town in the area. Due to the abundance of sandy soil suitable for growing melons and fruits, the cultivation of melons and vegetables in facilities has become the leading industry in this town. Cooperative D, which was established in the town of Feng Shou, started out with watermelon and melon growing as its main business, and then gradually changed to facility vegetable growing, with tomatoes and cucumbers as its main crops. This co-operative, which is characterised by its "competent people", is currently in the process of expanding and transforming itself from simply selling produce and seedlings to farmers to building seedling bases in association with large farmers. This not only means an upgrade in technology and variety, but also suggests that there is a greater demand for skilled agricultural workers. In recent years, the cooperative has continued to work with the government to provide technical training, as well as hiring experts to provide technical advisory services to its members, both in paid and unpaid forms. A study of their current farmer training would be useful in analysing the requirements and visions of profit-oriented companies for the "new farmers", as well as uncovering the corporate aspirations behind these visions. It is important to note that the results of the study show that science and technology have played a significant role in the development and growth of Co-op D, both in the various stages of transformation and upgrading of the co-operative, and in the influence and even control it has over its members and neighbouring farmers. More details will be given later.

The city of Taizhou, where Company F is located, is located in the hinterland of the North China

Plain, with a grain sowing area of 730,000 mu in 2021, of which more than 180,000 mu is sown with strong wheat. It can be said that wheat cultivation has become one of the pillar industries in the area and is closely related to Company F. As a local enterprise in Taizhou, Company F has been producing noodles that have been the number one seller in the country for many years. In addition to flour processing, Company F has completed the construction and extension of one, two and three industrial chains, expanding its business to the whole country. In 2012, Company F set up a branch in the local township of Lianhua, specialising in land transfer and farmer training, with a total of 30,000 mu of land in the surrounding townships, centred on Lianhua Township, for the construction of a demonstration base for wheat cultivation. Like other companies and co-operatives, the company's wheat planting base has been established by the government as a "field school" and has been tasked with training 100 farmers in 2021. It is important to note that in addition to this, Company F has a separate farmer training system, with an average of 40 trainings per year, for "new farm management personnel" who meet the company's requirements and who manage the demonstration bases. The specific training methods, as well as the training of trainees and the construction of demonstration sites, are described later.

In summary, this study focuses on farmers' training during the collectivisation period, farmers' training provided by the government as the main provider in the market economy, and farmers' training provided by enterprises and social organisations as the main provider. Qualitative research methods were used to collect and analyse data. This is because qualitative research usually involves multiple sites and multiple types of actors, and has a rich source of information, and is therefore more advantageous in terms of theory construction (Strauss & Corbin, 1990). In

contrast to quantitative research, qualitative research can focus on the process of shaping and forming farmer subjects and reveal the political implications behind farmer training and technology diffusion by analysing the interconnections between farmer training and changes in political and economic institutions.

1.5 Chapter Arrangement

This thesis is divided into seven chapters, except for the first chapter, the other chapters mainly focus on the research questions of the thesis, the specific chapters are arranged as follows.

Chapter 1, "Introduction", This chapter mainly elaborates the research background and research questions of the thesis. . At the beginning of the chapter, I briefly explained explained the origin of the research.. Then, I sort out and analyse the divergences and paradoxes of the existing farmer training ways in China and briefly summarise the relevant studies from a disciplinary perspective, based on which a Marxist political economy perspective is introduced to the field of farmer training. On this basis, the research perspective on ideological transformation and the politics of technology, which are highly relevant to the topic, are retraced to further clarify the objectives of the study and to distil the research questions. In the section on 'Research Methodology and Chapter Arrangement', the research methodology is explained in addition to the arrangement of the chapters throughout the text. Based on qualitative research, archival research, field observation and in-depth interviews were used to collect and analyse data. It also addresses the research questions and classifies the research subjects in terms of the political and economic systems under different historical periods to ensure that the subsequent research is conducted in a clear historical

vein. At the same time, this chapter introduces the basic information of several field sites separately on the basis of the classification of field sites.

Chapter 2, 'From Self-Identity and Confidence to Awakening of Class Consciousness: Ideological Revolution and Technopolitics in the Mao Era'. This chapter focuses on the progress of peasant education in the Maoist era. This chapter focuses on the progress of peasant education in the Maoist era. It covers four parts: the peasant cultural turnaround movement (文化翻身运动), the shaping of proletarian culture, the scientific farming movement (科学种田运动), and the role of the state in the shaping of the new peasantry. Among them, the first part focuses on the winter school movement and peasant amateur education, which is meant to illustrate the necessity of cultural turnaround and the possibility of active participation of peasants in educational activities; the second part is based on the development of the cultural revolution, which is intended to illustrate the promotion of the spirit of collectivism among the peasants, and the importance of the awakening of class consciousness for the preservation of the proletariat's dictatorship; the third part is based on the scientific planting movement in the field of science and technology, which is intended to illustrate the political nature of science from its birth to its use and the possibilities of mass science; and Part IV analyses the role of the state in shaping the new peasantry in the Maoist era, intervening mainly from the perspective of the state's imagination of a modern peasantry in modern agriculture, as well as the relationship between the peasantry and the state. Overall, through analysing a number of examples of peasant education in the Mao era, this chapter argues for the important role of proletarian ideology in the maintenance of socialist relations of production, reveals the choice of road for the modernisation of agriculture in the Mao era, and

penetrates into the thinking behind the choice of road about the relationship between economic base and superstructure.

Chapter 3, 'The Formation of Technological Elites and Industrial Workers: Farmer Training History in the Era of early reform and opening'. This chapter examines the development of peasant training in the early reform and opening period. It covers the formation of a skilled elite, the birth of the skilled consumer, the emergence of a class of peasant workers, and the role of the state and the market in shaping the “new farmer”. The first part explores the role of peasant training in shaping the technical elite and explains the political implications behind the formalisation of peasant training, while the second part explores the reasons and consequences behind the transformation of the role of peasants from technical consumers to de-technologised technical consumers, taking the development of the commercialisation of technology as the main line. The fourth part focuses on the state's imagination of modern agriculture and modern farmers during the early reform and opening period, and analyses the role of the state and the market in shaping the technological elite, technological consumers and migrant workers. This chapter analyses the various types of peasant technical training during the early reform and opening period, demonstrating the impact of the distribution of technical resources on social relations in the countryside, as well as the ways in which the state used technical training as a form of ideological transformation to shape the “new farmer” that met the demands of national modernisation and the development of industrial capital. It also explains how the state can use technical training as a form of ideological transformation to shape the “new farmer” to meet the demands of national modernisation and industrial capital development.

Chapter 4, 'Transition from Identity to Occupation: Training of New vocational farmers and Capitalisation of Agriculture in the New Era'. This chapter examines the development of farmer training in the new era of socialism with Chinese characteristics. It covers the analysis of the connotation of new vocational farmer training, three classifications, and the shaping of agricultural production managers and agricultural employees. The first part summarises scholars' understanding of new vocational farmer training from different theoretical perspectives, in order to illustrate the difference between vocational farmers and status farmers, as well as the characteristics of current farmer training; the second part takes the form of new vocational farmer training as a clue, and explains the target groups of training, as well as the process of replacing status farmers by vocational farmers, through the sorting out of the three classifications of training; The third part reveals the influence of the path choice of scale agriculture on the direction of farmer training. At the same time, using examples, the role transformation of farmer training is analysed, and on this basis, the process of training as a manufacturing tool of the agricultural industry chain, shaping the two occupational roles of agricultural production managers and agricultural hired labourers is explained. This chapter demonstrates the intrinsic connection between the allocation of training resources and production relations by examining the training of new types of vocational farmers, and also describes the process of the birth of the two vocational farmers' roles, revealing the transformation of the function of training from a technical medium to a "chain-making tool", thus illustrating the role of training in shaping the industrial chain.

Chapter 5, 'vocational farmers and Identity Farmers Under the Diversified Training System'. This

chapter is a continuation of chapter 4 in terms of time period, and focuses mainly on the implementation of training by farmers' training providers other than the Government. It covers farmer training jointly run by enterprises and the government, independent training by enterprises, and eco-agricultural training by public welfare social organisations. Among them, the first part takes the training provided by professional co-operatives D as a clue to explain the evolution of the identity of the trained farmers, focusing on how the enterprises hosting farmer training can, through training, enable farmers to provide primary agricultural products to the co-operatives as producers while becoming consumers of agricultural materials; the second part takes the "Training for new farmland managers" by leading enterprises F. The second part takes the leading enterprise F's "training of new farmland management personnel" as a clue, focusing on the analysis of the image of vocational farmers in the enterprise's imagination, and detailing the process of shaping agricultural "white-collar workers" and agricultural employees in the agricultural factory system; the third part takes the personal experience of the trainer of the public welfare social organisation as evidence, with the aim of showing the form of farmer training with the main objectives of ecological agriculture and mutual cooperation. This chapter analyses the politics behind the shaping of the new peasantry by presenting the training visions of different training providers, while at the same time focusing on the possible impacts of the different characteristics of the 'new peasantry' on rural society and agricultural production.

Chapter 6, 'New Farmers, State and Market in the New Era of Socialism with Chinese Characteristics (中国特色社会主义新时代)'. This chapter analyses and summarizes the different paths of farmer training in chapters four and five. It covers the roles of the government and

enterprises in farmer training under the dominance of the market economy, as well as the imagination of farmer training for modern agriculture beyond the logic of the market economy. The first part of the chapter is intended to illustrate the national political connotations behind the training of new vocational farmers, i.e., how the government imagines modern agriculture, and the relationship between the moulding of “new farmers” and the creation of a modern agricultural industry chain. It also illustrates the expectations of profit-driven businesses towards “new farmers”. The second part focuses on government departments that promote collective economy and social welfare organisations, detailing their understanding of modern agriculture and “new farmers”, and pointing out the limitations of this type of farmer training by comparing it to the education of farmers in the Mao era.

Chapter 7: 'Discussion and Conclusion: Farmers, Country and Community from the Perspective of Ideological Change and Technopolitics'. This chapter reviews in turn the role of ideological transformation and technological diffusion in transforming relations of production. It also focuses on the position and role of the 'collective', the community in which peasants live and work, at different points in history. On this basis, a summary of the changing role of the peasant in history is presented.

Chapter 2: From Self-Identity and Confidence to Awakening of Class Consciousness: Ideological Revolution and Technopolitics in the Mao Era

In the Mao era, there was no such thing as "farmer training" , but "farmer education" . According to statistics, in the early days of the founding of the PRC, the illiteracy rate in rural areas was as

high as 95% (Ma, 2006). During this period, cultural and educational tasks for farmers were far more vital than training. It differs from technical "training" that emphasises enhancing the traits of "short, adaptable, and rapid" (短、平、快) of one or more farming methods. The Mao era was predominated by amateur education, and the expansion of educational activities often developed via inheritance and continuity. Therefore, in this chapter, the more practical term "farmer education" will be used to refer to various types of education in the Mao era's education and training undertakings.

Socialist education movements have often been criticised by opponents for serving as means for ideological indoctrination. People often believe that Mao era propaganda and educational efforts served only one purpose, political goals. In the perceptions of critics, China in the Mao era seems to have placed a greater priority on controlling the populace from both an ideological and material standpoint. Along with ideological indoctrination, the socialist market, where goods could not be freely purchased and traded, commodity ration coupons (粮票) (specific coupons issued for exchanging food), collective labour, and housing and employment that are dependent on the government or work unit distribution, all seem to confirm this type of personal control. The rural area, on the other hand, always appears to be the "victim" of national capital accumulation and urban industrial development. In the opponents' rhetoric, the farmers also suffered a tragic fate: The state enforces the most stringent personal control on farmers, and the "People's Commune" (人民公社) has become an "accomplice" (帮凶) in the exploitation of agriculture by industry and the countryside by cities. Interestingly, however, some studies reveal another fact——

The policies in Mao era for the growth of agriculture and rural regions played a positive role since they promoted the labour required for agriculture and diminished the level of hard labour of farmers. According to statistics, Chinese mortality decreased from 17% in 1952 to 6.34% in 1980 (National Bureau of Statistics, 2021:56). If war-related circumstances caused the 20% death rate in 1949, more persuasive evidence became available after 1952, showing that the death rate of Chinese people dropped significantly during the Mao era. Judging from the demographics at the time, more than 80% of the people lived in rural areas. That is to say, the "harshly exploited" (被严苛剥削) farmers' lives were significantly extended. As a result of farmers benefiting from the rise in agricultural production, workers' share in industrial value-added declining, and rural education and medical care levels improving, farmers' incomes grew steadily from 1957 to 1978, and the income gap between urban and rural residents gradually narrowed (Jin Baoyu, 2007). Simultaneously, several water conservation projects to improve flood storage and irrigation capabilities, including the Zhi Huai (Huaihe) (淮河) river water treatment project, Ming Tombs Reservoir (十三陵水库), Hongqi Canal (红旗渠), and Sanmenxia Dam (三门峡水利枢纽) were completed in succession within 30 years. By 1979, the nation had jointly built over 80,000 reservoirs, and the agricultural irrigation area was three times larger than it was in 1949, reaching 800 million acres of land (Ji Liu Network, 2016). The Mao era saw the biggest expansion of new irrigation regions and the most extensive development of water conservation projects in Chinese history. In this regard, there are stark discrepancies and inconsistencies between current perceptions and factual information.

Such discrepancies and inconsistencies eventually point to opinions on "politicisation" as its core.

Taking "ideology" as an example, Mao supporters believed that the promotion of socialist ideology through education and propaganda was not a false strategy to serve the exploitation of minorities, it is a necessary tool to shape a socialist society or even a communist society. However, in the rhetoric of the opponents, the discussion of "ideology" has been labelled as political, and it has turned into a weapon for the ruling class to exert control over all parts of society. The propagation of ideology and its teaching throughout the Mao period was equally controversial, and it was even interpreted as Mao's "brainwashing methods" (洗脑手段) against farmers to realise his supreme authority. Both the "Green Revolution" and "Red Revolution" are manifestations of the same antagonism. Red China had long advocated that science and technology should be integrated with politics, and even be guided and constrained by political goals, while the creators and the patrons of technology should be the "people" who make up the bulk of the population. The proponents of the Green Revolution adhere to the "Technology Neutrality" (技术中立论), which views science and technology as non-political forces, while also giving technology a "professional" and "elite" veneer. They use this justification to launch a ferocious attack on the Red Revolution, even labelling it "political theory" (唯政治论) and "anti-modernisation," (反现代化) but rarely conducted in-depth research on the ideological education movement that took place in Red China and "mass science" (群众科学) itself.

Then, how to approach "politicisation" and the interaction between politics, production, and life becomes the key to interpreting the paradigm of agricultural development in the Mao era. By using the growth of the Farmer Education Movement (农民教育运动) as an entry point, this chapter attempts to follow the emergence of Red China. This is because, during the Mao period,

farmer education played a significant role in both the ideological transformation of farmers and the integration of politics into the realm of agricultural science and technology. Through the investigation, we may better understand the Mao era's decision to modernise agriculture while also contributing to reflection on the internal relationship between the state and farmers, ideological shift and production relations.

Through scrutinising archives, this study discovered that Red China attempted to support the transition of poor farm labourers "from a class-in-itself to a class-for-itself" through a 30-year farmer education movement. The entire movement centred on the transformation of ideology in the fields of culture and science and technology, and always revolved around the core task of "shaping the ideology of the proletariat" . While analysing the survey data, the author divides the farmer education movement carried out in the Mao era into two categories according to the variations in educational focus and form, one is "cultural construction" (文化建设) and the other is "agricultural technology promotion system construction" (农技推广体系建设).

Among them, cultural construction uses "farmers' amateur education" (农民业余教育) as a connecting factor and seeks to forge a proletariat culture that adheres to the logic of farmers' way of life and production. To achieve this goal, farmers' amateur education adopts non-formal, enduring part-time learning formats that encompass the three main themes of cultural education (文化教育), production education (生产教育), and political education (政治教育). At the same time, the three educational themes are interlaced and integrated rather than having distinct boundaries, providing a "three-pronged" (三结合) strategy. It should be highlighted that this

three-pronged approach is not static but is continually altered in response to changes in the political and economic environment and social contradictions, and its focus gradually shifted from cultural education to political education and class education. Correspondingly, farmers' amateur education has also transformed from focusing on the enhancement of farmers' cultural literacy to promoting the awakening of farmers' class consciousness and the emergence of a new proletarian culture (无产阶级新文化). In this chapter, the author summarises this process into two phases: "reconstruction of self-identity and confidence" and "forging of collectivist spirit, class consciousness and new culture" (集体主义精神、阶级意识与新文化的锻造), all of which will be covered in more detail below.

At the same time, another ideological reform and education movement in agricultural technology extension was underway. For a long time, science and technology have always been associated with the image of specialisation in the public's consciousness, which is perceived to be mastered by the privileged class and elite in a hierarchical society. Hence, the adage "production depends on farmers, and scientific research depends on experts" (生产靠农民, 科研靠专家) was common even in Red China. To challenge this preconceived notion and help the general public mastering science and technology, Red China introduced class struggle and production struggle into the field of science and technology, realising the value of combining politics, science and technology. Among them, the establishment of the "four-level agricultural science network" (四级农科网) serves as the organisational backbone for the drive for scientific experimentation. The "three-pronged" strategy of including seasoned farmers (老农), educated youth (知识青年), and brigade cadres (大队干部) in the scientific experiment group (科学实验小组) is the primary

method for shattering the elite's technical monopoly and motivating farmers to participate in scientific and technological innovation.

It may be claimed that farmer education throughout the Mao era constantly focused on changing farmer ideology as a key means of bringing politics into the rural culture and agricultural productivity. It should be noted that these educational endeavours diverge from the single top-down ideological indoctrination, but instead reflect the characteristics of bottom-up under the blessing of the mass movement. As a result, farmers have become the main body of educational activities and have experienced an immersion from "private" to "public" at the ideological level. Farmers' small-scale farmer thinking and individualism, which have persisted for thousands of years, have undergone fundamental changes in the socialist education movement, and the collective spirit of communism was carried forward and became the mainstream thought in rural society, which had a hugely positive effect on the development and stability of the collective economy. This process will be further explained in this chapter to demonstrate how the ideology of farmer socialism is taking shape. It analyses the relationship between farmers, village communities, and the state as well as the internal relationship between ideological transformation and the transformation of rural production relations by looking at the process of politics being introduced into the field of rural culture, science, and technology.

2.1 Reconstruction of Self-identity and Confidence: Farmer Cultural Transformation Movement in the Mao Era

In his book "Fanshen" (翻身) on land reform, Hinton (1980) explains the meaning of the term "fan

shen" (turnaround) in detail: "Turnaround" has two meanings: the first is the original meaning of the word, which is lying down and turning over, and the other means stand-up, which signifies the farmer emancipating the landowners' control, acquiring land, livestock, and farming equipment, and entering a completely new world.

Following the establishment of PRC, a major Land Reform Movement (土地革命运动) took place in rural regions (1950-1952). Prior to the land reform, poor farm labourers (贫雇农), who accounted for 52.37% of the total population, had only 14.28% of the cultivated land, and the average cultivated land per household was 3.55 acres; while landowners and wealthy farmers (富农), who accounted for 9.41% of the total population, occupied 51.92% of the country's cultivated land, with wealthy farmers having 63.24 acres of cultivated land per household and landowners having 144.11 acres, which is 40 times that of poor farm labourers. After the land reform, poor farm labourers were given land, and their ownership of cultivated land expanded significantly, accounting for 47.1% of the total cultivated land. Rich farmers' ownership of cultivated land shrank from 13.66% before the land reform to 6.4%. The proportion of cultivated land owned by landowners has also dropped from 38.26% before the land reform to 2.2%, and there is no difference in the average cultivated land per household with poor farm labourers (Zhu, 1996). Although the former "landowners" are still around, in terms of production relations, the "landowner class" has been eliminated.

However, in the view of some Red China leaders represented by Mao Zedong, this does not imply that the working people has completely "turned over." This is because the vast number of poor

farm labourers at the bottom of rural society have long been exploited politically and economically by imperialism and feudal landowners (Chen, 2002) and never had any opportunity to receive an education. According to statistics, before liberation, even in the Eastern and Central Hebei plains, which have rich resources and well-established industries and trades, illiterate and semi-literate rates still accounted for more than 80% of the total population. In mountainous areas such as Western Hebei, Northwest Shanxi, and Southern Hebei, the proportion of illiterates and semi-literates is significantly greater, and many villages did not even have a single literate farmer (Dong, et al., 1991). Along with the self-sufficient feudal economy, the isolated natural environment, and the severe tyranny of feudal ideology, Chinese farmers became numb and developed narrow-minded thinking, leading them to subject themselves to the exploitation of "land masters" (地主老爷). Both the sense of identity and national consciousness are extremely weak (A Meng, 2018). On the other hand, wealthy farmers with culture and former landowners, even though their class attributes were eliminated in the land reform, may easily achieve class difference and even class reproduction through the status of the "intellectual elite" (知识精英). This is the power of "cultural capital". Hence, a transformation based entirely on economics and politics is always superficial and unconsolidated. It was precisely because of his understanding of the dialectical relationship between cultural capital and economic capital that Mao Zedong (1958) was able to put forward the argument that "the working people should master knowledge and the intellectuals should become habituated to manual labour." (劳动人民要知识化, 知识分子要劳动化) Therefore, to safeguard the fruits of the revolution and raise the class consciousness of farmer proletarians, it is important to culturally transform the farmers. A common adage among farmers at the time was that "being the leader of the family will turn the economy around. Everyone must

be literate and open the door to culture" (当家作主人, 经济翻了身, 人人要识字, 打开文化门).

It reflects the farmers' thirst for cultural learning and highlights the link between cultural transformation and farmers' status as masters of the country.

To reshape cultural self-concept and sense of identity, and to realise the goal of the working people as the leaders of the country, China started a program in the 1950s to eradicate illiteracy and establish numerous amateur schools. Over 100 million individuals participated in literacy learning at the time. There were 50 million people have been lifted out of illiteracy. It must be acknowledged that "Red China" has accomplished something very remarkable.

In December 1950, the Ministry of Education issued the "Instructions on Developing Farmers' Amateur Education" (关于开展农民业余教育的指示) and stated: "One of the major tasks in the current cultural construction of our country is to carry out amateur education for farmers in a planned and step-by-step manner to improve the cultural level of farmers." It also pointed out that "farmers' amateur education in the past mostly took the form of winter study, which has been effective for many years and should be extended further in the future as a method of extensively mobilising farmers to learn." The emergence of "Winter Study" (冬学) can be traced back to the Second Sino-Japanese War (抗日战争) base period in the 1930s. It was called "Winter Study" because this movement was always carried out during the slack time of farming, especially in winter.

2.1.1 The rudiment of farmers' amateur education - the birth of the winter school movement

In 1939, the Central Committee of the Chinese Communist Party implemented an economic policy of reducing rent and interest which called "Separate Regulations on Rent and Interest Reduction" (减租减息单行条例) in the Shanxi-Chahar-Hebei (also known as Jin-Cha-Ji 晋察冀) Border Region. The "Separate Regulations on Rent and Interest Reduction" stipulated that "the land income of the landowner, regardless of the leasing and farming, shall be reduced by 25% of the original rent." In the following year, the Jin-Cha-Ji Border Region Committee revised this regulation, stating that the land rental must not exceed 37.5% of the entire yield of the positive output from the cultivated land. However, these policies were challenging to implement under the ideological oppression of the landowners on the tenants. For instance, such an example was recorded in A Meng's (2018) "Breaking the Thief in the Heart - A Brief Note on Adult Education in the Jinchaji Counter-Japanese Base Area" (破心中贼——晋察冀抗日根据地成人教育小记):

Shi Zhendong, a landowner in Qian'an County, Eastern Hebei Province, previously told his tenants: "According to the government's 375 rent reduction regulations, the rent per acre of land last year was 100 yuan, and the current grain price is 5 yuan per catty of millet, which is only 20 catties. One acre of my land yields 20 catties of rice, and the rent is less than 375, and you still have to pay me for it!" The illiterate farmers couldn't get around since they believed what the "land master" said was acceptable, so they sneaked out at night and returned the reduced rent to the landowners. They had no idea that the "Philanthropist Shi" was very good at his calculations - he rented it for fun, using this year's grain price as last year's rent, and the grain price last year was two yuan!

In addition to deceiving farmers by playing with words and figures, the aristocracy and landowners who hold power at the grassroots level in the countryside also relied on long-term mental oppression to manipulate farmers. "How would you be today if my land hadn't provided for your needs? Do you still desire to lower the rent? What happened to your conscience?" Farmers often offer landlords rent in secret because they believe this to be the reason (A Meng, 2018). Farmers even received fines for disparaging the landowners.

It is clear that under the oppression of feudal ideology, economic reform alone would not be able to change the fate of poor farm labourers being exploited. In this regard, both the central government following the establishment of the People's Republic of China and the border area government during the counter-Japanese era encountered the same rural social milieu. To completely change the class status of the poor farm labourers, economic transformation must be grounded and the scope of reform must be expanded deeper into the realm of ideology. The "Winter Study Movement" during the Second Sino-Japanese War was the catalyst for the changes in the field of ideology. After the establishment of the People's Republic of China, the government mainly relied on the Farmers' Amateur Education Movement.

In reality, the "Rural Reconstruction Movement" (乡村建设运动) that was attempted in the "Kuomintang Controlled Area" (国统区) at the same time as the Winter Study Movement was initiated, by experts and scholars such as Yan Yangchu (晏阳初) and Liang Shuming (梁漱溟) ended up in failure. The explanation is summed up as "the village movement but the village not moving" (乡村运动而乡村不动) (Liang, 2005). When Mao Zedong discussed the matter with

Liang Shuming, he explicitly stated opposing views. In his opinion, "farmers" were not "inactive" but rather "too active." In 1939 alone, the literacy level of winter school learners rose to over 300 characters, and by 1940, they achieved "more than 100 characters and less than 600 characters, with the most literate people reaching 800 to 900 characters" (Yuan, 1940). In other words, the success of the Winter Study Movement is precisely the result of the countryside "getting moving". In 1940, the Fourth Region of Central Hebei District alone had 2,275 winter schools, with an average of 16 winter schools in each village, and a total of 155,993 learners, accounting for more than 20% of the total population of the district (A Meng, 2018). Even rural women, who were severely constrained and oppressed by feudal ideals, managed to break through the shackles and had the right to education. In 1940, in the Beiyue Region (北岳区) under the jurisdiction of the Jin-Cha-Ji Border Region alone, there were more than 3,000 winter schools for women, with 140,000 women enrolled, while in the Ba'an Region (八安区) of Central Hebei District, the number of female learners reached 160,153, accounting for 47.38% of the total number of learners (Zhang, 2013). So, what distinguishes the Winter Study Movement from the earlier rural education initiatives undertaken by Yan Yangchu, Liang Shuming, and others? In what way does it encourage farmers to "get moving" ? Consider the teaching material at that time as an example.

Numerous chapters included in each winter study textbook, such as: "The World is Created by the Working People" (世界是劳动人民创造的), "Expanding the Militia and Strengthening the Amalgamation of Labour and Military Forces" (扩大民兵加强劳武结合), "Winter Production and Year-round Savings" (冬季生产与常年节约), "The Great Conspiracy of the Japanese Invaders to Destroy the Border Region" (日寇毁灭边区的大阴谋), "The Current Form of the

Frontier and Our Mission" (当前边区的形式和我们的任务), "Don't Be Traitors and Obedient Citizens" (不做汉奸顺民), etc. Every chapter has a discussion topic that the teacher proposed based on the teacher's handbook, for example, the discussion for the chapter "Run Winter School and Study in Winter School" (办冬学上冬学) in the "Winter Civics Lesson" (冬学公民课) created by the Shanxi-Suiyuan region (晋绥边区) comprised the following discussion:

Why didn't many of us go to school in the past? Did the government at the time genuinely care about and coordinate the general populace's education? Why? ; What advantages did students who attended winter school the previous year have? What is the cause of absence from classes? What prevents students from learning well; how can we encourage more people to enrol in winter school and succeed?

Through discussion, the learners reached the following findings:

It is not our fault that we did not attend school. We are poor, and the reason we are poor is because the landowners deprived us of our blood and sweat. We can only defend our rights by resisting those who oppress us and keep acquiring knowledge. The only way to provide access to education for more people is by uniting and fighting.

This demonstrates that teaching in winter school has two clear features. One is that it emphasises conversations among farmers, and the other is that the learning material has a strong political undertone.

Motivated by the goal of resistance against Japanese aggression and to save the nation, all available forces had to be brought together to fight against the Japanese invaders and establish a

counter-Japanese national united front. As the great majority of Chinese people are farmers, they were considered to be a key component of the counter-Japanese national united front. Hence, "the Second Sino-Japanese War was essentially a farmer war" (Mao, 1940). However, it is far from sufficient to rely on economic reforms to improve the living conditions of farmers without shifting their insensitive and narrow-minded thinking. "If you do not educate the farmers, do not let farmers understand what the country or the nation is about and why they should fight, you cannot prevail in the battle of resistance" (A Meng, 2018). This extreme recognition of the importance of ideology drove the Chinese Communist Party to found the Winter School Movement.

Therefore, when winter school was first introduced, it wasn't only a simple literacy initiative but also carried a strong political undertone about the War of Resistance and the need for national salvation. While cooperating with the "reduction of rent and interest" (减租减息) at the economic level, the Winter Study Movement has gradually evolved into a mass movement that closely combines political education, military knowledge, and agricultural production. In other words, the popularisation of cultural education in the Winter Study Movement has a very strong political orientation, and it may even be stated that its political character is significantly greater than the enhancement of farmers' cultural quality itself. Literacy learning is not the primary goal of winter school. Its true educational goal is to eradicate the superstition, numbness, ignorance, compromise and deference to the landowners that have traditionally persisted in rural culture through the study and discussion of farmers. This cannot be accomplished by depending just on the interests of the landowners or even the "Rural Reconstruction Movement", which defends their interests.

In this sense, the Winter Study Movement's efforts to popularise culture and education were only a vehicle to carry out the political revolution. Of course, with a distinct from in a so-called "discipline" in a hierarchical society, this was a mass movement with and for all farmers. Under the influence of the Winter Study Movement, farmers were able to comprehend the importance of learning, participating in the War of Resistance, and consolidating political power in border regions were all done at the same time as no longer being exploited. With the widespread adoption of winter school, this education system that integrates culture and politics and then expresses it in a way relevant to agricultural productivity and daily living of farmers profoundly affected the education of farmers after the founding of the People's Republic of China.

2.1.2 The development and enhancement of farmers' amateur education

Around 1953, as the land revolution progressed and to expedite the cultural rehabilitation of the poor and lower-middle farmers, winter school education progressively transitioned to "farmers' amateur education". However, it should be noted that, in comparison to the Winter Study Movement, there have been new changes in the organisation and content of farmers' amateur education as a result of the founding of the People's Republic of China, particularly with the development of the Agrarian Revolution and the Agricultural Cooperative Movement (1953-1956).

First of all, there was a radical restructuring of education. Unlike winter school, which is held exclusively during the winter, amateur education for farmers tended to be more standardised??, and this standardisation was core to the implementation of the collective economy. Since the

formation of the People's Republic of China, farmers' education steadily transitioned from seasonal part-time study to year-round part-time study. Winter schools were gradually converted into farmer amateur schools around the nation. Behind the ostensibly straightforward change in study hours was a closely tied issue with the Agricultural Cooperative Movement (农业合作化运动) that was taking place at the time. This is because following the Land Revolution, land redistribution resulted in the formation of a significant number of small farmers, and the dispersed small production techniques impeded the collection of production tools and precluded collaboration. As a result of lack of organisation, farmers were incredibly dispersed in both their lives and their produce. However, given the constraints of small production practises, it is nearly impossible to assemble farmers at any time to carry out standardised amateur lessons. Therefore, before the advent of the Agricultural Cooperative Movement, farmers' education could only be planned during the off-season, and winter school became the primary institution. With the introduction and popularisation of primary agricultural production cooperatives, farmers broke free from the constraints of small-scale production methods and gathered to engage in productive labour. As the time for collective activities increased, it establishes the conditions necessary for winter schools to transform into perennial farmer schools. As the level of cooperation increased, more farmers joined together, worked and studied together, and the scale and number of farmers' amateur schools were expanded. Later, during the period of advanced agricultural production cooperatives and people's communes, as the production techniques of collective management and distribution amassed more living and production supplies, community-run amateur schools became feasible. Farmers received amateur education at the three levels of communes, production brigades, and production teams. For the following two decades, the community-run amateur

schools likewise rose to the top organisational position for educating farmers. In this sense, the amateur education of farmers throughout the Mao period was structured around production, and the learning organisation was constantly modified in response to changes in the production organisation.

Secondly, in contrast to the Winter Study Movement during the Second Sino-Japanese War, the choice of teaching curriculum in farmers' amateur education shifted from being outside of politics to being politicised. The early farmers' amateur education prioritised the enhancement of farmers' literacy abilities, with its learning process emphasising literacy and cultural learning alongside practical, policy education, production, and health education (Ministry of Education, 1950). It is distinct from the Winter Study Movement, in which politics and production take precedence. The separation of political sentiment from academic content resulted from the stable political and economic environment at the time and the basic completion of land reform that followed the establishment of the People's Republic of China. Farmers accomplished political and economic transformation, and cultural transformation emerged as the most pressing issue to be addressed. However, the seemingly reasonable educational strategy experienced challenges in execution. Too much emphasis was placed on acquiring cultural awareness resulting in many regions categorising Farmers' Amateur Education as the popularisation of cultural knowledge and no longer focusing on political or productive concerns. The people and cadres anticipated difficulties and frequently believed that common farmers would not understand the culture. At the same time, they often ignored learning and concentrated only on production when cultural learning conflicted with agricultural productivity. In this regard, the initial phase of the farmers' amateur education did not

achieve positive outcomes. Although it is often believed that cultural education improves agricultural production by raising the calibre of labourers, we frequently overlook that education and production are inherently incompatible with one another. As for farmer education, these inconsistencies were particularly evident in how production and learning time was divided, and the relationship between the learning objectives and the actual production (Yi, 1960). Therefore, the effectiveness of cultural education depends on the capacity to coordinate the interaction between the two.

Following the Yan'an Rectification Movement in 1957, in the interest of eradicating illiteracy in a "greater, faster, better and more economical" (多快好省) manner, all localities learnt from the Winter Study Movement's successful experience and rectified amateur education in accordance with local actual conditions. The following paragraphs will take She County (涉县) in Hebei Province as an example to show the progress in farmers' amateur education since it has a relatively successful record in literacy work completion:

She County is located in the southernmost mountainous area of Hebei Province. According to the book "Farmers' Amateur Education Work Experience," written in 1960, before the founding of the People's Republic of China, the illiteracy rate in She County was as high as 90%. In 1950, a perennial community school was founded in She County. By 1952, there were 32,000 students officially registered at the school. At the height of the Agricultural Cooperative Movement in 1956, the school had more than 67,000 farmer students enrolled. However, due to the endeavour to eliminate illiteracy not being carried out stringently and not garnering favourable responses

from the general public, the actual number of literacy pupils was only approximately 11,000, accounting for 16.4% of the total number of students. The rapid rise in illiteracy elimination in She County began in 1958. In only that one year, more than 58,000 illiterate persons were transformed as a result of the growth of the Yan'an Rectification Movement (整风运动), and a total of 140,000 pieces of more than 30 different types of industrial and agricultural instruments underwent reform. By April of the following year, more than 500 red and expert schools (红专学校) had been created in the county. There were more than 78,000 farmers enrolled at the schools, with 62,000 students endorsed to amateur high schools and 1,700 students to amateur junior high schools. So far, She County effectively eradicated illiteracy.

Using 1958 as a node, the cultural and educational effort in She County may be divided into two epochs. Before 1958, the public did not respond well to cultural and educational endeavours, and the results were unsatisfying. After 1958, there was an upsurge in literacy throughout the county.

What caused this?

First of all, the assumption that cadres may closely engage the people under the unified administrative management mechanism is one of the reasons the county's literacy campaign could be carried out successfully. When comparing illiteracy elimination efforts in She County circa 1958, it is clear that there is a significant discrepancy in organisational style. Before 1958, different entities were responsible for the literacy campaign in She County. In 1950, the party and government leaders served as the community schools' principals, and the school committee was made up of members of the Youth League, Militia, Women's Association, and other institutes to

set up the departments for administration, propaganda, education, finance, etc. Then the Literacy Office was established in 1952, responsible for specific literacy work. Since the establishment of cooperatives in 1954, amateur education has adopted cooperative and joint-cooperative techniques to run schools. On the surface, there appear to be several departments in charge of literacy work. However, because all of these departments focus on horizontal cooperation and lack a dedicated lead unit for literacy work, it is easy to fall into the predicament of "multiple management becomes nobody management" (多人管成了无人管). In the wake of the Yan'an Rectification Movement in 1958, She County advanced a progressive literacy network to promote the Cultural Revolution. Inspired by the military structure, this network was named as the literacy headquarters, literacy regiment, literacy battalion, and literacy consortium, along with the catchphrase "the secretary is in command, the whole party is mobilised, the regiment is the vanguard, and the society is the old battalion" ("书记挂帅、全党动员、团做先锋、社做老营"). From a vertical four-level organisation, the county party committee, the (Communist Youth League) team party committee, to the people's communes, and then to the brigade, the literacy campaign is carried out through a unified arrangement of work and division of labour at different levels. Such a literacy network is like a bridge, establishing a link between policy guidelines and the people and solving the "last mile" (最后一公里) problem of policy implementation.

Secondly, the experience of farmers in production and daily life should be the starting point for solving ideological issues. In response to the people and cadres who fear difficulties, She County launched a series of exchange programmes to address their ideological concerns. At the Cultural Complaints Assembly, the people and cadres related to the opening remarks by the branch

secretary about his experience participating in an exhibition but being unable to capture the invaluable learning from other locations since he was incapable of taking notes due to illiteracy piqued everyone's enthusiasm for learning. Since then, the brigades and communes as units have routinely strengthened ideological teaching using concrete models. For instance, without accounting skills, it is impossible to execute bookkeeping and maintain track of financial transactions; at Shicaolong Village (石曹龙村, toponym), an acre of maize was chemically fertilised to death due to a lack of scientific understanding. At the same time, praising the members who have achieved success will encourage others to keep studying and develop strong study habits.

Thirdly, only national initiatives that are locally inspired could intervene and impact rural life. Whether it is political obligations, cultural learning assignments, or production chores, She County has adopted approaches in line with the current situation in the countryside. These techniques derive from farmers' daily practical activities rather than top-level proposals or inspirations from experts, scholars, or cadres. For instance, to harmonise the interaction between cultural learning and productive labour, She County has embraced the principle of unified organisation and flexible control. That is, the political study time and the party and league activity days are uniformly stipulated; the rest of the cultural study time is governed by each location and determined by the students' production time. "Study more when you are less busy, and learn less when you are busy" (小忙多学, 大忙少学), and try to reduce mass meetings. The politics teacher will convey the message before and after classes. The teacher would also, set up a portion of the classroom in the fields to promote the motto "classes in the field, learning by the fireside," and

flexibly arrange the learning time to achieve the best effect of both learning and production. Additionally, She County also separated pupils into groups based on their circumstances. Students with pressing educational needs and sufficient time, women and young men who are not overly preoccupied with errands, and women with many children and overburdened with house chores are divided into different groups to offer various instructional modalities accordingly. To safeguard women's rights to education, the Literacy Headquarters and the County Women's Federation collaborated to construct 3,748 nurseries and 172 kindergartens. With the support of public parenting, women can free themselves from the demanding responsibility of childrearing and dedicate their time to cultural learning to eradicate illiteracy. At the same time, the learning curriculum was mainly determined by the necessities of production and the needs of students. For instance, based on the demands of the cooperative's members for documenting work and accounting, a "literacy record textbook" (记工识字课本) with local place names, people's names, names of agricultural labour, and names of crops was compiled. Simultaneously, She County has also formed an agricultural technology class, and if a new technology is deployed locally, the students will be taught about it. In the process of imparting technology, an approach that farmers can easily accept is used, such as turning the three components of fertiliser into a jingle that goes, "Nitrogen grows leaves, potassium grows stalks, and phosphorus yields a series of fruits" (氮长叶, 钾长杆, 磷结果实一连串). Another example is the arrangement of students to visit the experimental field to observe the process of spraying phosphorus fertiliser on wheat soon after the class. This strategy puts theory into practice to achieve the goal of promoting technological innovation. Through practice, She County has effectively alleviated the contradiction between cultural education and agricultural production by summarising the educational experience that

“books shadowing people, contents shadowing production, teachers shadowing students, learning organisations shadowing production sites” (书本跟人走，内容跟生产走，老师跟学员走，学习组织跟生产场所走). Through technical learning, some students even produced 17 different types of chemical fertilisers totalling more than 200,000 catties, resulting in a bumper harvest of local wheat (The above information comes from the chapter 2 of the book "Farmers' Amateur Education Work Experiences" second. Data collator: Qin Yusheng).



Figure 2.1 In 1955, the literacy class in Shatuo Village, Fu County, Liaoning Province used real objects to deliver literacy in the field. Source: Xinhua News Agency

At the same time, the practice in She County also demonstrates that, in contrast to the direct state intervention in rural affairs that some scholars claim, the power to advance policies during the

Mao era did not come from the violent coercion of the state, but rather from the farmers' active choice in the balance between rationality and sentiment. Take the political class with the most overtly "political overtones" (政治色彩) as an example:

In the 1950s, political classes in community schools were the utmost important form of socialist education for the rural population. For example, the content of political textbooks published by Shandong People's Publishing House in 1953 revolved around current political events, such as "The Great Victory of Resisting U.S. Aggression and Aid Korea" (抗美援朝的伟大胜利), "The Country's General Line and General Task during the Transitional Period" (我国在过渡时期的总路线总任务), "Developing Agricultural Production is the Overriding Central Task in the Rural Areas" (发展农业生产是农村中压倒一切的中心任务), "Actively and Steadily Develop and Consolidate Mutual Aid and Cooperative Organisations" (积极地稳步地发展与巩固互助合作组织), "Actively Selling Grain to Help in Nation Building" (踊跃卖粮帮助国家建设), "How to Conduct Elections" (怎样进行选举), and other chapters are included. These chapters are usually presented in a manner that is analogous to the life of farmers. For instance, the instructional material in the lesson "Actively Selling Grain to Help in Nation Building" is dispersed throughout five tiers of content, which has helped farmers support the unified buying and marketing strategy. Firstly, to establish a close relationship between the Communist Party of China and farmers by affirming the role of farmers' sacrifices in the succession of the revolution. Then, emphasising the nation's policies to benefit farmers in terms of taxation, agricultural loans, technical assistance, and water conservation projects so that making farmers realise that the expansion of their production is inseparable from the strong support from the state. Third, define the role of farmers

in industrial and urban development from the standpoint of rations and raw materials for production, etc. Explain how industrial growth and national stability are related on this basis so that farmers are aware of the connection between the food they produce, industrial development, and the survival of the urban population. Fourth, elucidate the impact of industry on agriculture from the perspectives of innovation of production tools and the fabrication of means of production, etc., to help farmers understand how the unified purchase and marketing policy is in their best long-term interests in terms of stabilising prices, increasing reproduction, and ensuring national defence construction. Finally, revealing the practices of private merchants in raising selling prices and acquiring agricultural products at the lowest rates to thwart the national economic strategy while also explaining how the national purchase price is determined. “This policy should consider the interests of grain sellers and the interests of the grain buyers, as well as the interests of national building”.

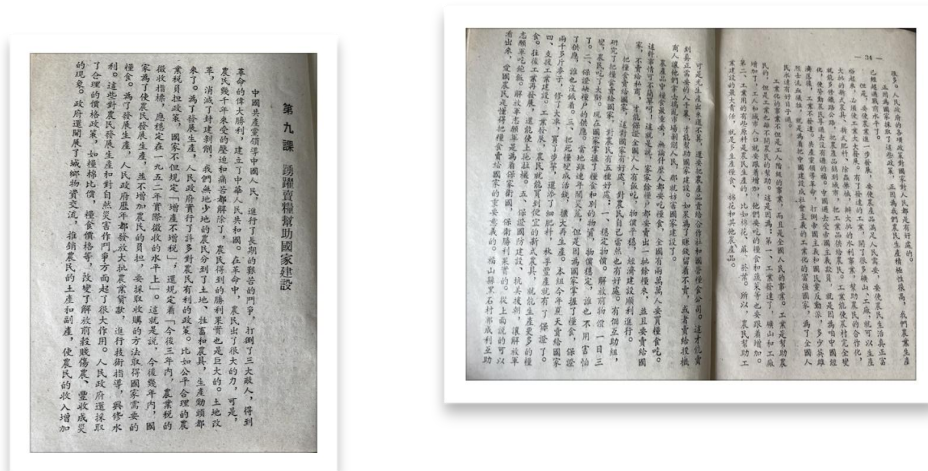


Figure 2.2 Excerpts from "Winter Study Political Textbook" published by Shandong People's Publishing House in December 1953

From the surface, the purpose of the politics lesson is to prepare students for the smooth implementation of "national affairs" (国家大事). However, the course format integrates politics into production and education, indicating that the so-called "ideological preparation" (思想准备) does not refer to the simple indoctrination of ideas but enables farmers to understand national policies based on their production and living experience. It is because, in the eyes of the Communists embodied by Mao Zedong, the alteration of farmers' ideological understanding always happens through interweaving and interacting with macro-politics and micro-individuals . Only when farmers support national policies from their hearts; the national effects will transmit to rural society through their conduct and habits. In other words, the only way to accomplish national effects in rural productivity and living is to combine national effects with farmers' behavioural standards. It necessitates that the process of integrating politics into agricultural production and daily life adhere to farmers' survival logic. Farmers can only become macro-politics themselves and directly influence production practices if they understand how individuals are affected by national politics.

Of course, in terms of political lessons, its effect goes beyond supporting national policies and manifests a higher aspiration, that is, to encourage the awakening of farmers' self-awareness. Taking the above textbooks as an example, the affirmation of farmers' sacrifice and dedication in the teaching materials and the examination of farmers' standing in the national development process are also procedures of aiding farmers in finding "themselves" and reshaping "themselves." To get rid of self-abasement and self-denial lingering in the hearts of the poor farm labourers and to help them dispose of the psychological manipulation from "land masters", it is necessary for

them to correctly understand their position in the country's political system and clarify the impact of their production activities on the country's economic development. Self-confidence and self-identity reshaping need the awakening of farmers' self-awareness, which administrative directives cannot deliver. In contrast, it is more acceptable to conduct farmer education that matches farmers' lives and productivity.

As early as 1927, when Mao Zedong launched his criticism of the Rural Reconstruction Movement, he remarked: "The empty talk about "popularisation of education", which the intelligentsia and the so-called "educationalists" (教育家) have been bandying back and forth and which after all this time remains an empty phrase." "Farmers – remain the main focus of the Chinese cultural movement at the time. If the 360 million farmers are left out, isn't the eradication of illiteracy, popularisation of education, literature and art for the public, and national health primarily just hollow rhetoric? (Mao Zedong 1991: 1077–1088). He believed that poor farm labourers should get mass education in rural areas. Making revolutionary culture a potent tool for the populace to carry out revolution is the primary goal of mass education (Mao Zedong, 1991:847). This indicates that the great majority of poor farm labourers are the target audience for farmers' amateur education. It also implies that the teaching curriculum and delivery strategies must consider the needs of these farmers. That is to say, the main objective of farmer education during the Mao era was to aid the enormous number of poor farm labourers by reshaping their identities and boosting their self-confidence, empowering them to take the lead in politics, economics, and culture, and ultimately becoming the true lords of rural society.

Therefore, the ability of the curriculum to meet the demands for the development of production that farmers are most concerned about and to express the political notion of farmers as the masters of the country in a manner that is close to the way that farmers live is essential to the success of farmers' amateur education. In practice, these methods materialise as a three-pronged of culture, politics, and production. In just a few years, She County's cultural education went from "not moving" to "moving" due to this reason. In this regard, the farmers' amateur education following the establishment of the People's Republic of China did not deliberately carry on the Winter Study Movement's educational paradigm. In reality, it was a concentrated contemplation of both the subjective needs of farmers and the objective demands of agricultural output that led to the synthesis adoption of culture, politics, and production.

Of course, She County's practice is merely the epitome of thousands of cities and counties in the country. Different cities and counties have enhanced their farmers' amateur education according to their unique local characteristics. For instance, Xinjiang County in Shanxi Province launched an extensive "Educating the People through the People" (以民教民) campaign: Separate groups of literate and illiterate farmers were formed, and the literate farmers assisted the illiterate farmers in their literacy work. More than 7,000 primary school pupils participated in this campaign, which not only helped to address the issue of shortage of teacher resources but also helped advance the literacy movement into a genuine mass movement. Xinjiang County at the time established a new trend of "everyone learning culture, and every household eliminating illiteracy" (人人学文化, 户户都扫盲). As the examples provided above demonstrate, economic growth does not passively influence curriculum and organisational structure of farmers' amateur education. On the contrary,

such an educational model truly reflects the subjective nature of the most significant participants - farmers. What drives farmers to "move" in the first place is not top-down government directives but the farmers' strength.

Generally speaking, farmers' amateur education combines cultural education, production education, and political education to eradicate outdated notions, promote fresh perspectives, and produce "new farmers" who are distinct from feudal serfs. However, whether it is a cultural transformation or the reshaping of self-identity and confidence, it is just the first stage for the great majority of poor farm labourers to awaken and transform from "old farmers" to "new farmers". During the amateur education, even if the "transformation" of culture may be able to free working people from ideological shackles, this does not necessarily imply that the great majority of working people have made the transition from being "in itself" to being "for itself." Due to a lack of comprehensive class consciousness, farmers still struggled to understand the needs and interests of their class because they had not yet established a proletarian alliance with themselves as the dominant subjects. At the same time, despite the eradication of feudalism, a bourgeois culture centred on individuality continued to thrive. Therefore, for Red China, after the literacy campaign, it was imperative to address pressing issues such as eliminating the profit-seeking nature of small producers, realising the transformation of the working people into the proletariat, establishing a new socialist culture that belongs to the working people, and becoming masters of culture.

2.2 Collectivism, Class Consciousness, and Forging a New Culture: The Cultural Revolution in the Mao Era

Although the land revolution was a social revolution accomplished in 1953, it had little impact on agricultural economics or the rural production model (Meisner, 1999). As a result of the growth of the small-scale farmer economy, class relations in rural regions were evolving, and polarisation was clearly on the rise. For instance, in 1951, in Changzhi City, Shanxi Province (山西长治), the new and rich farmers made up 0.8% of the total number of farmer households, and the middle farmers who turned poor farmers accounted for 13.7% (Tao, 2006). When the Changzhi Prefectural Committee conducted a study on the rural economy, class relations, and mutual aid and cooperation, it discovered that the growth of socialism in the countryside faced three challenges. First, some party members and cadres had negative thoughts and turned greedy and foolish; second, polarisation emerged among the middle farmers who make up the vast majority of farmer households, causing the rural economy to become increasingly divided along class lines; third, the growth of farmers' profit-seeking tendencies led to the disintegration or even dissolution of mutual aid groups. To overcome the cultivation of farmer individualism and strengthen and enhance its organisational level, the Changzhi Prefectural Committee held a meeting of mutual aid and cooperation representatives in Changzhi City in March 1951. After lengthy deliberations, they unanimously agreed to try out cooperatives for primary agricultural production (Tao, 2006). Within a few years, this approach gained popularity and successfully broke through the limitations faced by small farmers, preventing land mergers and farmer distinction brought on by excessive

land privatisation. The implementation of the cooperative movement also shows that Red China embarked on an entirely different path of agricultural modernisation than the Soviet Union. In other words, it no longer views industrialisation and mechanisation as the prerequisite for agriculture to transform into socialism. Instead, it devises a different strategy, taking the alteration of production relations as a breakthrough in the realisation of agricultural socialism.

On the surface, the production relationship between people is formed through humans transforming nature. However, from the political economics standpoint of Marxism, it stresses the ownership of production resources and the circumstances surrounding product distribution (Marx, 2004). Production relationships, nevertheless, are dynamic. Indeed, innovations in manufacturing technologies will continue to generate new production relationships. That is to say, from a historical standpoint, production relations are constantly going through transformations of emergence, development, and extinction. The intrinsic quality of the cooperative movement was to establish new production relations through modifications to production organisation techniques and to consolidate human actions under advanced production relations into a material force that modifies the natural world to advance the growth of productive forces. To realise this logic of behaviour, it necessitates not only the change of the production system (i.e., the cooperative movement) but also a shift in the mindset of the people it works with, that is, the transformation of ideology. This transition is particularly notable in the suppression of individualism and the promotion of collectivism. The "Decision of the Central Committee of the Communist Party of China Concerning Several Issues in Current Rural Work", published in 1963, can be considered the epitome of Red China's views on the above:

"People's social existence determines people's thinking. Once the correct ideas representing the advanced class are grasped by the public, they will become a material force that transforms society and the world."

For Red China, the formation of "new farmers" was significantly influenced by education, which served as the principal vehicle for ideology. If it is true that farmers reclaimed their cultural self-confidence and sense of identity during the cultural transformation movement and the subsequent socialist education movement and class education, the vast number of poor farm labourers gradually realised the shift from "in itself " to "for itself". It indicates that the awakening of the class consciousness has begun. Marx emphasised the phrase "from a class in itself to a class for itself". The primary educational goal of this stage is to awaken the class consciousness of the farmers, to make the labourers aware of society as a whole and complete their transformation into the proletariat, and to make the proletariat aware of its demands and interests so that they can fight for them. Thus, with the completion of the cooperative movement and the eradication of illiteracy, the focus of farmer education gradually shifted from cultural to political indoctrination and class consciousness. In this sense, while farmers' amateur education has remained the primary form of farmer education since then, its spiritual core has shifted, and the formation of a collectivist spirit and a proletariat new culture remained the primary educational goals over the next two decades. It is worth mentioning that the above two tasks are interconnected, and the formation of a new proletarian culture founded on the promotion of the spirit of collectivism, thus the following section will discuss the development of the two in turn.

2.2.1 Shaping the spirit of collectivism

By 1957, when the cooperative movement ended, 96% of all rural households nationwide were members of advanced cooperatives. This accomplishment, although extraordinary, has also created some new paradoxes. Under the influence of administrative instruments, some mutual aid groups that had not yet formed primary cooperatives and some primary cooperatives that had just begun but were not yet stable expanded carelessly into advanced cooperatives. Some farmers in these advanced cooperatives still had a limited grasp of the small-scale farmer economy and had not developed a unified understanding of the collective economy. The economy in the countryside improved after several years of reconstruction, and farmers had surplus food in their families. Some wealthy middle farmers, in particular, who had stable economic conditions, started to express dissatisfaction with the production model of collective labour and unified distribution because they felt that their income was "averaged" out by other people. By the autumn of 1956, there had been instances of membership resignations in various cooperatives, and the resignation rate had risen to 1%–5%. Wealthy middle farmers, small traders and skilled manual workers were the majority of withdrawn households. These individuals either possess better manufacturing capabilities, more advanced production technologies, or higher enthusiasm for a market economy. Taking Anhui Province as an example, 74% of the withdrawn households were made up of wealthy middle farmers (Zhang, 2010). Although the "elite" groups in these rural communities also promoted "mutual aid and cooperation", but relied on paid mutual aid. To amass wealth, they strive to be paid by providing production tools and funds to poor farmers. It is undoubtedly the projection of the capitalist route in rural society. Due to a lack of knowledge of socialism, other

poor farm labourers in these communities were easily swayed by the "elites", causing ideology instability. In particular, some cadres and farmers disagreed with the state's unified purchase and marketing policy, believing that it is an "exploitation" of farmers and even calling for the restoration of the free market, allowing farmers to produce and trade freely (Luo, 2009). According to Mao Zedong, allowing individualism and liberalism to flourish will inevitably threaten the socialist camp in rural areas and ruin the cooperative economy. As a result, he suggested implementing socialist education for the entire rural population and criticising individualist and capitalist ideologies (Mao, 1957).

Given this situation, as the literacy campaign has largely been successful, the focus of farmers' amateur education has shifted, with political education beginning to supplant cultural education and becoming the core of "three-pronged" education. Among them, the advancement of the socialist ideology and the collectivist mindset had gradually taken centre stage in farmer education. This theme is usually contained in daily production labour and educational life. Farmers are made aware of the importance of the collective through modifications in a series of lifestyle and production practices, such as the rural environment, habits, customs, and literary propaganda, farmers are made aware of the importance of the collective. Take the She County mentioned above as an example.

Due to years of conflict, the She County administration did not have sufficient funds to finance the running of the farmer amateur school. She County invented the frugal school-running approach of "those who live on a mountain live off the mountain, those who live near water live off water, and

to study without spending money" (靠山吃山、临水吃水、念书不掏本) to address the issue of school operating expenditures. Since She County is a mountainous region where Pennisetum grass (白草) and medicinal herbs are grown, the students discovered ways to "live off the mountains": every autumn, students from community schools would travel together to the mountains to mow grass and gather herbs, then trade these items for lamp oil, stationeries, and books; "Live off the water" refers to students from community schools assisting pedestrians to cross the river during the rainy season. Simultaneously, taking advantage of living along the Zhang River by working together in papermaking as a side business. In addition to the above two approaches, She County further supported the school by having students work together to clear wasteland for the growth of grain and oil crops and helping supply and marketing cooperatives with the loading and unloading of goods. The aforesaid collaborative efforts not only resolved the issue of funding for farmers' amateur schools in She County but also strengthened the bonds between farmers via cooperative work, effectively fought against individualism, and subtly upheld the spirit of collectivism.

In addition to infiltrating concepts such as "public" (公共) and "collective" into farmers' everyday lives and production activities, She County employed "reasoning struggle" (说理斗争) to resolve farmers' ideological divergence. The so-called "reasoning struggle" refers to using democratic and legal reasoning to resolve disputes between various classes (Central Party School of the Communist Party of China, 1991: 298). In actuality, as early as during the Second Sino-Japanese War, the Communist Party rallied farmers to protect their rights and interests under the policy of "double reduction" (双减) (that is, rent reduction and interest reduction) through "reasoning struggle". Controversies such as "Should the rent be reduced" and "How much should the rent be

reduced" were unfolding between the tenant farmers and the landowners. The tenant farmers not only obtained compensation by suppressing the landowner's greed and exposing their illegal activities, such as fraudulent accounting and bullying , but they also encouraged each other and relied on each other in the struggle, strengthening their unity, and found a sense of collective belonging (Yu, 2016). Based on these experiences, many rural regions chose a gentler, non-violent "reasoning struggle" strategy for dealing with internal class disputes, particularly the division and individuality that developed inside the class, throughout the implementation of socialist education. Based on these experiences, in the process of implementing socialist education, many rural areas have adopted a lenience, non-violent "reasoning struggle" approach when facing internal class disputations, especially the division and individualism that breed within the class. For instance, there have been many debates on "what benefits the farmers have from selling grain to the state" and "how to play your part in socialist construction" between poor middle farmers and wealthy middle farmers in She County. Every conversation, it may be said, is a struggle between "public" and "private," "collectivism" (集体主义) and "individualism." (个人主义)

The Marxist theory of reasoning struggle can effectively solve some farmers' ideological issues through practice rather than merely theorising it. Proletarians labour in congested factories, casting shadows on those around them. Although they differ in appearance and even wages, they all sell themselves like commodities, exchanging their work for a meagre quantity of liveable resources. This revelation sparked the emergence of the proletariat's class consciousness. Proletarians who had woken individually started to unite with each other to fight against the bourgeoisie (Marx & Engels, 2003: 66-67,410). This alliance created a more solid structure, and

the proletariat was born as the number of proletarians expanded and the exploitation of the bourgeoisie increased. This is Marx's explanation of the proletariat's formation process. It is clear that the main element of class formation and the origin of "reasoning struggle" is the awakening of class consciousness. The reasoning struggles through debating with the wealthy middle and rich farmers made the poor farmers notice the sharp contrast between them concerning land, production tools, education level and ideology. This contrast prompts the poor middle farmers to think about the perplexities and problems encountered in life, production and learning. The process of thinking, debating, and communicating is also the process of awakening the consciousness of the poor middle farmers. Although the consensus in mainstream research was that class conflicts did not exist at that time and reasoning struggles were only a manifestation of "conflicts among the people" (人民内部矛盾), in rural areas, the tendency to develop capitalism and individualism did exist, and engaging in "reasoning struggles" would have helped farmers remain vigilant against these tendencies.

As a result of the significant expansion of the socialist education movement, which utilised collective activities and reasoning struggles as its primary manifestations, the "withdrawal tide" (退社潮) and opposition to unified buying and marketing subsided after the summer of 1957. The spirit of collectivism successfully disintegrated the small farmers' thinking of focusing on self-interest, suppressing individualism, and establishing itself as the mainstream thinking in rural culture.

2.2.2 Class Struggle and the Creation of a New Proletarian Culture

In 1962, the Communist Party of China convened its Tenth Plenary Session of the Eighth Central Committee (中共八届十中全会). It was acknowledged in the conference that during the historical epoch of proletarian dictatorship, there was still a conflict between the two routes of socialism and capitalism. On the one hand, the overthrown reactionary ruling class always tried for restoration; on the other hand, and most important: The influence of the bourgeoisie and the habits of the old society continue to affect some people. Some small producers still had spontaneous capitalist inclinations, and the conflict between the two routes was mirrored in the party. Under these circumstances, "class struggle" was put back on the agenda, "from now on, we must talk about the dangers of class struggle and the restoration of capitalism every year, every month, and every day." The direction in which farmers' amateur education is developing has shifted over time. If the early farmer education focused on improving farmers' cultural level and integrating culture, politics, and production education in content and form, the farmer education after the Tenth Plenary Session of the Eighth Central Committee was more intense, placing class education as the priority. According to the "Minutes of Farmers' Amateur Education Reporting Meeting" (Department of Workers and Farmers Education, Ministry of Education of the People's Republic of China, 1979: 113), in 1963, educational staff from 12 provinces, municipalities, and autonomous regions, including Heilongjiang and Shandong, reported that farmers' amateur education had generally strengthened political and ideological education throughout the country, with the majority of the objects of farmers' amateur education being rural youth and adults. Participants generally believed that this was to consolidate the collective economy amidst the class

struggle and the struggle between the two routes and to train the younger generation to become "workers with socialist consciousness and culture." Class education was appealing at the time because "taking class struggle as the 'framework'" was also a core principle of all other types of education and can be considered to have played a vital part in the Cultural Revolution in the late Mao era. The following section will take Xiaojin Village (小靳庄) in Tianjin as an example to illustrate how class education was implemented in rural regions.



Figure 2.3 The blackboard for the young pioneers' class education reads: Why is the bourgeoisie "inside the Communist Party"?

If educational undertakings in She County focused on cultivating the spirit of collectivism, ten years later, Xiaojin Village in Tianjin attempted to fully integrate class education and cultural construction to create a new socialist culture capable of expressing proletarian ideology.

In the 1970s, Xiaojin Village was well-known as a brigade of Lintingkou Town Commune in Baodi County, Tianjin (天津市宝坻县林亭口), and was closely associated with Jiang Qing (江青). However, this article will not investigate the relationship between the two. It will instead use Xiaojin Village as an example to examine the process of establishing a new socialist culture in the late Mao era. It will then discuss the impact of the revolution in the ideological field on agricultural production and rural consolidation, as well as the significance and role of the socialist camp.

Some argue that the so-called successes of Xiaojin Village because it was Jiang Qing's "experimental site" (试验点) and received a considerable amount of government funds and resources. This suspicion is justified. For example, in 1975, the state provided Xiaojin Village with a grant of 100,781 yuan and a loan of 51,800 yuan. It also built roads and bridges, provided personnel assistance and allocated People's Liberation Army soldiers to assist in production (Jiang & Xia, 2007). For a village, this is indeed tremendous support. This kind of assistance, however, is nothing compared to the typical "big contract" (大包干) a few years later - Xiaogang Village received millions of yuan in funding.

However, what frequently goes unnoticed is that before Xiaojin Village became Jiang Qing's "experimental site" in June 1974, it had already become a model of "learning from Dazhai in agriculture" (农业学大寨). Even though the barren saline-alkali ground is not conducive to agricultural development, the residents of Xiaojin Village continue to rely on "organised" production activities to end the days of eating resold grain (返销粮). By 1972, its grain yield per

acre was on the "outline" (上纲要) (referring to more than 400 catties of grain per acre), and in 1974, the yield per acre of Xiaojin Village even crossed the "Yangtze River" (跨长江) (meaning more than 800 catties of grain per acre) (Jiang & Xia, 2007). It is a remarkable accomplishment for the entire nation. In other words, Xiaojin Village made significant strides in its ability to produce agricultural goods. So, are these successes connected to the ideological revolution? To answer this question, we should first investigate the construction of a new socialist culture in Xiaojin Village.

Numerous activities were planned throughout time by Xiaojin Village to carry out the Cultural Revolution. These activities were then compiled as "Ten New Things" (十件新事) to help with exposure, and they include: 1. Establishing political night school (兴办政治夜校); 2. Cultivating farmer revolutionary theory team (培养农民革命理论队伍); 3. Singing revolutionary model operas (大唱革命样板戏); 4. Launching mass poetry creation activities (开展群众性的诗歌创作活动); 5. Changing social practices and customs, breaking the old and creating the new (移风易俗、破旧立新); 6. Farmers narrate historical tales on stage (农民登台讲历史); 7. Forming amateur literary and art propaganda teams (成立业余文艺宣传队); 8. Establishing libraries (开办图书室); 9. Retelling revolutionary tales (讲革命故事); 10. Conducting mass sports activities (开展群众性体育活动). It is worth noting that these "new things" are tied together throughout the cultural revolution, even though they are distinct facets of the same activity. Therefore, this thesis will not separate them but will integrate newspapers, selections of amateur education learning materials and other publications at that time, restoring the development process of class education.

Establishing Political Night School and Cultivating Farmer Revolutionary Theory Team

In contrast to other progressive villages, Xiaojin Village was a well-known "backward element" (落后分子) in Tianjin as it consumed resold grain until 1970. This 'backwardness' is reflected in food production and ideology. For instance, Tianjin Daily once recorded that a young man in Xiaojin Village observed corn cobs on the road and indifferently kicked them to the side of the road. Some commune members even fish privately in the river and sold their catch outside the community. These allegedly trivial matters of today have been criticised in Red China as examples of representative incidents of ignoring collective interests, demonstrating how drastically different Red China's ideology was from that of the modern world.

In any case, the rise of individualism hindered the community spirit of Xiaojin Village. At the time, it was considered a severe manifestation of capitalist tendencies. To address ideological issues in Xiaojin Village, political night schools began to operate in 1971. The main goals of establishing political night schools were to resist capitalism, advance the collective economy, forge and maintain proletariat-controlled ideological and cultural positions in rural areas, and steer socialism in the right path. The "People's Daily" attributed three factors to Xiaojin Village's succession in upholding its schools to cultivating farmer revolutionary theory teams, strengthening the party's leadership, and cohesively integrating the three major revolutionary movements into teaching.

Among these, "strengthening the party's leadership" (加强党的领导) indicates the necessity of

involving grassroots party organisations in three areas. 1. In response to the problem of repeated relaxation of political learning, the brigade's party branch secretary, leaders of the Communist Youth League, the Women's Congress, and other organisations formed a political night school leadership team to assist cadres and members in clarifying the relationship between production, politics, and ideology, so that they could establish the importance of running a political night school; 2. The leadership team is directly in charge of choosing the lesson plan and curriculum for the political night school, which includes readings from Marx, Lenin, and Mao Zedong, learning to sing revolutionary model operas, creating and presenting cultural programmes, holding poetry contests, etc. Thus, the political night school evolved into a classroom where farmers could learn revolutionary theory and engage in cultural revolution activities; 3. Choose teaching methods that match the characteristics and needs of the members, and innovate the new teaching approaches in practice. For instance, everyone was first placed in a sizable classroom to learn. However, due to differences in their political and educational levels, the learning was not up to par. Later, after reforming the teaching method, students were divided into classes according to their learning and political attainments. Even older adults and women with heavy house chores were organised into out-of-class extracurricular study groups so that all residents may engage in learning.

"Cohesively integrating the three major revolutionary movements into teaching" (紧密结合三大革命运动进行教学) contains three implications. First, use the political movement as an opportunity to study Marxism-Leninism's discourse on class struggle and Mao Zedong's theory on continuing revolution under the proletarian dictatorship for students to clearly understand the laws and characteristics of class struggle in the historical stage of socialism. Second, combine the

aforementioned revolutionary theories with practical struggles, such as denouncing Confucius and Mencius' feudal etiquette-promoting methods and compiling the "New Three Character Classic" (新三字经) that conforms to socialist ideology. Finally, synthesise the production struggle and scientific experiments, and members of the agricultural scientific experiment team of the brigade then elucidate agricultural scientific knowledge to the members. This knowledge is not purely theory but linked to local production. For instance, before planting, it will go through the cultivation of improved strains of seeds and rational close planting techniques. During the crop-growing process, it will touch on field management and pest control, as well as the performance and use of pesticides. During winter, it will explain the knowledge of soil improvement and water conservation construction. Farming experiences of seasoned farmers were also the main contents of the lectures. For instance, when the wheat in the brigade is sown late due to moist ground and chilly spring weather, the growth will be below average. Experience has shown us that early and timely watering is essential to promoting early germination in wheat. In conjunction with the local soil moisture, "timely" (适时) has to be evaluated empirically.

At the start of the political night school, Xiaojin Village invited local elementary school teachers to teach theoretical courses. However, because these teachers were not familiar with the development of the revolutionary movement in the village, they taught according to the text and were despised by the members. Based on this, the brigade began to train a group of teachers made up of poor middle farmers so that the curriculum could be grounded in reality. The phrase "cultivating farmer revolutionary theory team" (培养农民革命理论队伍) came to be in this manner. Since they are exceptionally familiar with the situation of the revolutionary movement in

the village, when this theoretical team discussed political theories, they could link the unique political circumstances to class struggle and line struggle. When elucidating agricultural production technology, they can also teach in the field while considering the local production environment. In addition, they can teach in a language style that is easy to accept by poor middle farmers. Because of this, the farmer revolutionary theory team was well-received by the members and successfully sparked their interest in learning. Driven by this team, the revolution ideology gained popularity. By 1974, the number of poor middle farmers joining the theoretical team had grown from 6 to 58.

Launch mass poetry creation activities and Singing Revolutionary Model Operas

Xiaojin Village's poetry creation theme contains two "soils" (土壤): one is the production soil, and the other refers to political soil. As early as 1958, Xiaojin Village started organising large-scale poetry creation activities inspired by the "Great Leap Forward Folk Song Movement". This movement encourages working people to participate in poetry creation and should therefore represent those people's ambitions. Poetry's subject matter is inextricably linked to labour production because it must represent the aspirations of the working people. For instance, the residents of Xiaojin Village composed several poetries akin to labour songs in 1970 while they worked together to convert the saline-alkali terrain. To help them stay motivated and fight work exhaustion, they invented poetries such as "Iron Man, Speedy Legs, Fertiliser Carts All Line Up. "Even though we are pushing thousands of carts, we are having fun chasing each other and are not fatigued" (钢铁汉, 飞毛腿。运肥小车排成队。你追我赶跑得欢, 推上千车不觉累), and "The

ground trembles with a roar of ramming! Split the frozen soil like a mountain top, let see how he transports it away" (打夯齐声吼, 震得地发抖! 劈开冻土如山头, 看他咋运走). Arguably, these poetries are genuine about the production process and contain the unique "earthy flavour" (土味) to the working people and manual labourers. It's completely different from the conventional poetries written by elites or professionals. Thus, it has been referred to in studies as "the poetry of labour" (劳动的诗) and "the poetry of life" (生活的诗) (Liang, 2007). Since the start of the political night school, the composition and recital of poetry were the principal form of student recreation before and after class. Poetries during this period added political elements to the previous productivity elements, such as:

The spirit of Dazhai shakes the mountains and rivers, there are many heroes in our team, fight the cold winter without feeling bitter, songs of red flags everywhere. Criticise Lin Piao and criticise Confucius as a breakthrough general, pull on the wrecked cart for the revolution forever. The cart was full of good harvest news, sing a harvest song to Chairman Mao (Author: Wang Zuoshan, party secretary of the brigade). 大寨精神震山河, 咱们队里英雄多, 大战寒冬不觉苦, 遍地红旗遍地歌。批林批孔当闯将, 为革命永拉上破车。丰收喜讯满车载, 给毛主席唱支丰收歌。(作者: 大队党支书王作山)

The elm pole is five feet three, a pair of buckets are tied at both ends, filled with water, carried on the shoulders, speed up and run happily. Pour a load of water, a piece of green, pour ten thousand loads of water, boundless green. Mao Zedong thought is powerful, always shoulder heavy burdens without changing shoulders. Just relying on a pair of iron shoulders, overpowered the dragon lord and defeated the sky. The weather is severe and the people are dry, and they must cross the eight hundred and pass through the thousand gold pass (Author: Wei

Wenzhong, an old poor farmer). 榆木扁担五尺三，一对水桶两头栓，装满水，挑在肩，加快步子跑得欢。浇一担，绿一片，浇上万担绿无边。毛泽东思想威力大，永挑重担不换肩。就凭一副铁肩膀，斗倒龙王战胜天。天大旱，人大干，定要跨过八百、闯过千金关。（作者：老贫农魏文中）

Poetry writing and recitation had become an indispensable part of life in Xiaojin Village before it became Jiang Qing's experimental site. Residents all played a proactive role in it, whether they were cadres or poor middle farmers. In an article published in April 1974, “Guangming Daily” detailed the excited atmosphere of the political night school poetry competition. A comparable poetry competition had already taken place five times.



Figure 2.4 The scene of the Xiaojin Village members' poetry competition. Image source: History with pictures

The two “soils” constitute the cornerstone for the subsequent mass poetry-creation initiatives that

Xiaojin Village had undertaken. These initiatives were both political and productive. In 1974, Xiaojin Village wrote over a thousand battle poems, such as "The spirit of Dazhai shakes the mountains and rivers, there are many heroes in our team. Fight the cold winter without feeling bitter, songs of red flags everywhere." (大寨精神震山河, 咱们队里英雄多。大战寒冬不觉苦, 遍地红旗遍地歌) "The people create the world with their hands, 'destiny' and 'genius' are dung and dirt." (人民双手创世界, '天命' '天才' 是粪土) Although they are frequently characterised by some academics as "political," (唯政治性) "utilitarian," (功利主义性) and "non-poetic" (非诗性), like other poems from the Cultural Revolution (Lu, 2002), it is undeniable that they also exhibit a unique subset of "popular poetry" (群众诗歌). Studies conducted by several scholars indicate that the creation of poetry and literature during the period had a substantial stimulating effect and impact on labour productivity (Liang, 2007; Wang, 2014.). Xiaojin Village, which hosted events like poetry contests, was undoubtedly more driven than other villages during the water conservation projects. The village was the first among other villages to finish similar projects (Liang, 2007).

In addition to poetry creation, Xiaojin Village also formed the atmosphere of singing revolutionary model operas, but the singing venues were farmland, feedlots, farmhouses, and noodle mills. Although revolutionary model opera is an art form, it is not limited to the stage because it was born as a "revolutionary art model" and is known as a proletarian art form, so it can also be carried out in the workplace. The traditional emperors, generals, demons and ghosts no longer exist in the model plays and are replaced by revolutionary heroes revered by the people. These heroic deeds were adapted from actual events, not created out of thin air, and do not have

an "elite" background but come from ordinary people. They all have a dedication and revolutionary spirit that emphasises not being afraid of sacrifice. The merger of these "grassroots" role models and social movements has given rise to a great fighting spirit and selfless commitment in people and transformed the farmers' subjective reality. As Xiaojin Village member (1974) said: "Do not underestimate opera singing. Study what you sing and study what you listen to. Formerly, those old operas were sung to instruct people to get promoted, get rich and exploit others. After being hurt by this, why don't you engage in crooked capitalism? Now, sing heroes, learn from heroes, and your heart will get redder. You will be more driven to practise socialism if you sing and listen more."

Changing social practices and customs

Following the start of the political night school, Xiaojin Village's marriage and funeral traditions underwent a significant adaptation. Cremation supplanted burial as the preferred method of interment for funerals. As for marital customs, some young women denounced the purpose of the dowry as they viewed it as a "trap for trading women" (买卖妇女的圈套). They argue that the dowry is the concept that "men are superior to women" (男尊女卑) and a means of objectifying women (物化女性) (in ancient times, the dowry was equal to the cost of the man's family purchasing female labour). Some newly engaged young women began to spontaneously refuse the dowry, while some already engaged returned the dowry. These behaviours reflected the determination of the young women to break with the old concept of hierarchy. Their pursuit of gender equality won the support of the Xiaojin Village party branch. The party branch secretary

called on the people to learn from them in a meeting. Since then, newly engaged women in Xiaojin Village have not only rejected the feudal dowry, which signified that "men are superior to women," but the traditional and complicated wedding ceremony has also been substituted with a "welcome party" (欢迎会) and a "farewell party" (欢送会): When girls from other villages marry into this village, the team will arrange a welcome party, and when girls from this village marry to other villages, the team will arrange a farewell party. In the process of eliminating gender inequality, sexist words such as "to marry" (嫁娶) are rarely used anymore and changed to "marriage" (结婚). In addition to the above methods, women in Xiaojin Village contributed significantly to the manufacturing and political education processes. For instance, to address the severe drought issue in the spring of 1973, the entire male labour force in Xiaojin Village rushed to fix the water conservancy project, while the women in Xiaojin Village organised a drought-resisting commando to carry water, replenish seedlings, and shoulder the burden of agricultural production. The cultural and production contributions made by women significantly raised their position. By 1974, more than half of the families in Xiaojin Village divided household duties between men and women.

The example of Xiaojin Village demonstrates that the process of creating the so-called new socialist culture is integrating proletarian ideology into farmers' everyday work and living, or, more specifically, one of changing society by depending on political power. The so-called political power covers both technical politics and gender politics. More importantly, it is by no means a top-down ideological indoctrination, but through the integration of farmers' subjective initiative, repeated experiments and continuous improvement in daily production practice

activities, to adapt to rural society and influence farmers' ideas. From individualism to collectivism, from laziness to hardworking, from accepting the "gift" of oppression to fighting against inequality, these tremendous ideological shifts helped Xiaojin Village achieve a miracle of production despite its material poverty and low level of mechanisation. In just a few years, Xiaojin Village has developed from a backward village with an attitude of "waiting for, relying on and requesting" (等靠要) aid to a nationally famous model village. Behind its new look is the result of the joint efforts of every "old" to "new" resident in Xiaojin Village.

2.3 Breaking the old and creating the new in the field of science and technology:

Scientific Farming Movement and Ideological Transformation

Around the 1960s, the struggle between the two lines in the education sphere intensified. In 1957, at the party committee secretary conference across provincial, municipal, and autonomous areas, Mao Zedong made the following statement: "According to the Beijing survey, the majority of students in our colleges and universities are the children of landowners, rich farmers, the bourgeoisie, and rich middle farmers. Less than 20% of farmers are working class and poor middle farmers. I am afraid it is pretty much the same all across the country. This scenario ought to alter." On the one hand, because of their academic background, the descendants of the new and old elites would soon have an advantage over poor middle-class farmers in the educational system. On the other hand, the growing formalisation of the educational system has led to a skewed allocation of educational resources in favour of academic elites. The film "Breaking with Old Ideas" (决裂), which began filming in 1958, portrayed the line battle in the educational realm.

At the start of the movie the school administration disputed the site of the communist university. Some people urged the university to be established near the city with easy access to transportation to attract high-quality students and faculty. Others believe it should be created in rural regions to allow poor middle farmers to participate in learning. The crux of the debate was who education should serve. Essentially, by adhering to the old professional and structured education route and being unable to break free of the constraints of the capitalist education system, one is supporting the idea associated with the old system, namely, bourgeois legal rights. Without curbing the legal rights of the bourgeoisie, the intellectual elite may drive out the poor middle farmers by controlling the right to education, completing class solidification once more. In this context, Mao Zedong further clarified the educational policy, proposing: "Education must serve the proletariat." In 1963, he identified class struggle, production struggle and scientific experiment as the three revolutionary movements for building a powerful socialist country. The link between "scientific experiments" and revolutionary movements implies that "science and technology" are no longer regarded as a neutral non-political force but as a method of radical change of society with political attributes (Schmalzer, 2012: 14).

Revealing the politics disguised in science and technology is the first step in breaking the old education system. To completely demolish the hierarchical structure and make the education system serve the proletariat, the education line and its components, namely intellectuals and poor middle farmers, must be transformed simultaneously. So far, the "Rural Scientific Experiment Movement (also known as the Scientific Farming Movement)" had initiated a revolution in science and technology.

2.3.1 Construction of four-level agricultural science network

For a long time, the traditional concept of "possess specialised knowledge or skills in a particular field" (术业有专攻) and "production depends on farmers, and scientific research depends on experts" had influenced farmers and cadres' views on technological innovation. To enable the people to deeply understand the relationship between technology and politics and actively participate in the innovation and application of science and technology, Red China launched the "Rural Scientific Experiment Movement". This campaign adopted the "four-level agricultural science network" as the organisational structure, and the scientific experimental group served as the main body of practice. As for guiding ideology to secure a socialist course for the movement, it used class struggle as the "outline".

Around 1963, various provinces successively established the agricultural technology extension station (subsequently known as the agriculture science institute) at the county level. The staffing procedure at each station is according to factors such as the number of farmers, arable land area and local economic conditions. On this basis, government selected the people's communes in the county with better production conditions to create the agricultural regional stations (agricultural science stations). In the subsequent unit, government set up the agriculture science team at the production brigade level, then established the agricultural science group at the production team level. By the end of 1975, there was a total of 1,140 county-level agriculture science institutes across the country, in addition more than 26,000 communes had established agricultural science stations, more than 330,000 brigades had established agricultural science teams, and more than

2.24 million production teams had established agricultural science groups (Agriculture in Contemporary China Editorial Committee, 1992). It was known as the "four-level agricultural science network" in the Mao era. This agricultural technology promotion strategy is the primary vehicle for the smooth development of the Scientific Experiment Movement. The four-level agricultural technology extension institutions set up at the county level, people's communes, production brigades and production teams have formed a vertical and longitudinal technology promotion channel to work with a horizontal connection between each adjacent production team and production brigade. They are intertwined to establish a highly coordinated and networked agricultural extension system. Under this framework, relationships between people and between people and organisations became closer.

Under tight organisation, grassroot production units (brigades, production teams) can react promptly to national agricultural policies. Take the variety update as an example. In agricultural technology extension institutions at all levels, technicians or seed workers (specialised staff dedicated to distributing varieties and conducting seed surveys) will allocate the updated varieties layer by layer until they reach the production team. Simultaneously, the policy of variety distribution fits well with the atmosphere of the "planned economy" era. This compatibility reflects in the number and type of breeding and the promotion of new varieties. For common varieties, the production brigade receives seeds directly from the people's commune, which then distributes them to the production team for cultivation. However, when it comes to new varieties, the people's commune prefers brigades with extensive production expertise and first tries to plant them in the brigade's experimental fields. The reason for doing this is that agriculture is greatly

affected by the natural environment. The same variety will perform differently under different water quality, soil and climatic conditions. Therefore, even a pre-test new variety needs to retest locally before being promoted to determine its adaptability and to find a more suitable local farming method. The four-level agricultural science and technology network is clearly neither a simple "people follow the example of their superiors" (上行下效) nor a top-down management and control structure dominated by technocrats. It is an agricultural technology promotion network that houses millions of farmers' scientific and technical professionals, grassroots technical staff, communicates from top to bottom, and enables intellectuals and farmers to collaborate.

Both the subsequently praised "artemisinin" (青蒿素) and "hybrid rice" (杂交水稻) were bred through this network. "'Human wave tactics' (人海战术) combined with 'mass movement' (群众运动) have enabled all biological resources existing in nature, whether they are Chinese or foreign, to be intensively sorted out and excavated like a 'grate' (篦子) by national scientific researchers and farmers. This study approach may not only accomplish large sample trials in a short period, but because numerous seed resources are gathered and preserved for hybridisation, it is nearly impossible to miss any opportunity for success. Through this approach, hybrid rice was invented. (Tian, 2006). The Scientific Experiment Movement, however, had only just begun with the creation of the four-level agricultural science and technology network. Another advantage of the "scientific experiment group" was that it helped scientific experiments grow into a genuine mass movement.

2.3.2 Formation of the scientific experiment team

Around 1965, to integrate science and technology with the political revolution and ensure that the proletariat could understand science and technology, model fields of the "three-pronged" style (“三结合”样板田) were subsequently built up in different locations. The three-pronged refers to cadres, technical youth, and experienced seasoned farmers forming a "scientific experiment group" jointly accountable for agricultural production and technological promotion. With the emergence of model fields, the scientific experiment movement began to develop on a large scale. It is possible to state that under the policy assumption, this campaign needs to have several elements: The party committee takes the lead, the model field is the centre, the professional agricultural science and technology team serves as the backbone, and the scientific experiment activities of the farmers are the foundation (National Agricultural Science Experiment Work Conference Leading Group, 2011:56), and the four-level agricultural science network serves as the carrier. As the agriculture scientific experiment movement has grown significantly, more cadres, technical youth, and seasoned farmers who can match it are needed. Among the three roles, apart from experienced, seasoned farmers, which are already extensively prevalent in rural society, the other two roles, cadres who can engage in agricultural production and youths with advanced agriculture technology, need to be reformed.

The shaping of "new" cadres

There are two sources of "cadres" in the "three-pronged". One is "decentralised cadres" (下放干

部), and the other is endogenous cadres (内生干部) at the grassroots level. As early as 1957, in "On the Correct Handling of Contradictions Among the People", Mao Zedong suggested that: The organisation should streamline its operations and "a considerable number of cadres should return to production." In April of the same year in conjunction with the Yan'an Rectification Movement, the central government suggested that every year, the main party and government cadres spend part of their time working in the countryside. It demanded the cadres were sent down to "eat, live, and work together" (同吃、同住、同劳动) with the farmers. In 1959, the policy further stipulated that all cadres, especially young intellectuals, who had not undergone labour training, lacked experience working at the grassroots level and met the requirements to engage in physical labour must be rotated to lower levels to carry out labour training and take part in it alongside workers and farmers. (Notice on Resolutely Implementing the Decision of Cadres at All Levels to Participate in Manual Labour). Although the "decentralisation of cadres" policy was to solve the challenges of bureaucracy and subjectivism, it coincidentally occurred with the Agriculture Science Experiment Movement a few years later, reserving a sizable number of officials with agricultural production capabilities for it. From 1957 to 1958 alone, more than a million cadres participated in agricultural production at the grassroots level. (Instructions on Labour Training for Decentralised Cadres, 1958). At the same time, "decentralised cadres" have also become the primary force for cultivating grassroots technical personnel: From the winter of 1957 to the beginning of 1960, scientific research institutions across the country organised a significant number of cadres to decentralise. In the Beijing area of the Chinese Academy of Sciences alone, more than 2,000 scientific researchers went to the countryside to participate in grassroots construction.

By the 1960s, the specific terminology "squatting" (蹲点) began to be widely used, which refers to agricultural technicians and teachers of scientific research institutions being sent to rural areas to conduct experiments and teaching in agricultural experimental sites for extended periods to encourage the sharing of agricultural information. In 1965, in Jiangsu Province alone, 70% of the agriculture science and technology personnel went to the countryside to "squat" and engaged in socialist education campaigns and agricultural demonstration activities (Schmalzer, 2012: 142). These decentralised technical cadres were dispersed across the country, bringing advanced production technology to the countryside and building many production and labour bases. They also trained many grassroots technical personnel as teachers (Wang, 2009). It is important to note that the "decentralised" cadres did not import knowledge and technology to the countryside in one direction. They also completed an effective integration of theory and practice in their labour, exchange of experience with farmers, and planting experiments. When the decentralised cadres travelled to the countryside for labour training, they formed close bonds with the farmers who made up the commune. After many years, many decentralised cadres still consider the location of their assignment as their second home (Yan, 2008).

In addition to decentralised personnel, a more stable source of "cadres" were endogenous cadres at the grassroots level. According to the "Instructions on Enriching Agricultural Technology Extension Stations and Strengthening Agricultural Technology Extension Work" issued at the end of 1962, each grassroots agricultural technology extension station must be equipped with 3-10 technical cadres, graduates of secondary agricultural schools and junior agricultural colleges.

Personnel with extensive knowledge in agriculture production are the primary source. As a result, local cadres and graduates of scientific research institutes have taken a leading role in grassroots cadre formation. On the one hand, these cadres will learn advanced agricultural technology knowledge from the subordinate cadres through scientific experiments. On the other, they will conduct production exchanges with seasoned farmers. In addition, historical and interview data show that, while everyone on the production team must participate in labour, production team leaders must do more than their peers since they must set an example and take the lead. In other words, because local cadres, particularly production team leaders, have considerable production expertise and a solid mass base, this function is very transitional. Throughout the scientific farming movement, local cadres became the bridge between decentralised cadres and farmers, introducing new technology into production and synthesising production experience.

The shaping of "new" technical youths

There are also two sources of "technical youth" in the "three-pronged" strategy, the educated youth who go to the mountains and the countryside and the local youth cultivated through science and technology education. The former resembles decentralised cadres in some ways. They are all personnel who, on administrative orders, transition from intellectual to manual labour and from urban to rural settings to participate in agricultural production. These personnel were young individuals with knowledge and technology, and to some extent, they overlap with the scientific research personnel among the decentralised cadres. However, in the mainstream concepts of China, Europe and the United States, the fate of these educated youths is often confused with the

Cultural Revolution, which equated to tragedy: political interference affected personal development, making them suffer a rough fate. There is even a trend of "bitter complaints" (诉苦) in China, and a literary genre called "trauma literature" (伤痕文学) has emerged. Of course, some studies believe that going to the mountains and the countryside is not a "scourge" (洪水猛兽) on the life path of educated youth. Cao Zhenglu, a writer, reviewed his career as an educated youth and recorded: "The grassroots cadres in rural areas always regard the educated youth as people from above. They are frightened of offending us. Therefore, they are quite careful in what they say and do. A girl wearing glasses is extremely noble. It is considered very knowledgeable, just like seeing a celebrity today." In his view, educated youth are well respected even if they are "sent down" to the countryside. In the eyes of some educated youths, young people at that time were passionate about revolutionary ideals. Taking root in the country was an expression of their values, not a helpless response to administrative orders. In reality, many volunteered to fulfil their revolutionary goal of helping the people in the countryside. It is important to note that although the farmers view these young people as symbols of knowledge and culture, in the course of actual production, the farmers have taken on the role of their "teachers". According to an educated youth the author interviewed, when he visited the countryside while attending an agricultural university, he discovered that what he had been studying in class was the experience of farmers. He exclaimed with passion and said, "We should learn from them." Shu Xile also recorded similar cases in her book. For instance, "educated youth learned from farmers how to use plants to eliminate pests and diseases" (Schmalzer, 2012:175). It is possible to state that these young people, like the decentralised cadres, brought a lot of new ideas and technology to rural areas and guaranteed the availability of teachers for the education of rural youth and children. They have

also benefitted from rural production and life and acquired agricultural knowledge and skills far beyond the classroom. Until now, discussions about the fate of individual educated youths have not stopped. However, from the perspective of history and the overall destiny of humankind, this is the only large-scale population migration against urbanisation in history (Wang, 2019), and it successfully broke down the barriers between urban and rural areas; and between manual and intellectual labours. In this context, going to the mountains and the countryside has provided practical experience for eradicating social inequality.

In addition to educated youths, rural youths who have received science and technology education are also the primary source of "technical youths". According to statistics from the Farmer Amateur Education Reporting Conference held by the Ministry of Education in 1963, young people are the predominant group getting rural amateur education. The proportion of young pupils to all students varies by province, ranging from 70% to 90%. Some of these students are coming home to help with production, while the remainder are young local farmers. It is consistent with cultivating "successors of the proletarian revolution" since the Tenth Plenary Session of the Eighth Central Committee and with the actual situation of rural production - referring to international standards, the median age of the rural population of China in 1964 was 20.20, and the ratio of old to young was 7.78%. At that time, the people of China had a characteristic youthful type of age structure (Guotongren, 1998). In addition to strengthening classroom education for young students, amateur education gradually increases the proportion of technical education. Take Shanghai as an example, where there were four categories of technical education. The first is the county-run agricultural school, which trains technical backbones above the brigade; the second is the May Seventh Cadre

School (五七干校) (a place for decentralised cadres to engage in agricultural production), which implements scientific experiments while studying and training the backbone of the production team and above; the third is the farmers' amateur education held by counties and communes from time to time according to the farming season and production needs; and the fourth is agricultural science and technology schools and various professional training courses held by relevant scientific research, teaching, and production units in the city primarily to train the backbone of agricultural technology and professional and technical personnel in counties and communes. Under such a training system, the science and technology stations at the commune level in Shanghai usually comprise 2-3 technical backbones with technical secondary school level, while the scientific experiment team of brigades and production teams often have 5-7 (Revolutionary Committee of Shanghai Academy of Agricultural Sciences, 1975).

It is important to note that the term "technical youth" has additional meanings. In addition to young people who have received professional technical training, young commune members or local young farmers have also attracted attention from Red China. The delivery of science and technology education at commune-run amateur schools is essential for the "technical backbone team comprised of poor middle farmers" establishment, and its expansion relies on production education. For details, please refer to the relevant content in Sections 1 and 2 of this chapter. Besides, the science experiment group is also the primary educational route for local young farmers to learn agricultural science. Concerning the first education method, seasoned farmers with extensive production experience became the primary source of teachers. Although the term "technical youth" makes it simple for others to interpret what they have learned as novel and

specialised technology, the reality is quite the opposite. Red China's educational practices have always emphasised the dominant role of seasoned farmers in production. The experience system that seasoned farmers have passed down from generation to generation remains an expertise that can promote the development of scientific agriculture and is valued (Schmalzer, 2012:192). This concept reflects simultaneously in commune-run amateur schools, where teachers for production education are more likely to be seasoned farmers with substantial agricultural experience and where a strong emphasis on how the curriculum relates to local production practices. That is, study what is necessary for production, do it straightaway when it is urgently needed, and then put what you have learned to use. In addition, extensively connect technical learning with local experimental and model fields (Department of Industrial Training and Agriculture Education, Ministry of Education of the People's Republic of China, 1979: 124-125) to reduce the gap between science, technology and production practice. As for the second educational route, teachers are technicians and experienced farmers, with seasoned farmers often taking the lead. It is possible to state that seasoned farmers continue to be the primary source of new farmers' production expertise and experience. It coincides with the status of seasoned farmers in actual production. For instance, a 1976 poster depicts a gathering between university professors, students and a seasoned farmer. The seasoned farmer is standing in the centre of the crowd, surrounded by people, indicating his dominance in communication and production (Schmalzer, 2012:117). According to the People's Daily, one county in Jilin Province even set up a seasoned farmer advisory department to guide cadres and technical youth.



Figure 2.5 During the Scientific Farming Movement, educated young people learn about planting from seasoned farmers. Source: Xinhua News Agency

It is conceivable to say that in the transformation process of sending the educated youth and young farmers to the countryside, the seasoned farmers effectively served as a bridge and an incubator. On the one hand, the teaching and sharing of production experience helped educated youth realise the transformation from theory to practice, laying the foundation for them to integrate into the countryside and agricultural production; on the other hand, passing down the legacy of agriculture production experience through the cultivation of young farmers. However, it is vital to note that although the shaping of "new" technical youth depends on seasoned farmers, this does not mean

that seasoned farmers have become the only exception to this ideological revolution in science and technology. On the contrary, seasoned farmers, like cadres and technical youths, received the baptism from "old" to "new".

Transforming "seasoned farmers"

It is possible to state that the transformation of seasoned farmers starts with "integrative improvement" (总结提高) (Department of Industrial Training and Agriculture Education, Ministry of Education of the People's Republic of China, 1979: 124). The term "integrative improvement" refers to the blending of experience knowledge with specialised knowledge. Acknowledging the contribution of farmers' experience and expertise to science is only the first level of significance of the scientific experiment movement, which of course, does not mean adopting a laissez-faire attitude and abandoning the cultivation of farmers' scientific thinking. For this reason, if farmers are to become leaders of technology and participate in the innovation of science and technology, it is necessary to help farmers master the principles of science and technology, provide them with opportunities to learn specific new technologies and train them to become farmer technicians, farmer breeders, or farmer scientists. At this time, the "scientific experiment group" and the production education in the amateur school served as a "bridge" from the seasoned farmers to the "new farmers", giving farmers opportunities for theoretical study and professional technical learning, which relied on the "squatting" cadres sent by the state to the brigade have promoted new technologies to seasoned farmers by teaching technical courses and building demonstration fields and model fields.

Meanwhile, the theoretical teaching and technical training curriculum carried out by professional and technical personnel does not directly contribute to production. The reason is that farmers have their own unique experience and knowledge system. Although these experiences were crucial to mass production, they will not readily accept other people's ideas, especially if they contradict what they have always known. In an interview with a technician, the author learned that when the production team leader gave a particular farmer "fertiliser powder" (肥田粉) (ammonium sulphate) to be responsible for fertilising, the farmer instead dumped the fertiliser in the pigsty because he did not think the "unfamiliar substance" would have any positive effects on production. There are many similar examples. Chen Yonggui mentioned in "Dazhai Scientific Farming" (1974:6) that scientific and technological personnel admonished farmers that using grain and grass with "powdery mildew" (白发病) (that is, millet that does not produce tassels or seeds) as feed, the disease will transmit to the land and other millets through livestock faeces. However, the people did not believe it. Some people said, "This is strange. How could it be contagious?" Until the commune conducted an experiment by turning infected millets into fertiliser and scattered around in the experimental field, more than half of the millet grown in this field had powdery mildew. Then, the commune organised farmers from all over the county to visit and see it with their own eyes. Only then did they change from disbelief to belief, and the infected strains were destroyed by the requirements in future production to prevent their infection.

Therefore, it is not that teaching new technologies and knowledge to farmers that will enable them

to achieve scientific farming. However, "repeated practice, understanding, re-practice, re-recognition, and gradually improve" (反复实践、认识、再实践、再认识, 逐步提高) (Chen, 1974: 5-6) enables farmers to understand and be convinced of the corresponding technology in practice. This process is the second level of the scientific experiment movement and the key to shaping "scientific farmers".

Generally speaking, scientific experiments are not aimed at a single group of people or a single role but include decentralised cadres, grassroots cadres, educated youth, young farmers, seasoned farmers and other groups of identities. In this ideological and production revolution in agricultural science and technology, every social role is the subject of transformation while acting as the object of conversion. This scenario reveals another way of agricultural modernisation. Possibility, that is, by mobilising and serving the masses, farmers can become the leaders of science and technology, as well as the creators, promoters and executors of technology. The achievement of all this is inseparable from the contribution of farmers' traditional production experience to "scientific farming". If the knowledge system passed down from generation to generation can be combined with scientific research, it will bring massive benefits to productivity. The Mao era saw the widespread acceptance of this viewpoint. The country even collected traditional agricultural proverbs and compiled them into books. The explanation is that "farmers" are regarded as a profession and identity and exist as a social class. The farmer has a wealth of expertise from years of battling nature. This interpretation makes "experience" and "specialised knowledge" equally important. The mainstream demands of class struggle and social transformation make the development of science and technology inseparable from rural society and the cultural revolution.

For instance, the research on hybrid rice is also different from the monopoly of technocrats in the Green Revolution. The hybrid technology in the Mao era is communal. Indeed, the product of a collaboration between farmers and scientists, hybridisation was seen not only as a technological achievement but also as part of a social revolution.

In such a path of agricultural modernisation, leaders of agricultural production and scientific and technological innovation are not the privileged class nor the professional elite, but thousands of ordinary people. While these ordinary people and the agricultural producers of the "Green Revolution" have certain commonalities, they also differ fundamentally. First, both use agricultural technology, utilising science and technology in mass production. However, the "farmer" in the Green Revolution is merely an unsophisticated technology user. In the process of developing the division of labour, they are even instrumentalised and deskilled. In the Red Revolution, the direct user of technology is a broader concept, which includes farmers, cadres and technicians. Through the scientific experiment campaign, cadres and technicians learnt to sow seeds and plough and mastered the knowledge of seed selection, cultivation, soil, fertiliser, plant protection, etc., and the seasoned farmers improved their technical theory. Farmers can finally change their roles, break through the fixed identity of technology users, and become leaders of production and technology.

2.4 The State's Role in the Process of Shaping the “New Farmers” in the Mao Era

Liu (2003) believe that in the transition from a natural village to a primary commune, a high-level

commune, and a people's commune, the state planned the evolution of the community in rural society and directly constructed a new social organisation - the production brigade. Production brigades serve as a tool for the state to govern rural society on the one hand and function as a buffer zone between the state and grassroots society on the verge of production and exchange on the other (Liu, 2003). "The structure and formation of collectives at all levels stem from the needs of the state to govern rural society." The trading methods of collective ownership, equal distribution, and unified purchase and sales that entirely exclude the role of the market have seriously hit farmers' enthusiasm for production (Fu, 2013). It is conceivable to say that this type of view regards the "three-level ownership, brigade as the base" (三级所有、队为基础) system during the collectivisation period as a part of the state's top-down regulation system and regards the collective as a tool to practice the will of the state. The only objects to handle are farmers or community members. There is hardly any subjective initiative in agricultural production, and there is no right to choose.

Of course, some scholars believe that the relationship between farmers and the state and the collective during the collectivisation period is in no way a simple relationship between managing and be managed. The distribution method is not the so-called egalitarianism, and the cooperative movement is not just a top-down coercive movement but a process in which farmers consciously transform themselves, unite and cooperate, and rely on themselves to create their own economic and social communities. As the basic unit of collective production and distribution, the production team made the cooperative production method surpass the small-scale farmer economy that lasted for thousands of years and formed an economic and social community in the countryside. The

private interests of small-scale farmers began to be replaced by collective interests. The awakening of collective consciousness enabled farmers to "co-create our own social life, public services, and public culture, and mutual support with socialist industrialisation and urban development strategies, have become an important support for the country's education, medical and health care, transportation, water conservancy, culture, and national defence development strategies." (Zhou, 2019) . Furthermore, grassroots farmers used debate and practice to determine many policies during the cooperative period. For instance, how to overcome the problem of egalitarianism in distribution according to workload (Ma, 2008). For another example, Xigou Village Agricultural Production Cooperative members realised that production growth mainly depends on labour input increment. The proportion of land dividends will affect the labour enthusiasm of members, so they decided to cancel land dividends in the establishment of high-level cooperatives, and the amount of income depends on the amount of labour (Zhang & Zhou, 2002). Therefore, in the view of supporters in the Mao era, the system of "three-level ownership, brigade as the base" not only made massive contributions to the construction of rural infrastructure, education, medical care, and other public welfare undertakings but also reflected the wisdom of farmers and their dominant position in village management.

It is feasible to say that there are currently two different points of view on the relationship between farmers and the state during the Mao period. One believes that the confrontation and coercion between the two are typical, and the other holds that farmers, as the masters of the countryside, promote each other with the state. However, in the process of social transformation, with the evolution of agricultural production relations and rural social relations, the relationship between

farmers and the state is also changing. As a result, to properly examine the relationship between the two, it is vital to analyse the evolution trend of farmers, that is, to explore the shaping direction of "new" farmers. It is because "new farmers" not only heralds the group characteristics of farmers' future development but also covers the country's expectations for farmers. In other words, whether the state wants to manage farmers and make them obedient labour tools or the leaders of various management undertakings in the countryside, we may obtain the answer from the state's education of farmers, i.e. the direction of ideological transformation.

The first three sections of this chapter mainly discuss how the state promotes the transformation of farmers' ideology. The following section will focus on the reasons for the state to carry out farmers' education and discuss the role of "new farmers" on the verge of national and village construction.

2.4.1 The Controversy of the Agricultural Modernisation Paths: The Chinese Route and the Soviet Route

The reasons for developing farmers' education, the direction of shaping farmers and their role positioning in society reflect the country's thinking and choice of agricultural modernisation paradigms. In the agricultural modernisation paradigm of the Mao era, behind the focus on the transformation of farmers' ideology was the thinking about the dialectical relationship between the economic base and the superstructure.

Controversies nonetheless exist in theoretical circles about the internal connection between the

economic base and the superstructure. These controversies mainly focus on whether ideology will play a massive role at a specific time and affect the development of production relations and productivity. Among them, economic determinism and over-determination are the most prevalent. Economic determinism regards advanced productivity as a prerequisite for new production relations and ideology formation and even equates productivity with production technology. Theorists of the Second International epitomised this point of view, who attempted to interpret Marxism in terms of "economic" development as the sole determinant of the social-historical process. In response to this view, Marx, Engels, Lenin and others all gave fierce criticism. Engels (2003: 49-50) cited: "If economic factors are the only decisive factor, then he turns this proposition into nonentity, abstract, comical empty words."

The other is over-determination, in which various factors determine things rather than substituting one determinism (economic determinism) with another (superstructure determinism). Social change requires transformations in superstructures and modifications in productivity and production relations. The above three variables have independence and correlation (Bramall, 2009). This theory first inherited the understanding of Lenin, Stalin and others on the reaction of the superstructure to the economic base: In contrast to historical ideologies, scientific ideologies are compatible with objective truth (Lenin, 1984:127). Furthermore, although social existence is a decisive force, ideological consciousness has a massive reaction (Stalin, 1975: 129-131). On this basis, over-determination pays more attention to the role of ideology in practice: Ideology and practicality are inseparable. It is a "worldview implicitly revealed in art, law, economic behaviour, and all individual and collective life." (Gramsci, 1971:328). In Gramsci's opinion, ideology creates

subjects and makes them act (Mouffe, 1979:187). Ideology differs from science in that its social function is more significant than its theoretical function, so a person without any ideology cannot relate to any society and thus cannot engage in practical activities (Althusser, 1969:231). In addition, as a worldview with realistic significance, ideology is not subordinate to individuals but the conceptual expression of the usual life of certain social groups, that is, "organic ideologies". Organisations such as schools, political parties, etc., are used as carriers, transmitted to individuals through organic intellectuals, and then put into collective activities (Gramsci, 1971:376). In modern society, education has become an imperative carrier of ideology. Individuals acquire ideology through education and become a subject capable of action (Althusser, 1983).

The disagreement about the role of ideology on productivity and production relations extends to the field of practice and significantly impacts the realisation of agricultural modernisation in socialist countries. Taking the Soviet Union and China as examples, economic determinism heavily influences the former, whereas the latter is related to over-determination coincides.

For the Soviet Union, its agricultural modernisation development path continued the argument of economic determinism, which regarded "economic" development as the only decisive force in the social and historical process. When the Soviet Union's "Political Economy Textbook" discussed the socialist mode of production, it affirmed the role of the planned activities of the proletarian state and the creative activities of the working people in establishing the socialist economic form but, in terms of promoting historical development, the productive forces were the most critical factor. Therefore, the relations of production must adapt to the nature of productive forces. Based

on this understanding, the Soviet Union regards accelerating the development of the large-scale industry as the primary way to eliminate backward production relations and taking socialist industrialisation as the prerequisite for the socialist transformation of agriculture. Therefore, the socialist transformation of agriculture implemented by the Soviet Union emphasised equipping the countryside with advanced technology, arming cadres with new technologies, and promoting the conversion of old-style production relations into new-style production relations through the generation of new productive forces in the agricultural field (Lavigne, 1975: 119-122). It has also become one of the representative paths of agricultural modernisation.

As for the agricultural collectivisation process in China, more attention is on the ideology transformation of farmers and cadres. Many studies equate the agricultural socialist revolution in the Mao Zedong era with the cooperative movement. Some associate the move with the conversion from an individual to a collective economy; others see it as the transition of production materials from private to public ownership. In truth, the phrase is too simplistic and misinterprets the agricultural collectivisation process in China. In contrast to Stalinism, Mao Zedong focused on two aspects when planning and carrying out the socialist transformation in the agriculture field. One is the effect of the transformation of production relations on the transformation of the economic base, and the other is the effect of the shaping and dissemination of proletarian ideology on social change. Based on this, the socialist transformation of agriculture in the Mao Zedong era included two levels. One is the transformation of production relations. This transformation uses agricultural mutual aid groups into primary cooperatives, high-level cooperatives, and people's communes to realise the production relations, that is, the means of production. The goal is to

reform the ownership system, the relationship between working people, and the distribution system (Mao, 1999: 134-136); the second level is the transformation of ideology. In Mao Zedong's view, the superstructure encompasses law, government, cultural production, and ideology is the key determinant of the modernisation process. The second level is the transformation of ideology. In Mao Zedong's view, the superstructure involving law, government, cultural production, and ideology is the crucial determinant of the modernisation process. The mere socialist transformation of the economic base does not guarantee proletarian power in the country. Therefore, we must also pay special attention to the changes in the superstructure while transforming the economic base (Bramall, 2009). In the agricultural collectivisation process, ideology used farmer education as a carrier to reconstruct the thinking of cadres and farmers and combined with scientific experiment groups to promote agricultural technology and the development of agricultural productivity. Therefore, compared with the ownership system transformation, the scope of agricultural socialist transformation is broader. In Bramall's (2009) view, "the post-Maoism period was an ambitious attempt to change Chinese society by simultaneously changing productivity, production relations, and the superstructure."

The above historical truths show that although the Soviet Union and China tried to reform the economic basis of rural society, their methods were completely different. The former relied on the innovation of production technology, while the latter mainly trusted the transformation of agricultural production relations. With the establishment of collective farms and people's communes, the differences between the two further extended to the field of ideology, concentrating on their attitudes toward the farmers' ideological transformation movement. The

Soviet Union focused on the decisive role of the economic base: As the essential and sole condition for the construction of ideology, the economic basis would naturally encourage ideology to change by the development direction of economic change. As a result, in a social revolution, economic change should always take precedence over ideological reform. To improve the efficiency of economic development, the Soviet Union chose to operate market competition and the law of value in socialist countries, paying distinct attention to material stimulation and encouraging private accumulation. In contrast, Red China adopted a diametrically opposite development path, believing that in addition to economic development, the advanced class's ideology is a strong material force capable of altering the course of nature. As early as 1937, Mao Zedong made relevant elaborations in his book "On Contradiction" (矛盾论):

Indeed, productive forces, practice, and the economic base generally play a vital and decisive role, and whoever does not admit this is not a materialist. However, under certain conditions, these aspects of production relations, theory, and superstructure, in turn, play a vital and decisive role, and it is also necessary to acknowledge this. When productive forces cannot develop without changing the relations of production, changes in the relations of production play a vital decisive role.... When superstructures such as politics and culture hinder the development of the economic base, political and cultural innovation becomes the primary decision.

Marxism regards the awakening of class consciousness as the crucial condition for the proletariat to seize power. The difference is that Marx and some of his followers emphasise the spontaneity of class consciousness and believe that class consciousness is the product of a particular social situation. Lenin's Marxist allies thought that for the proletarians to develop class consciousness,

organic intellectuals needed to instil it in them. Based on this, Red China attaches great importance to the cultivation of the collective spirit of the masses, especially emphasising the use of socialist ideology to educate the younger generation, and takes it as an explicit educational goal, which runs through various forms of socialist educational activities to realise the shaping of proletarian ideology.

In 1962, the Communist Party of China convened its Tenth Plenary Session of the Eighth Central Committee. This meeting became a turning point in China's modernisation development path and marked a radical break between Maoism and Stalinism. In the past, the Chinese Communist Party had disputes over the path decision. For instance, in Changzhi City, Shanxi Province, when it tried to set up a junior cooperative, it was opposed by the higher authorities of the North China Bureau. The focus of the argument between the two is: whether the rural areas that have not realised mechanised production can transition to collective agriculture through cooperatives, to achieve the goal of socialist transformation. From a macro point of view, this is precisely the "confrontation" (对决) between economic determinism and over-determination in agriculture. With the re-mention of class struggle at the Tenth Plenary Session of the 8th Communist Party of China Central Committee, "education," the primary means of ideological transformation, has been placed with high hopes by Red China, who will replace bourgeois culture with new socialist culture, and replace old social habits with the spirit of collectivism, and therefore become the primary purpose of farmer education. To achieve the victory of the socialist over the capitalist path, Red China pointed the finger at the ever-growing individualism and capitalist ideology. Material incentives are prohibited. In addition to workload, participation in political studies and the status of studies

will be the basis for income distribution.

In addition, it is imperative to note that the emphasis on ideological transformation does not mean economic base abandonment. The ideological transformation in the Mao era was not separated and isolated from the economic base but carried out in the organisational relationship of production reconstruction. Relevant evidence reflects in the organisation subject, development form and content selection of farmers' education. In the description of the first three sections of this chapter, whether it is amateur education for farmers or the scientific farming movement, the main body of the organisation is the people's commune, the development of learning relies on collective labour, and the selection of educational curriculum is also closely integrated with productive endeavour. It is very different from the determinism of consciousness, which is totally out of production. In actuality, ideological transformation in the Mao era was always a part of the transformation of production relations and played a vital role in the new production relations establishment. The interactive process between ideological transformation and production relations will be elaborated and summarised in Chapter 7, "Discussion and Summary: Framers, Country, and Community from the Perspective of Ideological Transformation and Technopolitics."

In any event, the 30-year-long educational practice of the Mao era finally revealed to us the fact that social change requires changes in the superstructure, as well as changes in productivity and production relations, and the above three variables are independent and correlated at the same time (Bramall, 2009).

2.4.2 The Role Orientation of “New Farmers”

In reality, two aspects to examine new farmers' role in the development and construction of the country and villages: agriculture and industry and farmers and the countryside. While the former depicts the position of agriculture in the entire national economy and indicates the relationship between urban and rural areas in reality, the latter reflects the status and role of farmers in the development of agriculture and countryside undertakings.

Regarding the relationship between agriculture and industry, although agriculture in the Mao era has long been considered the basis of industrial accumulation, the countryside has thus been regarded as the object of urban exploitation. However, the essence of the Tenth Plenary Session of the Eighth Central Committee pointed out contrary facts:

Implementing Comrade Mao Zedong's general policy of developing the national economy based on agriculture and led by industry, giving top priority to agriculture development, correctly handling the relationship between industry and agriculture, and resolutely transferring the work of the industrial sector to agriculture-based tracks.

In terms of agriculture, we must continue to implement the various policies of the Party Central Committee on rural people's communes, further consolidate the collective economy, further mobilise the enthusiasm of farmers for cooperative production while giving priority to the development of grain production, strive to develop cash crops such as cotton and oilseeds, advance animal husbandry, aquaculture, forestry and other sideline industries.

At the same time, it is necessary to mobilise and concentrate the power of the entire Party and the whole country to actively and as far as possible support agriculture and assist the collective economy of the people's communes in terms of material, technical, financial, organisational leadership, and human resources. Realise agricultural technological reforms in batches and by stages and according to local conditions.

In terms of industry, first of all, adapt to the requirements of agricultural technological reform, make further reasonable adjustments according to the possibilities of the current raw materials, materials and labour force, strengthen the production capacity of weak sectors, strive to improve management, increase varieties and improve quality.

In terms of commerce, according to the principle of "the principle of "expand production, ensure supply" and following the policy of serving agricultural and industrial production and serving the people's livelihood, vigorously organise the distribution of farming products and trade through the three channels of state-run commerce, cooperative commerce, and market trade. The exchange of industrial products in rural areas and cities will supply more means of production in rural areas, more raw materials and materials for industry, and more daily necessities for urban and rural people.

As for scientific and cultural education, it is necessary to strengthen research in science and technology, especially in agricultural science and technology, and vigorously train talents in these fields. Simultaneously, strengthen intellectual unity and education to allow them fully play their due role. (The above information is excerpted from the communique of the Tenth Plenary Session of the Eighth Central Committee of the Communist Party of China)

As may be observed, China's development at this time was not entirely focused on industry, which was very different from the Soviet Union's development thinking that emphasised urban industrial expansion. Industrialisation and mechanisation are no longer essential as the absolute prerequisites for agricultural development. On the contrary, agriculture has become the foundation of national economic growth, and industrial advancement must revolve around agriculture. This development idea resembles a re-practice of the revolutionary road of "encircling the cities from the rural areas" thirty years ago. As observed, agriculture occupies a very crucial position in the national economy. Besides serving as a foundation for other industries, it is also a service object for those industries. On this basis, the reform of agricultural technology holds a very significant position. Different from the "Green Revolution" in Europe, America and other countries, the agricultural technology reform in Red China was more "political" and even dismissed the neutral and professional characteristics of "science" that the West and the Soviet Union had always upheld. It has created a new path of modernisation that relies on people to construct and promote science and technology.

From the perspective of the relationship between "new farmers" and the countryside, some studies believe that during the period of collectivisation, the rural labour force, land, and currency were "forced disembedding" from the original countryside social structure. Farmers were stripped out of the "household" production unit as the emergence of commercialised "labour" implies administrative coercion, and the relationship between farmers and communities (collectives) is therefore mechanical, managed and being managed (Yang, 2015). Other scholars have seen that during the period of the People's Commune, there was an increase in employment opportunities

for farmers and an improvement in their income and welfare (Zhou, 2019). So, what characteristics did farmers in the Mao era have, and what kind of relationship did they have with the countryside?

Based on the previous analysis of the purpose and methods of farmer education in the Mao era, we can see that for China at that time, no matter what kind of education it was, it was a social revolutionary integrating with political instruments. Farmer education is responsible for ideological reform in culture, science, and technology. These tasks serve different political purposes through cultural education, class education and scientific farming. From achieving cultural transformation in farmers to safeguarding the revolution's accomplishments to carrying out socialist education for farmers to protect the cooperative economy, from awakening and shaping farmers' collective spirit and class consciousness to ensure the direction of rural socialism, to breaking down technical barriers and put technology and production in the hands of the proletariat, it is possible to say that the purpose of ideological transformation of farmers during the Mao era always has as its focal point around the creation of proletarian culture and the consolidation of the rural socialist camp. The key to achieving the goal lies in farmers' subjective initiative and awakening of class consciousness because these "new farmers" with proletarian ideology are the real leaders of the rural society presupposed by the state.

The dominant status of "new farmers" is also reflected in the management practice of rural society.

In 1968, Mao Zedong stipulated: "The people must have the right to manage the superstructure.

We cannot interpret the question of people's rights as the right of the people to benefit from

employment, education, social security, etc., under the control of some individuals. Under the socialist system, the rights to manage the country, various enterprises, and culture and education are the utmost and fundamental workers' rights. Without this right, there would not be any rights to things like employment, education, recreation, etc.". This passage reveals Mao's understanding of "people's sovereignty", that is, the root of the guarantee of people's sovereignty lies in the people's management of the country, especially the right to manage the superstructure.

In the above cases, the state's expectation and shaping process of rural social managers is undoubtedly a negation of some assertions. According to some studies, farmer education in the Mao era was only a means to consolidate political power and a tool to cultivate labourers with comprehensive talents for the country (Wang & Yao, 2006). The essence of this argument is to regard farmer education as a top-down instillation process of the will of the state and only see the unidirectional power exerted by the state political authority on farmers but ignore the initiative and subject status of farmers in the overall farmer education.

In actuality, to realise the farmers' right to manage the countryside during the Mao era while constructing the socialist ideology for the farmers, they spared no effort to launch a bottom-up mass movement. This is because the construction of socialist ideology needs to rely on farmer education, but it cannot be achieved simply by top-down indoctrination. Instead, it needs to integrate politics into the production and life of farmers. Therefore, socialist China was trying to promote ideological work through political power. While combining cultural education with political education, creating conditions for farmers' practical activities and the development of

mass movements, such as the reasoning struggle mentioned above, the poetry creation movement and the scientific experiment movement. The purpose of these movements is to encourage farmers to play their subjective initiative, enhance their identity self-confidence, and based on self-awareness awakening, form class consciousness through communication and union in the movement. And only the “class for itself” can effectively exercise the right to manage the rural society in line with its class interests.

It is conceivable to say that China in the Mao era did not regard ideology as a derivative and accessory of the economic foundation, but deemed it as significant force to realise the transformation of the economic foundation. Historically, farmer education in the Mao era is the history of helping labourers master the right to manage rural society. The purpose of the ideological transformation of farmers is to awaken their subjective initiative and class consciousness. In this process, the bottom-up mass movement becomes the primary means. In general, Mao's views on modern agriculture, modern farmers and the practice of politicising farmers' education stand in sharp contrast to the later farmers' training.

Chapter 3: The Formation of Technological Elites and Industrial Workers: Farmer Training History in the Era of Early Reform and Opening

In 1978, with the convening of the Third Plenary Session of the Eleventh Central Committee, the collective production system, which had been in place in China for more than 20 years, was

gradually dismantled, and China entered the era of reform and opening. The focus of farmers' training was on "technical transformation", experienced "old peasants" were no longer an important part of technological innovation and popularisation, and even evolved into objects being transformed. In 1983, the "Issues in Current Rural Economic Policy" was published as the No. 1 document of the CPC Central Committee. In the document, it has stated that "it is necessary to continuously carry out rural technological transformations, establish and improve agricultural science and technology research and development, and cultivate an educational system for rural development talents, so that rural economy can achieve faster and better development based on increasingly flawless production relations and constant technological advancement." The "practicality" of technology has become the most distinctive feature of farmer training during the Reform-era of household responsibility system.

Compared with the class integration of old peasants, educated youth and local cadres during the collectivisation period, at this time, farmers' technical training also adopted a three-in-one combination - agriculture, science and technology, and education ("农科教"三结合). This combination significantly weakened political influence and became more straightforward. Various secondary vocational schools have become devotees of short-term farmers' technical training, whereas "technology" no longer appeared as the entire process from scientific creation to advancement, but became "ready-made skill" and "specialised skill" which can be instantaneously memorised and applied to the production practice. The "Report on the National Conference on Vocational and Technical Education Work" issued by the General Office of the State Council in 1987 stated that the focus of rural education should be inclined toward local economic

development and to improve the technical skills of labours. From that time, many regions started to cultivate “model households”(示范户) and “leaders of enrichment” (致富带头人), indicating that “economic development” began to replace “social revolution” as the main purpose of farmers' education.

In this sense, the inherently political nature of farmer education in the Mao era gradually faded away, with the cultural and political educational functions of peasant education being 'neutered', leaving only the production-related function of agricultural extension services. Does this mean that farmer training no longer has an impact on the change of farmer ideology?

After reform and opening up, China began to shift from a planned economy to a market economy, and the political and economic system underwent great changes, which inevitably led to changes in the ideological sphere. However, it should be noted that such changes did not happen overnight. For example, farmers' consumption habits, values and aspirations are not entirely controlled by policy, but at the same time, these micro-level ideologies and behaviors have a significant impact on their production and lifestyle. In order to make the farmers' production activities serve the reform of the political and economic system, a way of agriculture production that is consistent with the new political and economic system is necessary. Then, in the period of early reform and opening up, to reform the farmers' ideology and make them become the "new farmers" adapting to the market economy had become a crucial part to realize the rural political and economic reform. Farmer training, as the only form of education for farmers at the time, remained one of the central means of bringing about ideological change and transforming the peasants' way of life and

production.

This chapter takes farmer training as an entry point, and through the process of shaping the “new farmers” after the reform and opening, it further demonstrates the hidden transformative effect of farmer training on farmers' ideology. And the analysis in this chapter shows that, in terms of organisation, farmer training was no longer carried out in socially run amateur schools, and the main training providers were diversified, while the framework of the agricultural technology extension system went through a process of collapse to reconstruction with the dismantling of the four-level agricultural science network. In terms of connotation, farmers' training changed from regular sparetime education for the general public in the Mao era to short-term formal training for a small number of people, thus reshaping the technical elite; the publicity of peasant education was weakened, and the agricultural technology extension service was changed from free to paid, thus shaping a large number of technical consumers; the transfer training of rural labor force had become the central task of farmer training in a period of time, which made the migrant workers develop and grow in a short period of time. It can be seen that each step of change in farmer training has its own social consequences. In order to clearly demonstrate the impact of farmer training on the rural socio-political and economic system, this chapter takes the three main social consequences mentioned above, namely the 'reshaping of the technological elite', the 'birth of the technological consumer' and the 'shaping of the peasant worker', as clues to explain the mechanism of the hidden political force of technology.

3.1 The Reshaping of the Technological Elites: Classification and Modelling in Farmer Training

Although the village of Xiaogang (小岗村) had completely broken the boundaries of collective production and implemented the household contract in November 1978, however, in the whole country, before the household contract responsibility system was formally established in 1983, agricultural production was still mainly carried out within the commune, and the distribution method was combined with the distribution according to one's performance (按劳分配) and the distribution according to one's need (按需分配), and the work points (工分) were determined through self-evaluation public consultation (自评公议). By 1983, an agricultural production system based on household-contract responsibility as the main structure was formally established. It marks the separation of ownership and use right of main means of production such as rural land in our country. Compared with the fixing of output quotas on the household basis (包产到户), which collectives are still economic entities, the work contracted to households (包干到户) emphasises the separation of powers. Farmers have the right to use their farmland and are not only free to dispose of the production process, but also to distribute their produce more freely, i.e. "pay enough to the state, keep enough for the collective, and keep the rest for themselves" (交够国家的, 留够集体的, 剩下都是自己的). It can be said that work contracted to households is premised on the recognition of private ownership.

Therefore, taking 1983 as the time node, the agricultural production system is in fact manifested in two phases. The first stage is the stage of contracting out production to households, where the

collective still enjoyed the right to plan, manage, account for and distribute the means of production, such as contracting out the production of arable land and agricultural products to households, with incentives for over-production and compensation for reduced production (Zhang, 2019). This is not only different from the collective economy of the People's Commune period, but also different from the individual economy of the later period, and is in fact a "transitional period" in which the collective economy is transformed into an individual economy. The second stage is the package to household stage, and the collective no longer enjoys the right to plan, manage, account for and distribute the land, except for the ownership of the land, and collective unified management gradually declined and was replaced by decentralised family management. With the rapid collapse of the collective production system, the "three-tier ownership, team-based" people's commune, as an administrative body with both political and economic functions, had lost the "soil" (collective economy) on which it had been built. By the end of 1984, most of the people's communes had been transformed into township governments, which were mainly responsible for rural political affairs and no longer had the relevant economic functions such as organising production. With the end of the people's commune system, the socially run peasant sparetime schools, the platform on which peasant training was based, also receded from the historical stage, and a new phase in the organisation and conduct of peasant training was entered. Therefore, this section will take 1983 as a juncture of the history of peasant training during the early reform and opening period, and at the same time explore and analyse the reshaping of the rural technical elite.

3.1.1 Category: The Birth of Technology Specialised Households and Key Households

Between 1978 and 1983, some regions began to reform collective production in order to motivate peasants to produce. For example, for some specific agricultural production stages, some communes implemented the responsibility system of contract to group according to work remuneration, and some communes tried out the responsibility system of production by group and distribution according to the output level, which later developed into the responsibility system of contract to groups and contract to households (Zhang, 2019). In fact, the above reform measures had been mentioned by some key government officials as early as the 1960s: Deng Zihui, in a report submitted to the central government in May 1962, stated that it is necessary to stabilize and appropriately expand the measure of freedom of commune member (such as the freedom to keep their own land and hills and to raise poultry and livestock), and the market trade should not be closed off, a production responsibility system should be established (Du, 1998:501-502). In August of the same year, Hu Kaiming, the first secretary of the Zhangjiakou prefectural party committee (地委), suggested that the production team should organise a long-term fixed production group and implement a method of having work teams responsible for labour, output, costs (referred to as three packages, 三包生产责任制). This was done by dividing the land, plough animals and agricultural tools into production groups and rotating them among the groups if there is a shortage of plough animals and agricultural tools. At the same time, according to the quality of the land, the output, the number of labourers and the amount of investment in each production group were assessed, and then, the "three packages" contract was signed with the production team and production group. The contract stipulated that the output is to be handed over

to the production team for uniform distribution, and the excess outside the contract belonged to the production group ("Proposal on the Implementation of Group Production Responsibility in Labour, Output and Cost"). The above proposals were severely criticised by Mao Zedong, who believed that they essentially pointed to the enfranchisement of production to the household and the sharing of land to the household, which would eventually lead to a serious class division in rural society and to the road to capitalism. As a result, these practices were not pursued at the time.

By the time of early reform and opening, the "three packages" production responsibility system extended on a wide scale. By the end of 1979, one quarter of the production teams adopted the "three packages" production responsibility system, especially in Anhui, Sichuan and Guizhou provinces, where 61.6 per cent, 57.6 per cent and 52 per cent respectively of the total number of production teams had adopted the package (Zhao, 2001). During the period when the production was contracted out to households, as the people's commune still existed in rural society as the basic political system for peasant production and life, peasant training during this period was still carried out on the basis of the people's commune and was based on the cooperative economy, which made it somewhat of a continuation of the peasant education of the Mao era in its organisational form. However, the production system of the people's communes, with their centralised labour and unified distribution, was effectively dismantled by the introduction of the household production package, which was accompanied by changes in the distribution methods and forms of production organisation. The following article will take the peasant training carried out in Taojiang County, Hunan Province, between 1979 and 1983 as an example.

In November 1979, the central government recognised the rural education experience of Taojiang County in Hunan Province, which became an advanced county in the country for peasant education and the experience was promoted. It can be said that the Taojiang experience not only represented a common form of peasant training during the period when production was contracted to households, but also achieved better results than the training of the same period.

This thesis demonstrates that compared to the Mao era, peasant training during the period of the package to the household underwent significant changes in terms of training organisation, training objectives, training teachers and training targets.

In terms of the training courses, the curriculum was skewed towards knowledgeable young people and those who were capable of farming. Firstly, a central agricultural school (annotated) tutorial centre was set up, relying on the agricultural high school and district agricultural technology stations to tutor some (1,499 in 1983) trainees; secondly, "multiple classes in one school, combining long and short courses". Relying on the rural farmers' cultural and technical schools (a kind of secondary vocational school), 44 long-term training courses were held, enrolling 2,209 students, and 312 short training courses were held, enrolling more than 12,000 students. Among them, the long-term classes mainly popularised primary technical education for young intellectuals and young middle-aged cadres returning to their hometowns; the short training classes were responsible for teaching techniques to professional and key households. Thirdly, the government changed the socially-run peasant political night schools into technical night schools

and developed the "five courses and one class" (五课一班) system of socially-run/team-run peasant sparetime schools. The "five courses" were party lecture, league lecture, militia political courses, agricultural technology courses and family education courses. The "one class" was a cultural class or a cultural and technical class for both professional and key households as well as ordinary farmers. A total of 675 year-round classes had been consolidated and developed, with an average of 20 or more stable trainees in each class. At the same time, 120 basic hours of study had been set and were assessed every six months; finally, key households were vigorously fostered. From among the trainers, 500 key households in science and education (科教重点户) were selected from the training personnel as contact points. These contact points served as test and model fields for the promotion of new technologies and varieties, and had special technicians to guide production, in the hope of achieving the role of leading farmers and promoting new technologies.

In terms of training purposes, class education was outlawed and "technical transformation" became the center of training. In 1983, the No. 1 document of the CPC Central Committee, "Several Issues Concerning the Current Rural Economic Policy," stated that "we should continue to carry out technical transformation in rural areas, establish a sound system for research and promotion of agricultural science and technology and an educational system for training personnel for rural construction. The education system for cultivating talents for rural construction will enable China's rural economy to develop more rapidly on the basis of increasingly sound production relations and ever-advancing technology." Since then, although night schools were still held in the community and brigade, they were no longer political but technical, and the Mao era

combination of culture, politics and production was replaced by basic knowledge of agricultural science and professional and technical education. In the case of Taojiang, even though the "five courses" included party lecture, league lecture and militia political courses, the courses were often limited to legal and moral education, but also to achieve the goal of training "new socialist peasants with ideals, morals, culture and discipline" (Xue & Hu, 1984). Compared to the bottom-up cultural revolutions and mass movements, the Five Courses were more of a social stabiliser and created the conditions for the top-down inculcation of the will of the state.

In terms of teachers, experienced "seasoned farmers" were no longer an important part of technological innovation and extension, and were not even fortunate enough to be included in the main training system. Science and technology personnel, professional teachers and graduates from secondary and higher education institutions became the main source of teachers (Report on Enriching and Strengthening the Scientific and Technological Forces on the Front Line of Agriculture and Forestry). With the change in training objectives and teacher sources, even though the training of farmers in Taojiang County still relied on the socially run sparetime schools, and drew on the "Three Combination" of cultural, political and production education, there were significant changes in the focus of training, the organisational vehicles and the teaching methods. The biggest change, of course, was in the selection of the target group.

In practice in Taojiang County, the targeted participants for farmer training was designed into three categories. In January 1979, the Central Committee of the Communist Party of China issued the Draft Decision on Accelerating Agricultural Development, making the building of an

agricultural science and technology team the primary task of agricultural modernisation. A large number of rural cadres and agricultural technicians with knowledge of modern science and technology, agricultural technical experts, agricultural colleges and universities that can train agricultural technological and management talents were regarded as the guarantee for the realization of agricultural modernization. The document explicitly called for the training of county, community and team cadres in rotation within a few years, as well as the training of agricultural mechanics and agricultural technicians and accountants. Subsequently, the Report on Rapidly Strengthening Agricultural Technical Training Work, issued in December 1982, made more specific recommendations on the way to organise farmers' training. The Report required that governments at all levels (Cities, counties, communities), in carrying out agricultural technical training work, could rely on scientific research institutes to run dry training courses and hold various technical short courses. It was also possible to train agricultural workers with primary and intermediate production skills for the countryside by relying on farmers' evening and winter schools, and through technical advisory service stations and special lectures, which were widely available.

At the same time, the training supply body implemented graded training for different targets. Training for county, community and team cadres and agricultural technicians were usually carried out by higher administrative departments relying on agricultural colleges and universities, with technical and management training as the main content; training for junior and senior high school graduates and farming experts in the countryside were organised by communes or brigades, relying on farmers' sparetime schools, secondary vocational schools or agricultural schools, with

the main focus on the promotion of new technologies; training for ordinary farmers relied on lectures, visits and broadcasts. Zhai, who used to be a technician at the county agricultural institute, mentioned: "At that time, training was divided into two parts, one was the county's training, which was for township cadres and technicians, twice a year; the other was to train experts in the township, the county technicians rely on the project, went to the township to do technical training, during leisure time, each village selected 3-5 farmer representatives. The training was concentrated in the townships or in typical villages (villages where key projects are implemented). The regions were rotated and scheduled."

In this sense, although the training of peasants during the period of the "package to the household" made use of the agricultural extension system (four-level agricultural science network) established during the Mao era, the selection of training targets differed from the "mass education" of the Mao era and was based on the classification of training targets according to status and technical ability. This classification system excluded peasants from the training system. Except for a few village cadres who meet the requirements of "identity", other villagers who wanted to participate in the training need to meet the requirements of technical ability for training. However, planting capacity is difficult to quantify and standardize. In order to facilitate operation, some places chose to use simplified "knowledge" indicators instead of "ability" as a measurement standard when selecting training students, that is, selecting returning junior and senior high school graduates. However, there were very few young students who can return to the countryside to work in agriculture. At this time, the "technical experts" in the village were the main source of students for training, and the task of selecting technical experts was responsible by the village cadres.

Cadres considered training candidates mainly from "reality" and "personal feelings". Relatives and friends with good relations with cadres were easier to obtain training resources, which is a "personal feeling". For the "reality", there were two types of people who are easy to get training resources, and one was the youth planting experts recognized by everyone in the people's commune period. The other was the excellent cultivation performance after the division of the field to the household.

The key to the excellent performance of such farmers was that they have been familiar with the overall process of farming in collective production. Collective production does not mean uniform division of labor, in the production team, some farmers were responsible for tilling, some were responsible for fertilizing, and some were responsible for watering. The difference of labor division among farmers became one of the factors that affect the individual labor performance. For example, farmers who were responsible for watering, their crops performed better than other farmers because they were more familiar with the farming season. It should be noted that in this process, even if the "seasoned farmers" have sufficient planting experience and perform better, they were excluded due to policy orientation (resources are tilted toward young people). With the implementation of the training, the material incentives and technical support hidden in the training process gradually emerged, and the "personal feeling" soon replaced the "reality" and became the main basis for selecting trainees in the village.

Moreover, these trainings were often based on short-term training in various single practical skills,

with a small number of people selected to participate in the main training system. In 1985, for example, the number of participants in peasant training was 45 million, or 11.2 percent of the total of over 400 million young and middle-aged peasants and 5.6 percent of the total of 800 million peasants (the above figures are based on the China Education Yearbook 1985-1986 and the China Statistical Yearbook). During the Mao era, in 1958, the ninth year after the founding of the state, when material conditions were scarce, the number of people involved in literacy education alone reached over 41 million (Zhu, 2010), 27.3 percent of the 150 million illiterate rural young adults and 8.2 per cent of the 500 million peasants. In a few short years, there had been a tendency for educational resources to be concentrated on a small number of people.

More importantly, agricultural technology training became an important "place of origin" for technical households (科技专业户). Taojiang County Farmers' Secondary Specialised School trained 1,560 junior and senior high school graduates between 1978 and 1984, of whom 61 per cent were recruited by villages as cadres after training, and most of the rest became rural science and technology leaders (农村科技致富带头人), and served as a key contact for the promotion of new technologies throughout the county. Yang Yueqi, a high school graduate, not only became a rich farmer in his village in two to three years, but also was elected as the village headman by learning rice and citrus planting techniques at the village farmers' cultural and technical school (Yang & Hu, 1988). Among the 46 graduates of the animal husbandry and veterinary medicine programme in Taojiang No. 1 Vocational High School, except for 23 who took up public positions such as cadres in the veterinary station, the rest became key households in science and technology (科技重点户). In other words, these trained technicians, junior and senior high school graduates,

and expert farmers successively became an important source of technical households. During the training, they acquired agricultural technology, and established links with research institutes, agricultural departments and science and technology departments, which gave them priority in obtaining the opportunity to become "key technology-connected households" (重点科技联系户). The so-called S&T linkage households were those selected by the agricultural technology departments for the promotion of new technologies, new varieties, new machines, and new pesticides, and these households were able to try out the new varieties and technologies (usually free of charge) under the training and guidance of the agricultural technology departments, and even participate in the process of improving the varieties and the technologies (Xu, 1997). In the early 1980s, when agricultural materials were scarce, it was difficult for ordinary farmers to buy sufficient seeds and fertilisers compared to the stable supply of agricultural production materials to the technology-linked households. In 1987, a survey on farmers' production situation showed that price increases and untimely supply of fertilisers, pesticides, and other agricultural materials were the most unsatisfactory aspects of the situation (Central Policy Office of the CCP, Rural Fixed Observation Point Office of the Ministry of Agriculture, 1992: 326). Zhai, an experienced technician working at the grassroots level, mentioned in the interview that when farmers heard that seed stations were going to sell seeds, they would usually go there very early, or even a day in advance. "peasants couldn't learn from specialized households. They had good varieties, but you didn't."

Similarly, in 1981 in Shenyang Baiqing Commune (沈阳白清公社), animal husbandry and veterinary station played a "demonstration" role in the implementation of the linked households

"three packages" support, The "three packages" were: vaccination (vaccination for the pigs), treatment (free treatment for the pigs) and pig capital (20 yuan per head for the death of pigs due to disease). The "two households" could obtain the three packages of services from the animal husbandry and veterinary station by paying the prevention and treatment fee (RMB 1.5 per pig, RMB 2 per pig for general households) to the animal husbandry and veterinary station. Cui Jusheng, a member of the Taiqing Commune in Luyi County, received sufficient seed, phosphate fertiliser and technical support through the Agricultural Technology Department, and achieved a bumper wheat harvest on his contracted land despite a severe drought. According to Mr. Zhao, who has participated in the technology promotion, in Tangshan, Hebei Province, wheat growers supported by scientific research institutes can increase production by more than 50%. With the help of technicians, the vegetable growers arranged the planting time reasonably. Pig farmers were raising more "lean hogs." The greenhouse growers even got free greenhouses. In contrast, the other peasants had "uneven" wheat growth and low yields; vegetable cultivation was limited to cabbage; lean pork output was low and unstable; and they did not have the funds to build their own greenhouses.

In just a few years, these technology-connected households, with the financial and technical support of the agricultural technology department or relevant government departments, had achieved a bumper harvest and transformed into specialised households (专业户). The so-called specialised household refers to a farmer who specialises in the production and operation of a certain agricultural and animal husbandry product with a certain scale and efficiency (Xu, 1997). To put it simply, a farm household that can transform labour surplus products into commodities

and form a certain scale is a specialised household. According to statistics, a large number of specialised households appeared in areas where the original collective economy was not strong and the commodity economy was more active, while very few of them have appeared in areas where the collective economy was strong and the commodity economy developed slowly (Secretariat of the CCP Central Committee, Rural Policy Research Office, 1987: 21). In other words, in addition to the support of science and technology and related materials, the conditions necessary for the emergence of specialised households also included the promotion of the "private economy" and the "commodity economy". With the emergence of specialised households, the No. 1 Document of the Central Government in 1983 described them as "commodity producers" and affirmed their role in the economic reform in terms of professional division of labour and economic association. By 1984, the specialised household had evolved into another major rural social actor distinct from the ordinary farm household, replacing junior and senior high school graduates and skilled craftsmen, and becoming an important training service target for the agricultural and technical departments and relevant government departments.

In general, the training of farmers during the period when production was distributed to households inherited, to a certain extent, the forms of amateur education that had been carried out by farmers during the Mao era, such as relying on the communes to run schools and relying on the technicians in the four-level agricultural science network to teach and promote technology. However, it also manifested more of its own characteristics, which were particularly in step with the changes in the political economy. First, as the production system changed from collective to decentralised, training changed from uniform to decentralised classes. This is because, as peasants

began to spend their labour time freely, the centralised schooling and unified classes that had once been conducted on the basis of collective labour could no longer be sustained. And the schools run by the commune had been unable to meet the time, place and organization requirements of large-scale, long-term and systematic educational activities, so they had to complete the training in a decentralized way (Hunan Provincial Local Records Codification Committee, 1995: 964-965). Secondly, as economic development replaced class struggle as the mainstream, class education was also replaced by technical training, and training with a view to improving the efficiency of economic development also tilted the resources for training, once geared towards the general public, was now geared towards a small group of people, such as the technology-connected households. With the collapse of the people's commune and the emergence of specialised households, farmer training began to enter a new phase. The following section will continue to examine the process of farmer training in Taojiang County in the context of farmer training under the household contract responsibility system as well as discussing the production situation of specialised households, the main trainees of farmer training during the early reform and opening period, in the light of the actual experiences of technicians, teachers and farmers involved in the training, interviewed in my field research.

3.1.2 Reinvention of Technological Elites: The regularisation of Training and the "Drive of Competent People" of Demonstration Households

As Mao Zedong once pointed out, once the contract system started to be implemented, the package to the group(包产到组) could only exist for a relatively short period of time before it turned into the fixing of output quotas on the household basis (包产到户) or even the work

contracted to households (包干到户) . By 1984, of the 10,481 production teams in the country, 9,987 (95.3 per cent) had implemented the work contracted to households, 402 (3.8 per cent) had the fixing of output quotas on the household basis, and only 45 (0.4 per cent) had packages to groups (包产到组)(Office of Rural Policy Studies of the Secretariat of the Central Committee, 1986: 11). With the large-scale implementation of the package to the household, the collective production system rapidly collapsed and the people's commune, as an administrative body with both political and economic functions, lost the "soil" on which it had been built. As a result, the people's communes were dissolved and the socially run peasant spare-time schools were withdrawn from the stage of history, and peasant training entered a new phase of history. Firstly, there was a shift in the training platform. Farmer training shifted to the organisation of secondary vocational schools such as agricultural schools and vocational education centres. Secondly, there was a shift in the mode and focus of training, with "driven by the capable" (能人带动) becoming the main mode of technology promotion, and some specialised households being assessed as model households and gaining access to more training resources. The following section will reveal the process of reshaping the rural technical elite through an explanation of these two new features of farmer training: formalisation and the "driven by the capable".

From amateur education to formalised training.

The construction of China's vocational education system is closely linked to the reform of rural education. After the reform and opening (from about the 1980s to 2000), rural students were the most important source of students for secondary vocational education, and secondary vocational schools played an important role in the state's reform of rural education, this is why they are also

known as rural secondary vocational schools.

In the era of early reform and opening, the development of vocational education was regarded as one of the priorities of education, and a vocational education track was constructed as a counterpart to general education. In 1977, Deng Xiaoping proposed that "education should be run on two legs, paying attention to expansion as well as to improvement. Key primary schools, key secondary schools and key universities should be organised". In August of the same year, the 11th Party Congress stated that "strong measures should be taken to expand and accelerate the scale and speed of development of all kinds of undertakings at all levels, and to improve the quality of education". This signalled that the pursuit of educational efficiency and quality was beginning to replace educational equity as the main direction of educational development. Educational resources were gradually concentrated in key schools and more economically developed areas. By the 1980s, with the dissolution of the people's commune and the reduction of collective public funds, some villages were gradually unable to afford the normal operation of local primary and secondary schools, and the lack of materials and teachers made it difficult for rural students to obtain adequate educational resources. Under these circumstances, only a very small number of rural students were able to enrol in the general education track.

In 1985, in response to the reform of the education system, the Decision of the Central Committee of the Communist Party of China on the Reform of the Education System proposed that the structure of secondary education should be adjusted, that vocational and technical education should be vigorously developed, and that the backbone role of specialised secondary schools

should be brought into play. By 1986, more than 3,500 county-level vocational and technical education bases for farmers had been built nationwide. More than 2,300 branches of agricultural extension schools were developed, and 24,000 grass-roots teaching classes in townships were organised, with more than 830,000 formal students in school (He, 1998: 246). Thus, two distinct tracks of post-secondary education were constructed, a general education track leading to higher education for high achievers, and a vocational education track leading to factories with a focus on the development of production skills. For the latter, the main component is rural youth.

In fact, the debate between quantity and quality in education occurred not only during the era of early reform and opening, but also during the Yan'an period and the Cultural Revolution. The government of the Shanxi-Gansu-Ningxia Border Region "pulled down and merged schools" in 1940, closing down a large number of schools with fewer than 20 students, and some county and township schools were even closed down by 70 percent. While the preserved schools were called "model schools". The majority of educational resources obtained by model schools (Wang, 2019) not only made them representatives of formal education, but also formed a special channel for elite training as opposed to other types of education (Wang, 2019). Until the rectification movement in 1942, the mass line was carried out again, at this time, the pursuit of mass education and universal education broke the superstition of formal education and elite education. Since then, farmers' amateur education and practical education have been paid attention to. A similar situation also appeared during the Cultural Revolution, this time, the college entrance examination system was abolished, a large number of rural primary and secondary technical education schools were closed, and rural youth mainly received amateur education from farmers, while urban youth went

to the countryside to "re-education by poor farmers in rural areas" (接受贫下中农再教育) by Down to the Countryside Movement (上山下乡) . The division of schools into grades was no longer allowed, and the unequal distribution of educational resources was greatly reduced.

The dispute over the quality and quantity of education reflects the choice of educational routes. The separation of education tracks is the inevitable result of the replacement of the mass education track by the elite education track. However, unlike the Yan'an period and the Cultural Revolution, the educational reforms of the early reform and opening period not only shaped two educational tracks, but also had social consequences that ultimately led to the transformation of the relations of production.

With the establishment of a large number of secondary vocational schools throughout the country, the direction of rural education began to be orientated towards the economic development of the region, and the training of people with "production" skills and secondary specialised technical knowledge became the aim of vocational education (Report on the National Working Conference on Vocational and Technical Education). However, at this time, the "production" was not agricultural production, but industrial production. In other words, with the opening of secondary industry-related majors in secondary vocational schools, the employment direction of an increasing number of rural youth shifted from farmers to skilled workers in urban industries. This also provided a possible labor force for private enterprises and foreign-funded enterprises in the rising and entering trend.. Some of the rural youth also became the first batch of migrant workers after the reform and opening. It can be said that the vocational education track after reform and

opening has become one of the main channels for shaping the migrant workers class, laying the labour base for the development of capitalist urban industry. The shaping of the migrant workers class will be discussed in detail in section III of this chapter, "From peasants to migrant workers: the re-launching and re-turning of training programmes for peasants".

The shaping of the vocational education track had a significant impact on the form in which farmer training is conducted. Firstly, rural youth were included in the system of secondary vocational schools at the post-secondary stage of formal education, compared with the Mao era, which relied on community-run schools to educate all young and middle-aged peasants in the commune, the reformed training of peasants had only taken local peasants as the target group, which not only reduces the volume and scope of training for peasants, but also to a certain extent severs the link between rural youth and agriculture. The reason is that in addition to agricultural majors, secondary vocational schools offered many non-agricultural majors according to the needs of economic development in the region, such as cookery, electronics, electrical appliances, machinery, sheet metal, foreign trade, etc.(He, 1985; Fei, 1988). The choice of non-agricultural majors often signaled a de-agriculturalisation of employment, as some rural youth began to leave the countryside and became skilled workers in the towns and cities.

Secondly, as a new training vehicle, the secondary vocational schools covered by the academic system took theoretical knowledge as the focus of teaching, and the practical character of farmers' training as short-term and spare-time education was weakened, replaced by a gradual increase in classroom teaching and theoretical hours. For example, in 1986, the China Association for Science

and Technology (中国科协), the State Education Commission (国家教委) and five other departments jointly issued the Circular on Strengthening Practical Technical Training for Rural Youth during the Seventh Five-Year Plan period, proposing that the content of farmers' training should be based on advanced practical technology and management knowledge, and that training courses on basic knowledge should be increased in particular. Some agricultural technical schools even offered cultural courses such as mathematics, chemistry, language and politics, as well as specialised basic courses such as plant physiology and genetic breeding. In the opinion of some scholars at the time, the biggest difference between farmer training and full-time schooling was simply that trainees were not released from their jobs and there was no work issues for trainees (Feng & Fan, 1984). The intervention of the formal school system made the farmer training completely depart from the characteristics of amateur education that had been the norm since the Mao era, and began to follow the trajectory of formal education, with more specific regulations in terms of school hours, school system, and learning content, but it also led to the problem of disconnecting theory from practice. At that time, it even became a research hotspot for a while, and some studies tried to solve this problem by improving the teaching methods and modes (Liang, 1988; Fan, 1988; Lu, 1988). The Correspondence University of Rural Enrichment Technology (农村致富技术函授大学), which aims at training farmers' technicians, had put forward the principle of "practical, pragmatic and effective". The introduction of these studies and policies not only reflected the urgency of solving the problem of the disconnection between theory and practice, but also indicated the seriousness of the problem.

However, both the shaping of the vocational education track and the shift from amateurism to

formalisation of farmer training signalled that rural education in the early reform and opening period had embarked on a path of specialisation in which traditional agricultural experience was no longer valued, and was replaced by "professional" knowledge and skills. This contrasts sharply with the Maoist affirmation of farmers' "local knowledge" (土知识) and "local skills" (土技术), and at the same time opens up the possibility of the formation of a technical elite. This is because, for the ordinary farmer, the priority access is always to the "experience", "accidental" and "local" skills. The "new technology", which symbolises higher education, was most likely to be monopolised by a small number of people and became a tool for them to accumulate wealth. It undoubtedly hit the majority of ordinary farmers, accelerated the differentiation among farmers, and even provided a hotbed for the establishment of social order and social hierarchy.. This issue will be further elaborated later in the article entitled "driven by the capable"

"driven by the capable": The road to agricultural modernisation

In 1988, in order to promote the development of the rural economy and to train suitable personnel for local agricultural production and the processing of agricultural and sideline products, the State Education Commission formulated the "Prairie Fire (Liaoyuan) Plan". This means that, technical training was provided to graduates of junior and senior high schools in rural areas in order to improve the quality of agricultural labourers. Practical technology, which aims to improve production efficiency, was the main content of the training. Specifically, the trainees of the Prairie Fire Plan was mainly junior and senior high school graduates who will return to their hometowns or who are in their hometowns; it mainly used projects as a carrier and organises training around scientific and technological projects, with the intention of promoting and transforming scientific

and technological achievements through farmers' training. Agricultural extension schools, farmers' cultural and technical schools, and vocational education centres have become the main bearers of training tasks. In addition to the Prairie Fire Plan, the Harvest Programme (丰收计划) and the Spark Programme (星火计划) were also in an underly way. The Harvest Programme was organised and implemented by the Ministry of Fisheries and the Ministry of Finance, and refers to the application of advanced scientific research and technological achievements available both at home and abroad to large-scale and extensive production. The Spark Programme advocated the construction of demonstration bases on the basis of the project, and through the training of farmer entrepreneurs, agricultural management talents and technical experts, it aims to achieve the common prosperity of the entire rural society by leading the way. In fact, these three programmes were only part of the overall reform of the rural education system.

In 1992, the State Council issued the Circular on the Active Implementation of the Integration of Agricultural Science and Education to Promote Rural Economic Development, and the integration of agricultural science and education, which had already been practised for many years in local provinces and municipalities, began to be implemented throughout the country. Literally, the combination of agriculture, science and education means the co-ordination of agricultural production, agricultural science and technology and farmers' education; however, in the context of social change, the combination of agriculture, science and education has a more specialised meaning. First of all, at this time, "agriculture" was no longer the traditional meaning of agriculture (planting), but "big agriculture", that is, including the entire rural economic construction, not only the development of agriculture, but also the development of township and

village enterprises and agro-industrial and trade, agriculture, industry and commerce; The term "science" does not mean all science, but refers to the development of agricultural science and technology, and the promotion, application and popularisation of agricultural scientific and technological achievements; and the term "education" refers specifically to the training of practical rural technology. To put it simply, the combination of agricultural science and education is the process of putting agricultural technology conducive to the development of the rural economy into production by means of special practical technology training. This marks the fact that economic development has fully replaced the former "proletarian ideology shaping" and has become the centre of all scientific and educational activities. Since then, Chinese agriculture has embarked on a completely new path of modernisation.

Driven by the economic centre, the rural science and technology training and promotion network has undergone great changes. The traditional four-level agricultural network was transformed into a "rural science and technology training and promotion network with the county science and technology training and promotion service centre as the leader, the township and village service bases as the outlets, with universities, colleges, research institutes and scientific and technological units at the top, and professional groups and households at the bottom" (State Council of the People's Republic of China, 1992). In other words, in order to improve the application efficiency of technical achievements as soon as possible, the construction of specialized households and demonstration households became the main task of farmers' training in this period, and the vast majority of ordinary farmers were no longer included in the training system.

In terms of training methods, the "combination of agricultural science and education" was carried out according to the principle of "promoting a technology, training a batch of talents, developing a product, and enriching one side of farmers", and technical training was carried out around the project. For example, Xiangyang County in Hubei Province had set up a project technical team headed by a wheat expert around the wheat high-yield cultivation project, training from the county to townships, and then from townships to villages and groups and specialised households, and transferring the technologies of precision sowing, formulated fertiliser application, and chemical weed control to the "rich leaders" and "demonstration households", in an attempt to make the villages and townships more productive by promoting a technology. In an attempt to drive ordinary farmers with rural "capable people", the role of "one family to learn the skills, ten families to follow"(一家学技，十家效仿) . The Taojiang County in the following section also carries out farmer training and science and technology promotion under a similar logic.

From the 1980s to the 1990s in Taojiang County, on the basis of the original four-level agricultural network, a "five-tier farmers' education network" was established, consisting of county, district, township, village and household levels. Among these, county-level farmers' education relies mainly on farmers' secondary schools, which offer four specialities: agronomy, horticulture, agricultural economics and comprehensive family management. Most of the students came from technicians, specialized households and technology households. In terms of training methods, in addition to setting up experimental farms and introducing good seeds for experimentation, cooperation had also been established with scientific research institutes to jointly develop new varieties and technologies on the basis of scientific research projects. The trainees

were thus able to come into close contact with all kinds of agricultural materials and scientific and technological achievements, and also grasped the code for some specialized households to further "get rich"; district-level farmers' education was undertaken by 10 rural districts within the county, relying on the Agricultural Extension Schools, and setting up counselling centres equipped with class teachers and counsellors; in 1988, for example, there were a total of 1,154 formal trainees (the average number at that time), and the number of students was 1,050 (the average number at that time). In 1988, for example, there were 1,154 formal students (at that time, there were about 50,000-100,000 people in each rural district on average), of which more than 70% were returning junior and senior high school graduates; township-level farmer education was undertaken by 48 township-run farmers' cultural and technical schools; in order to run a good network of township-level farmer education, the townships of Taojiang County pooled their funds to set up a new school building, and more than ten specialised classes were held on rice, citrus, rabbit-raising, pig-raising, sewing, knitting and agrotechnics, etc., which provided opportunities for returning junior high school graduates and specialized households to learn and learn. Farmer education at the village level is undertaken by the farmers' amateur schools in the 768 administrative villages, and was aimed at ordinary farmers; however, as most of the amateur schools have been closed down, the "five classes and one class" system of the period when production was distributed to the households is rapidly being replaced by scientific and technological lectures.

Household-level farmer education refers to vocational and technical workshops run by some specialized households. As a new way to cultivate rural technical talents, education run by specialized households received attention in the 1980s. Taojiang County, as a representative, has

been focusing on cultivating key and specialized households since 1981. Taojiang County identified farmers with cultural, technology, and affluence as key households in science and technology education, and focused on their training by farmers' training institutions within the county: firstly, between 1984 and 1987, to help key households master systematic science and technology as the goal, a total of 194 training courses had been held, with an average of 2-3 rotations for each specialized household; secondly, specialized households were organised to go to Zhejiang, Changsha and other areas where advanced agricultural technology is applied; thirdly, a contact system between technical cadres and key households was set up, with each cadre responsible for 2-4 key households, helping them to sum up their experiences and set up scientific and technological files in order to monitor agricultural production; fourthly, a teaching and research group of the Vocational and Technical Education Centre for Specialist Households was set up, with more than 60 teachers and researchers carrying out scientific and technological research and market studies, and through the mapping out the main production projects of the county's key households in science and technology education, and collating learning materials for their study. Under such a training framework, the key households in Taojiang County grew from 300 in 1981 to 3,600, and their main business projects had expanded from planting to processing industry, service industry, agricultural machinery industry and so on. And in the preset of Taojiang county government, the key households to run vocational and technical workshops, technical training for peasants, especially junior and senior high school graduates, was the main path to realise the "Rich First Pushing Those Being Rich Later" (先富带动后富) . By 1987, there were more than 250 workshops in the county, and 75 of them had good results. At that time, these were called "small schools for popularisation of science", and according to statistics, more than

40,000 peasants received training in the "small schools" and 11,000 of them became capable of producing commodities (Long, 1987).

The household-level workshops differed from the county-level and township-level farmer training in two ways: 1. in terms of cost, the specialized households usually charged a training fee, which ranged from tens of yuan to two hundred yuan, depending on the length of the training. The government-run training was free of charge. 2. In terms of training content, the content of household-level training tended to be more industrial and commercial. At that time, among the 300 small bases of commodity production in Taojiang County, 40% of the peasant skilled workers were trained by specialized households, such as the village of Xiangyanghua, where 80% of the labour force of the whole village had been transferred from agriculture to industry, sideline industry and commerce. In contrast, government training at the county, district, township and village levels still focused on upgrading and popularising agricultural production techniques. It can be said that the "five-tier farmers' education network" in Taojiang County had continued the characteristics of farmers' training during the transition period, i.e., it classified the training targets, concentrating the training for returning junior and senior high school students and specialized households at the county, district and township levels, and concentrating the training for ordinary farmers at the village and household levels. However, along with the disappearance of community-run farmers' amateur schools, village-level training had gradually been implemented in the form of radio broadcasts and lectures, which are less effective compared to formal training courses. With the development of the rural commodity economy, the training content of household-level workshops had gradually tilted towards non-agricultural industries, and as a result,

there had been a lack of agricultural technology training for ordinary farmers. Generally speaking, the training of farmers during the period of householdisation had changed in the following ways:

Firstly, agricultural technical services had begun to change from unpaid to paid. The inclusion of specialized households in the main body of the training supply seems to have played a complementary role in the development of farmers' training, and to a certain extent has made up for the gradual weakening and lack of village-level farmers' technical training, but in fact it has completely excluded poor farmers from the training system. The pursuit of economic benefits has changed the popular orientation of farmers' education, and the training path that gives priority to young people with knowledge, young people with skills, and specialized households has been chosen instead, on the basis of which it relies on specialized households to provide agricultural technology training services to ordinary farmers. This approach certainly saved the state millions in training funds (Long, 1987), but it also shifted the cost of training onto the farmers. Around 1985, the per capita net income in rural Taogang County was about 500 yuan, and the net income of poor households was only 200 yuan or so (Ouyang et al., 1987). It was difficult for poor farmers to afford the training costs on their own, and they naturally lost the opportunity to receive technical training.

Secondly, the content of training had shifted towards non-farming. In the case of low returns from traditional planting and high returns from cash crops, processing industry and service industry, specialized households began to abandon field crops and choose cultivation, machinery, preparation in training. For example, from 1984 to the early 1990s, rice planting training

accounted for less than one-tenth of the training courses offered by government agencies at all levels in Taojiang County, with the rest covering farming, sewing, knitting, and mechanical and electrical maintenance. As the production of specialized households shifted to non-agricultural industries, the training they offered also shifted to non-agricultural industries.

The off-farm production of specialised households had on the one hand widened the division of the peasantry and on the other promoted the development of the rural commodity economy. This eventually led to the formation of a technical elite. In 1988, in a survey of more than 10,000 farmers, 87.6 per cent believed that the income gap between farmers had widened. In contrast to the period before the Third Plenary Session of the Eleventh Central Committee, the "skilled and technical" and the "traders" had replaced the "large family labour force" as the main affluent class in rural society. At the same time, specialized households rapidly accumulated large amounts of capital through the transition to cash crops, farming, and light industrial production, and gradually used the capital to expand their production, realising the transition from capital to capital. With the expansion of production scale, specialised households had become the main source of large rural labourers, accounting for 58 per cent of all large labourers (Office of Policy Research of the Central Committee of the Communist Party of China, Office of Fixed Observation Points in Rural Areas of the Ministry of Agriculture, 1992:385). In this sense, a technical elite class, consisting mainly of specialized households, had been formed in rural area. At the same time, these technical elites also trained many small producers in line with their own production through the "specialised households running schools". For example, a major bamboo weaving household in Taojiang County ran 37 training courses on bamboo products, training more than 3,500 skilled workers and

small merchants in the bamboo processing industry (Long, 1987). These trained farmers indirectly became the main source of hired labour in the village community.

Compared with the Mao era, farmers' training after reform and opening has undergone qualitative changes in many aspects, including scope, connotation and content. After the destruction of the original political and economic organisation of rural society (the people's commune), China's agriculture embarked on a path of modernisation in pursuit of economic efficiency. Improving the efficiency of agricultural production, upgrading the specialisation of farmers, and setting up models to drive regional development became the main tasks of agricultural technology promotion in this period. In order to achieve these aims, the State had made adjustments to the "hardware" and "software" levels of farmer training. The so-called "hardware" is the reform of the training system. Firstly, secondary vocational schools within the school system were used as a platform for training, changing the characteristics of amateur education for farmers in the Mao era, and bringing the organisation and implementation of farmers' training under a more standardised system. Secondly, the main body of training supply is enriched so that "specialized households" become providers of paid training services, which on the one hand reduces the financial burden of national technology promotion, and on the other hand intends to form a large-scale effect and promote the development of the rural economy by leading the whole country through a point by point approach. It should be noted that a group of short-term skilled workers related to the production of the "specialised households" also emerged. The so-called "software" refers to the training of specific candidates. Firstly, training was provided to a small number of people in rural society who have accumulated knowledge and technology (usually technicians and graduates of

junior and senior high schools), on the basis of which science and technology-associated households were selected and given great scientific and technological and material support, thus contributing to the formation and expansion of the group of specialised households; secondly, support was provided for the production process of the specialised households on the basis of a research project, from which demonstration households were selected to provide a platform for the "rich leaders". Secondly, the research projects supported the production process of the specialised households and selected demonstration households to provide a technological guarantee for the accumulation of wealth by the "rich leaders", thus remodelling the technological elite in the rural society. In this sense, a new division between the rich and the poor was reproduced in rural area, and the private economy flourished. Looking at the process of shaping the technological elite, it can be seen that technology, as a political force, had a great impact on the transformation of production relations.

It should be pointed out that neither the reappearance of the wealth divide nor the reshaping of the technical elite means the formal formation of stable capitalist production relations in rural society.

Although the agricultural employment relationship appeared, the small-scale production of peasant was still the mainstream form of agricultural production. In terms of ideology, the identity of farmers and their views on agricultural production methods have not changed fundamentally.

Research conducted by the Central Policy Research Office of the Communist Party of China shows that by 1990, most farmers still regarded agriculture, especially the production of food crops, as their main family business. At the same time, the organisational and service functions of the collective economy were still generally recognised, with only 15.8 percent of farmers surveyed

believing that the "one-family" model of agricultural management was entirely superior to collective management, and that "difficulties in purchasing fertilisers and pesticides" "Lack of good seeds" and "lack of production technology" were the main problems faced by farmers in the process of transferring production to households. In addition, the private labour was not widely accepted. Only 47.8 percent of the farmers surveyed believed that private employment can be a necessary supplement to the socialist economy, while 43.6 percent believed that the income of large employers should be limited. "Fear of being considered exploitive" was the primary reason why farmers do not want to become large employers (Policy Research Office of the Central Committee of the Communist Party of China, Office of Rural Fixed Observation Points of the Ministry of Agriculture, 1992:385-388). The above data show that peasants had a clearer judgement on whether there was a division between the rich and the poor in rural society, and whether there was exploitation. After ten years of reform and opening, the peasant ideology was not fully compatible with the development of the private economy, but retained some traces of the socialist education movement, but retained some traces of the socialist education movement. However, with the comprehensive commercialization of means of life and production, farmers' psychology and production and consumption habits have further shown new changes.

3.2 The Birth of the Technology Consumers: "Material Services" and Technology Commercialisation

After the dissolution of the people's communes, more than 90,000 township governments were established in rural areas, and corresponding township-level finances were formed; rural public

utility expenditures, such as education and infrastructure construction, which had been borne collectively by the communes, were shifted to be borne by individual peasants. In addition to paying agricultural taxes, provident funds, and other fees, peasants were also required to bear education surcharges, which supported the survival of schools at the township and village levels through the collection of funds. Although the education surcharge had always been regarded as an important source of investment in rural education, these funds could barely support the expenses of full-time primary and secondary schools, and were not sufficient to cover the financial needs of farmers' training. Private workshops, a complementary form of training for farmers, had not been well received by farmers due to a lack of supervision and lower quality of training, while their high tuition fees were unaffordable for many farmers.

Around 1990, county committees began to encounter "the problem of farmers' education funding" (Sun, 1989; Long, 1991). In Taojiang County, for example, since 1988, the training of farmers in Taojiang County had gradually stagnated. Due to insufficient funding, many school buildings were dilapidated and the school facilities were unsustainable. By 1990, 10 percent of the 48 rural technical schools were out of service and one third were in need of maintenance. The number of household-level technical workshops, once run by specialised household, had also been closed, and by 1990 the number had fallen to less than 50%. The shortage of funds not only cut down on the number of training centres for farmers, but also made it impossible to pay teachers' salaries, seriously affecting the stability of the teaching force. Based on this, some technicians and cadres responsible for rural work began to call for "increasing investment in farmer education", but unfortunately, no obvious results had been achieved

In the 1990s, the "four-level agricultural science network", which had lasted for nearly 40 years since the Mao era, completely disintegrated, showing a scene of "broken lines, broken nets, and dispersed people". In 1985, the Decision of the Central Committee of the Communist Party of China on the Reform of the Science and Technology System was issued, proposing that "Agricultural extension agencies and research institutions can set up enterprise-type business entities Encourage and support units that are in a position to do so to gradually become self-sufficient in business expenses." Although the Decision did not explicitly abolish the government's allocation of business expenses, local governments began to force the "weaning" of agricultural extension units in order to save money, which meant that agricultural extension departments could no longer obtain financial allocations from local governments and were required to be self-supporting. To 1989, the State Council relied on scientific and technological progress to revitalise agriculture and strengthen the promotion of agricultural scientific and technological achievements. They further introduced paid services and competition mechanism, changed the agricultural extension agencies to rely solely on financial allocations, and unpaid services, in order to achieve self-management, business self-care. It provided a policy support for the successive "socialisation" of agricultural extension units at the county and township levels around the country. "As of 1993, 39 counties out of 2,402 county-level units nationwide had completely stopped paying for agricultural extension services, 956 county departments had been "weaned" and 220 counties had transformed their agricultural extension departments into operating departments such as companies. 50.62 percent of county-level agricultural extension departments had difficulties in maintaining normal extension operations."

At the same time, with the introduction of the land-contracting system and the private economy, the means of production related to agriculture had long been transformed from unpaid to paid. For example, seeds, which in the Mao era were distributed free of charge to farmers by the community groups, at the beginning of the period when land was distributed to households, had already evolved from a public good to a commodity, which farmers could only obtain by buying them at fixed sales outlets. This has gradually transformed farmers from users of agricultural materials and producers of agricultural products to consumers of agricultural materials and sellers of agricultural products. With the disappearance of public technical resources, agricultural technology closely related to agricultural materials also underwent the process of commercialisation, and technical services, once public goods, began to be fully replaced by paid services. However, compared with other means of agricultural production, the process of agricultural technology commercialisation was more hidden, and it was found that "technical contracting" and "material services" became the main forms of agricultural technology promotion in this period, and eventually, the elimination of technical contracting by material services achieved the commercialisation of agricultural technology services. In the end, the elimination of technical contracting by material services realised the full commercialisation of agricultural technology services. How did the commercialisation of agricultural technology evolve? How has the role of farmers changed in this process? This section will take the changing situation of the agricultural technology extension system as an entry point to respond to the above questions at three levels: firstly, to explain the characteristics of paid technology services by interpreting technology contracting and material services; secondly, to analyse the internal logic of the process of

commercialisation of agricultural technology services through the explanation of the relationship between technology contracting and material services; and thirdly, to sort out the relationship between the technology and the farmers in the period to identify the transformation of farmers' roles in the process of technology commercialisation.

3.2.1 Technical Contracting and Material Services

Technical contracting refers a contract on yield, technology, responsibility, personnel and rewards and penalties, and so on, the contracting party aims to develop scientific and technological production measures, the contracting party is responsible for the implementation of the contract, and the part of the increase in production agreed to be distributed in the process. As early as 1980, some provinces and municipalities carried out "technical contracting" pilot work, for example, Hebei implemented the agricultural technology contract responsibility system. By 1983, about 1/3 of Hebei's technicians had contracted more than 15 million mu of crops, accounting for 12.5 per cent of the province's sown area (Cui & Yang, 1990). It was also in 1983 that the "technology contracting system" first appeared in the No.1 document of the Central Government, which pointed out that "the state and collective agricultural technology service organisations should be set up in all areas, and through the technology contracting system, technology demonstration households, technology service companies, production and technology consortia, and science and technology popularisation associations, etc., should be set up". "The "household-level workshops" mentioned above are a typical example of technology contracting by technology demonstration households.

Specifically, the implementation of technology contracting can be divided into two phases, using the survival of the people's commune as the demarcation point. In the first stage. During the existence of the People's Commune, the contractors of "technology contracting" were usually technology promotion units, and the contractors were mainly agricultural production units (production brigades/collective teams), and the profit of the contractors at this stage mainly came from the part of the increase of agricultural products' production; in the second stage, as the countryside no longer had unified production organisations capable of carrying out economic functions, the types of contractors gradually diversified, including both farmers and townships. In the second stage, as rural areas no longer had unified production organisations capable of carrying out economic functions, the types of contracting parties gradually diversified, including farmers, township governments, and agricultural product processing units, etc., the contracting parties were agricultural extension units or technicians. At this time, the means of profitability were also diversified; in addition to the distribution of the increased production, the supply of materials before production and technical services during production were also the main sources of profit for the contractors.

The counterpart to technology contracting is material services. Material services refers to the way in which agricultural extension workers disseminate technology by selling agricultural materials to farmers and informing them of how to use them. This type of technical promotion was actually developed on the basis of "technical contracting" - the agricultural department contracts out technical promotion tasks to technical cadres, and assesses the performance of the technicians according to the completion of the tasks, with part of their salary deducted for failure to complete

the tasks and a bonus for over-delivering. Under these circumstances, some technicians began to bundle the sale of technology with the sale of agricultural materials in order to fulfil their technical promotion tasks. In an interview with Zhou, a former township technician, he said, "At that time, county and township technical stations mainly sold agricultural materials, did not conduct training, and only told farmers how to use the materials when they sold them. Later, in order to survive, more and more technicians went to run shops and sell agricultural materials, and after seeing the huge economic benefits, they gradually gave up their jobs and specialised in the operation and sale of agricultural materials, and many county and township technical stations were empty, and all the people left." That is to say, if the promotion of agricultural technology as the original intention of the material services, then at this time, agricultural technology was reduced to a subsidiary of the sale of agricultural materials, agricultural extension units rely solely on the sale of materials to make a profit, the depth of this bundle with agricultural materials, but also became the key to the later material services to fully replace the technical contract.

3.2.2 The Replacement Process of "Material Services" to "Technical Contracting"

This section focuses on the analysis of the evolutionary process between the two forms of paid technical services, technical contracting and material services, in order to examine the internal logic of the process of commercialisation of agricultural technical services. In order to better demonstrate the iteration of the agricultural extension system from technical contracting to material services, the following section will illustrate this process with examples of the main forms of implementation of each of the two.

As a large-scale organisational form of agricultural technology contracting, the distinctive feature of "agricultural technology contracting group" was the "unity of government and technology" and "unity of material and technology", which was a kind of "unity of administration, technology, material, teaching, scientific research and other departments and professions". It was a kind of "multi-departmental and multi-professional personnel from administration, technology, materials, teaching, scientific research, etc., combined in certain organisational forms to form a contracting collective, and provide agricultural production units (generally township or village governments) with a certain aspect or a comprehensive full technical service, as well as the necessary materials and funds, in order to realise a pre-determined total or single yield, and to collect a certain reasonable service fee". A certain reasonable service fee form of technical contracting." (Gao, et al., 1990) Specifically, the contracting group consists of the agricultural department, the science and technology department, and the material department, and implements a managerial responsibility system under the board of directors, with a two-tier contracting network: one is at the commune level, where the deputy head of the commune in charge of agriculture, the manager of the production service department of the supply and marketing agency, and the commune's agricultural technicians form the "contracting service branch", which is responsible for the distribution of materials and technical guidance in the commune. The first was at the commune level, where the deputy chief in charge of agriculture, the manager of the production services department of the supply and marketing society and the commune agricultural technician form a "contracting services branch", which is responsible for the distribution of materials and technical guidance in the commune; the second was at the village level, where the village secretary or chief

was appointed as head of the station, and village technicians and clerks were absorbed into the station to form a "technical and material contracting service station", which was responsible for the distribution of materials, technical guidance, signing of contracts with farmers and the collection of contracting fees (Gao, et al. 1990).

In terms of production practices, the Group was responsible for providing the contractor with the necessary production materials and ancillary services, including technical services and management methods, and at the same time setting clear targets for increasing production. The contractors were required to implement the contracted yield-increasing technical measures in production and submit a certain amount of technical contracting fees and material payments. In order to attract farmers to participate, the technology contracting group would give farmers certain preferential policies in terms of materials, loans and technical support. For example, the four contracting groups in Suibin County, Heilongjiang Province, implemented a "five-priority policy" in 1989, giving priority to the provision of technology, information, training, loans and agricultural materials, so that contracted arable land could receive more affordable fertilisers and pesticides than ordinary arable land. At the same time, after farmers pay the contracting service fee, the local finance will also give subsidies (Fu, 1990). The detailed descriptions of production technology measures in the contract not only provided a guarantee of increased production, but also urged the contractors to learn and apply agricultural technology to a certain extent.

In terms of the effects of implementation, with the support of large-scale operations, affordable materials and organised work, the "agricultural technology contracting groups" achieved higher

yields than the single person, single-family contracted land. For example, in the Shaanxi contracting area, grain yields and total yields increased by 25.4 per cent and 14.8 per cent respectively compared with 1988, 21.3 per cent and 9.75 per cent higher than the provincial average, with a total of 350 million kilograms of grain and 3.35 million kilograms of cotton in 1989, and with a net value-added of 276 million yuan, the province's grain output exceeded the hovering and hit a historical record (Wang & Zhang, 1990). Hebei Magixian wheat scale cultivation technology contracting group in 1988 contracted to plant 350,000 mu of wheat also created the province's highest record of wheat production: an average yield of 349.75 kg per mu, the total output of 87.41 million kg. compared with 1987, respectively, an increase of 12.5 per cent and 2.5 percent. As far as Hebei Province is concerned, group contracting increased the average grain yield by 8.56 kg per mu, cotton by 1.8 kg, melons and vegetables by 131 kg, and forest fruits by 78 kg compared with that of a single person under a single contract (Gao, et al., 1990).

It can be said that the "agricultural technology contracting groups" performed well in terms of the effectiveness of technology promotion and yield growth, however, in the 1990s, most of the technology contracting groups ceased to operate and were eventually replaced by "small-scale agricultural material distribution outlets".

The "small agricultural distribution network" was the main form of "material service" at that time. Most of the "distribution network points" were coordinated by the materials department or the agricultural administrative department, and provided small-scale material support services to the

countryside through joint operations with township governments and rural supply and marketing societies, or by contracting out the right to operate to individuals or companies. Among them, agricultural extension workers, called "scientific and technological goods men", became the main force in the creation of small-scale agricultural distribution networks, with the following specific process: technicians wholesale materials to the countryside on their own, and sell them within the maximum price set by the Agriculture Bureau, with the difference attributed to them, i.e. the completion of the tasks of the technicians directly linked to their performance in selling the materials (Niu & Ma, 1994). This kind of small-scale agricultural business outlets were scattered in townships and villages, forming a nationwide agricultural distribution network, for example, in Jiangsu Province in 1988, the total number of outlets reached 2,000 (Gu & Cui, 1988). There were two groups of people it was aimed at, the first were scientific and technological households or specialized households, and the second were ordinary farmers. For both groups, the outlets would provide corresponding technical services in the process of selling agricultural materials such as fertilisers, pesticides, seeds, etc. However, at this time, the technical services have been deeply tied up with the agricultural materials, and have become an accessory to the sales of agricultural materials. By 1991, the service outlets of the national agricultural material system had grown to 200,000, 2.35 times the number of outlets in 1990 (He, 1992). So why did this small and dispersed distribution network replace the more organised "agricultural technology contracting groups"? There are several reasons:

The first is for policy reasons. As a matter of fact, the practice of contracting groups of collecting technical contracting fees from farmers has been much criticised. Firstly, the State has not

clarified the amount of technical contracting fees and the principle of distribution at the policy level; secondly, opponents believe that since the technical contracting groups are composed of public officials, serving agriculture is their job, and that the behaviour of both taking state salaries and making profits from farmers, while helping the technicians to get rich, harmed the interests of farmers and increased their burden. On the contrary, in the case of small-scale agricultural outlets, the profit-making behaviour of technicians in them is not directly linked to their work, as they are known for selling agricultural materials.

Secondly, there was the problem of the supply of agricultural materials. Large-scale contracting has a high demand for agricultural materials, and the local material sector was often unable to guarantee the supply, thus affecting the implementation of the contract. Affordable agricultural materials procured by the contracting groups alone needed to be resold to farmers through the agricultural speciality/marketing sector, which often leads to price increases.

Thirdly, the team of agricultural extension workers was unstable. As a key link in the technology contracting group, agricultural extension workers were directly related to the operation of the contracting group by linking upwards with administrative organs and downwards with farmers. However, the construction of the team of agricultural extension workers was facing two big problems: 1. Shortage of village-level technicians. After the collapse of the four-level agricultural network, there were no more village-level technicians, and the small number of township technicians simply could not cover a wide range of rural areas, so they could not really teach the technology to the farmers. In order to solve this problem, some contracting groups hired "farmer

technicians", however, these people were usually just friends and relatives of village cadres, who worked as technical service providers to make money, and had not received systematic training, and their business qualities were very poor. They could not provide door-to-door technical guidance, and have been evaluated as "only knowing that the agricultural technicians are paid, but not seeing the farmers". Some township technicians had a negative attitude towards their work. The technical contracting groups and the small agricultural business network are carried out at the same time, technicians are not only responsible for the technical service work, but also undertook their own units of agricultural extension business (agricultural sales tasks), when the two jobs in the time and the content were in conflict, the technicians tended to focus on agricultural sales. This is because, after deducting the wholesale cost, the sales income of agricultural material outlets all belonged to the "scientific and technological goods man", while the technical contracting fee and material fee charged by the contracting group belonged to the group. The technicians could not make direct profit and could only get a small amount of remuneration. The economic interests of the technicians led them to adopt a negative attitude towards the work of the contracting group.

Fourthly, there are institutional shortcomings. Although the agricultural technology contracting group was a product of the marketisation of the agricultural technology extension system, it borrowed the vertical organisational form of the socialist period, and attempted to establish a new agricultural technology extension system integrating the functions of material supply, technical support, and scientific research through the three-tier contracting of counties, townships, and villages. However, after the dissolution of the people's commune, the countryside no longer

possessed a political and economic organisation integrating economy, politics and culture. Even the county and township governments, having lost their production organisation functions, had in effect cut off the vertical links between the county and township and the village level, and between the administrative organs and agricultural production, and could only promote the model of the Agricultural Technological Contracting Group in a top-down manner through administrative orders. When such a model failed to gain the response of farmers and the support of technical extension workers, who were the bridge between technology and farmers, it was bound to be unsustainable in the field of production. In contrast, the model of small-scale agricultural outlets, which allowed the administration and the supply department to make a profit at the same time and maximises the interests of the technicians, was able to meet the individual's quest for economic efficiency in the current of marketisation and gradually developed and grew under the policy of "paid services".

On the surface, policy orientation, insufficient supply of agricultural materials, instability of the team of agricultural extension workers, and flaws in institutional design had given agricultural distribution outlets the upper hand in the battle with the technical contracting groups, but the question arises as to why, in the Maoist era when materials were even more scarce, the "four-tier agricultural network", which is similar to the system of the technical contracting groups, was successfully implemented. Does this tell us that the four reasons mentioned above are most probably not the "root causes" of the eventual replacement of technical contracting by material services, but are merely derivatives of the "root causes"? Then, what has led to the occurrence of the above problems?

3.2.3 “Deskilled” Technology Consumers

In the Marxist view, as the productive forces develop and the technological division of labour is refined, the skills of workers will be replaced by machines. Breverman (1973:78) has grounded his critique of production technology and Taylor's system of management in monopoly capitalism in the labour process, identifying the separation of 'conception' and 'execution' as the main means by which capitalists are able to master the ideology of the workers and to exploit them. The separation of "concept" and "execution" is criticised as the main means by which capitalists are able to master workers' ideology and achieve exploitation. Specifically, through the monopoly of knowledge and technology, capital controls every step of the labour process, with different workers belonging to different steps, thus turning complete technology into fragmented technology and skilled workers into "partial workers". This separation of mental labour (conceptual) from manual labour (executive) and the division of labour between manual workers contributes to the "de-skilling" of workers.

However, in the case of agriculture, since smallholders are involved in every step of the farming process and do not show a clear separation between 'concept' and 'implementation', the 'de-technologisation' of this group is often overlooked in many scholars' preconceptions. The "de-technologisation" of this group has often been overlooked in the preconceptions of many scholars. In fact, once upon a time, any savvy farmer with some special equipment could cultivate maize seeds. Now it has become a highly sophisticated endeavour requiring knowledge and equipment beyond the capabilities of the average farmer (Crabe, 1947). In the case of

hybridisation, for example, the division of labour between breeding technicians and farmers has become more refined and fixed, without farmers being able to participate in the process of technological innovation and development. Seed merchants are driven by profit to keep varieties as trade secrets for themselves, and farmers thus become consumers of production materials and technologies. This is undoubtedly the separation of "concept" and "implementation" at the pre-production stage.

In their study of the relationship between technological change and the transformation of agriculture, Goodman and others have found that biotechnology has become the main vehicle for the penetration of industrial capital into agriculture in the process of agricultural modernisation. The natural characteristics of agricultural production make it impossible for industrial capital to directly carry out standardised transformation of agricultural production. Therefore, industrial capital has turned to another way, that is, while continuously weakening the role of "nature" in agricultural production, it deconstructs the process of agricultural production, and makes use of biotechnology to transform some specific parts of agricultural production, thus gradually completing the "transformation" of agriculture by industrial capital. Gradually complete the "occupation" of agriculture by industrial capital, for example, replacing composting with industrial fertiliser production, and replacing farmers' local pest control with pesticides (Chen, 2019). These industrial activities, in turn, reengage in the process of agricultural production in the form of agricultural inputs (farm inputs). This way of realising the domination of industrial capital over agriculture through the appropriation of different aspects of agricultural production is called "appropriationism" by Goodman.

If the essence of appropriationism is the substitution of labour by technology (Chen, 2019), then the key prerequisite for the capitalisation of agriculture is the integration of industrial technology with agricultural production. For this to happen, in addition to relentlessly replacing traditional human labour with industrialised agricultural inputs, agricultural producers need to be motivated to abandon their traditional farming experience and 'embrace' the supporting technologies of industrialised agricultural inputs. The more farmers' farming techniques become dependent on agricultural capital and lose their independence, the more industrial capital's control over the agricultural production process will be achieved.

Evaluating the changes in the agricultural industry chain from the perspective of appropriationism, it can be found that the demand of industrial capital for the transformation of the agricultural production chain, and the demand for the moulding of "de-technologised" farmers are the fundamental reasons why "material services" eventually replaced "technical contracting" as the mainstream form of agricultural extension. It can be found that industrial capital's demand for transformation of agricultural production processes and the need to mould "de-technologised" farmers are the fundamental reasons why "material services" eventually replaced "technical contracting" as the mainstream form of agricultural extension. After the complete dissolution of the four-level agricultural science network, the farmer training system also experienced a nearly decade-long collapse, which meant that, in addition to "technical contracting" and "material services", ordinary farmers did not have any additional channels for acquiring agricultural technology. In contrast, the technical elite have been less affected by the technical support

provided by research institutes, and are therefore not discussed in this section. Looking back at the process of "technology contracting", technology promotion has always been regarded as the focus of the work, and although agricultural technology is closely related to agricultural materials, it is still independent, for example, the contractors will set out the key points of technology implementation in the contract or guidebook, and the technicians will also provide technical assistance to the contractors in the middle of the production. In contrast, the technology in "material services" is completely dependent on agricultural materials, and agricultural inputs such as seeds, fertilisers and pesticides become the only carriers of technology. The purchase of industrialised agricultural materials has also become the only channel for ordinary farmers to acquire agricultural technology.

The bundling of technology and agricultural capital has not only helped to deepen industrial capital's control over agricultural production, but has also shaped a de-technologised "new peasantry" that meets the requirements of standardised industrial production. In order to achieve a monopoly, there is often a differentiation between industrialised agricultural materials, which means that specific agricultural materials are often accompanied by specific production technologies. In this way, agricultural production technology has been fragmented into small, simple pieces as the number of agricultural materials increases, and has been reduced from complete, systematic production technology to simplified "methods" of using agricultural materials, with the consequence of degraded peasants in terms of their labour. However, this is an extremely hidden process of de-technologisation, in which capital does not directly intervene in the agricultural production process to achieve "technological control" over farmers, but rather

hides this control in their consumption and use of industrialised agricultural inputs. Farmers, as consumers of agricultural inputs, simultaneously purchased the "technology" attached to them, born under the logic of industrial standardised production, and, in order to increase the efficiency of agricultural inputs, abandoned their traditional farming skills and became complete slaves to the industrialised agricultural "technology". In the intervening decade, with the completion of the commercialisation of agricultural technology, industrial capital has gradually taken over all important aspects of agricultural production in the pre-production, mid-production and post-production stages. This became the basic premise for the small-scale farmers to be swept into the capitalist chain of production in the later period.

3.3 From Farmers to Migrant Workers: Regenerating and Shifting of Farmer Training Programmes

According to the China Labour Statistics Yearbook, in 1999, the total number of people employed in agriculture, forestry, animal husbandry and fisheries in China's rural areas was 32,912, accounting for 66.39 per cent of the total rural labour force, a decrease of 12.85 percent compared with 79.24 per cent in 1989 (the above figures are based on calculations provided in the China Labour Statistics Yearbook 1999). It can be seen that during the decade in which the "four-tier agricultural science network" was disbanded and the agricultural technology extension system collapsed, the employment orientation of farmers also changed, with less than two-thirds of the rural labour force choosing to continue working in agriculture. At the same time, there have been new changes in agricultural production.

In 2000, the total per capita income of rural residents in China was RMB 3,087.80, of which wage income was RMB 702.30, accounting for 22.74 percent of the total; operating income was RMB 2,251.28, accounting for 72.90 percent of the total; and the cost of productive expenditures was RMB 654.27; this accounted for 29.06 per cent of operating income. Only five years before that, in 1995, the total per capita income of rural residents in China was RMB 2,337.87, of which wage income was RMB 353.70, accounting for 15.13 percent of the total income; operating income was RMB 1,877.42, accounting for 80.30 percent of the total income; and the cost of productive expenditures was RMB 621.71, accounting for 33.12 percent of the operating income (the above data (The above data were calculated according to the China Labour Statistics Yearbook 2000). It can be seen from this that, while the cost of agricultural inputs has been reduced, the proportion of wage income has risen by 7.61 per cent, and the proportion of operating income has fallen by 7.40 per cent, which suggests that, while the cost of agricultural inputs has been reduced in relative terms, the focus of production of the rural labour force has been shifted from agriculture to non-farming industries.

Behind these changes is the emergence of "migrant workers", a large-scale "migrant labour wave" that began in China in the late 1980s, when large numbers of rural labourers moved to the cities and towns, especially to economically developed areas. In terms of their status, rural migrant workers still have agricultural household registration and even land, but in terms of their occupation, they are mainly engaged in non-agricultural economic activities, and are wage labourers in non-agricultural industries. By 2003, the number of rural migrant workers in China

had reached 99 million (Xiang, 2004). Some views often attribute the creation of rural migrant workers to the surplus of rural labour, hence the term "surplus" labour. However, along with the transfer of labour, the countryside has become "hollowed out" and "aged", and a large amount of land is still left unoccupied on the basis of some migrant farmers voluntarily transferring or giving away part or all of their farmland to friends and relatives in their home villages without compensation. It can be seen that the judgement that the surplus of rural workers is the cause of the formation of rural migrant workers is not valid.

Yang Siyuan's (2005) study of the process of transforming peasants into rural labourers found that one of the main reasons for peasants engaging in non-agricultural production was that their "primary industry income" was not sufficient to meet their consumption needs. While the commodification of the means of production and living is increasing, farmers are also burdened with taxes that are four times higher than those of urban residents: between 1990 and 2000, the total amount of taxes levied by the State on farmers increased by more than five times, and the per capita tax on farmers was as high as 146 yuan. Under these circumstances, the simple income from agricultural production has long been unable to support the daily livelihood of farmers. This also drove the peasants to give up their status as small agricultural producers on a subjective level and become urban wage earners. Not only that, since 1984, the central government and its subordinate Ministry of Labour have been issuing documents to provide a policy basis for the transfer of rural labour to the cities. For example, the Circular on the Problems of Peasants Moving to the Cities and Residence Issues issued by the State Council in 1984 provided opportunities for peasants to move to the cities in terms of policy design. The Circular on

Strengthening the Development of Labour Resources in Impoverished Areas, issued in 1988, in addition to affirming the movement of peasants to the cities for self-employment, also strongly encouraged the export of labour, especially from backward areas to developed areas. In 2001, the Central Committee of the Communist Party of China formulated the Outline of the Tenth Five-Year Plan for the Development of the National Economy and Society, which made clear the goal of transferring 40 million agricultural labourers during the period 2001-2005, and of guiding peasants to become more involved in non-agricultural industries, with labour-transfer training becoming an important means of achieving this goal.

In 2003, six ministries and commissions, including the Ministry of Agriculture, jointly formulated the National Rural Labour Training Plan for 2003-2010. The Plan presupposes the scale of training and the training process, for example, "from 2003 to 2005, 10 million rural labourers who intend to move to non-agricultural industries and towns will be provided with introductory training prior to transferring to employment"; however, the Plan only includes educational and training institutions, employers, rural vocational schools and others in the scope of the main bodies of the training supply, but does not specify their responsibilities or the forms and methods of training. However, the Plan only includes education and training institutions, employers, and rural vocational schools in the category of training providers, but does not specify their responsibilities or the forms and methods of training.

In 2004, six ministries (the Ministry of Agriculture, the Ministry of Finance, the Ministry of Science and Technology, the Ministry of Education, the Ministry of Construction, and the

Ministry of Labour and Social Security) jointly organised and implemented the Sunshine Project for the Transfer of Rural Labour (referred to as "Project Sunshine"), which became the first project to have a wide impact nationwide after the re-launch of training for farmers. Project Sunshine focuses on short-term vocational skills training for farmers in such industries as construction, manufacturing, domestic service, hotels and catering. The transfer of 35 million rural labourers through training is its main objective, and it takes the main grain-producing areas, the main labour exporting areas, the impoverished areas and the old revolutionary areas as the key training areas. (Yang, 2011: 881-882.) However, as the most influential farmers' training project in this period, the training purpose of Project Sunshine has shown great changes with 2009 as the node; in the first stage, i.e., 2004-2009, it was the stage where rural labour force transfer training was the main focus; however, in the second stage, i.e., 2009-2014, agricultural science and technology training once again became the main training content. So, how was the training of farmers carried out during this decade and why was there a shift in the centre of gravity in just five years? Did the formation of an army of migrant workers herald a shift in farmers' identity? What role did farmer training play in this? The following section responds to these questions, using the process of the Tangshan City Sunshine Project in Hebei Province as an example.

3.3.1 Farmer Training Programme Regeneration: Rural Labour Transfer Training

At the beginning of the 20th century, Tangshan City, as the economic centre of Hebei Province, was both a large agricultural city and a city supported by industry and mining, with rich arable land and mineral resources. Its per capita GDP has always been the highest in Hebei Province. In 2003, before Project Sunshine began, the GDPs of primary, secondary and tertiary industries in

Tangshan were 19.37 billion yuan, 71.502 billion yuan and 38.66 billion yuan, respectively, of which the primary industry accounted for 15 per cent of the GDP, the secondary industry for 55.2 per cent and the tertiary industry for 29.8 per cent. Correspondingly, the number of employees in the primary industry is 1,584,200, the number of employees in the secondary industry is 1,218,500, and the number of employees in the tertiary industry is 978,100. It can be seen that the labour force structure does not match the industrial structure. At this point, whether we can obtain sufficient labour force to provide lasting power for the development of secondary and tertiary industries becomes a prerequisite for the rapid development of Tangshan's economy.

Orientation training is as important as vocational skills training in the Tangshan City Sunshine Project. In the state's pre-determination, orientation training is mainly for rural labourers who intend to transfer to non-agricultural industries, and the training time is 3-5 days, through centralized lectures, publication of materials, and radio and television broadcasts, etc., to provide farmers with training on general knowledge of urban life, legal knowledge, and job-hunting, etc. Vocational skills training is mainly for farmers who have clearer intentions of going to the city to work, and according to the difference in the training time, it can be divided into short-term training (15-30d), medium-term training (30-60d), and long-term training (60-90d). (Depending on the duration of training, it can be divided into short-term training (15-30d), medium-term training (30-60d) and long-term training (60-90d). In the case of Tangshan City, the training was not strictly differentiated between orientation training and vocational skills training, but rather the two were integrated into one programme. The specific implementation process is as follows: first, in the first 1-3 days, the trainees are introduced to the relevant policies on labour transfer and the

situation of peasants working in the city, with the aim of making them understand that the city needs a large number of workers, and guiding them to leave the countryside and move to the city to look for job opportunities; this is followed by the training of labour skills in different types of work. It should be noted that in the orientation training, Tangshan City has reduced the amount of publicity given to legal knowledge and general knowledge of urban life, focusing instead on the advantages of moving to the city to produce and live and on ways to find work, with the main purpose of the training being to guide the farmers to move to the city to work.

In terms of the main body of training supply, with the marketisation, the unit responsible for farmers' training in Tangshan City has been divided into two categories, one of which is the relevant government departments that mainly provide non-remunerated training, and the other is the private training institutions that provide remunerated services. However, at this point in time, farmer training is still dominated by the former, relying on vocational education centres and agricultural extension schools. The vocational education centre's labour transfer training took returning junior and senior high school graduates as the main training target. "At that time, rural junior and senior high school graduates didn't have such clear goals, they didn't know where to go when they went out, and their parents wouldn't be relieved, and there wasn't the atmosphere and concepts that we have now. That's exactly the significance of this project at that time." Zhang, a teacher at a vocational education centre who was in charge of the Project Sunshine project, said. "This project enables young surplus labourers in rural areas to rely on going out to work to increase their family income. Students from the vocational education centre can be sent directly to factories and enterprises after training." In contrast, the training at the Agricultural Broadcasting

School is mainly for local farmers, and although it is also aimed at guiding farmers to work in cities, the overall training time is shorter.

As far as training methods are concerned, since some training requires special equipment, vocational education centres often set up specialties according to the needs of employers and their own training conditions. For example, the Luanxian Vocational Education Centre, with its relatively well-built workshop for automobile repairs, trains mainly in automobile repairs; the Qian'an Vocational Education Centre, with its welding equipment, trains in welding. However, limited by the length and quality of training, trainees are usually only able to engage in jobs that are labour-intensive and low-paid. Therefore, although Tangshan City Labour Force Transfer Training has opened a variety of specialties, such as electrician and welder, computer, catering service, building decoration, driving maintenance, etc., all of them are low-skilled and highly replaceable specialties.

In terms of training effects, this training programme has basically achieved the purpose of guiding rural labourers to work in cities. By the end of 2008, in the last year of labour transfer training, the number of rural labourers working in non-agricultural industries in Tangshan had reached 1,632,941, accounting for 56.39 per cent of the total number of workers, an increase of 11.7 per cent over 2003, the year before the Sunshine Project began, whereas in the five years prior to that, from 1998 to 2003, the proportion had risen from 42.88 to 44.69 per cent, an increase of only 1.81 per cent (the above data are based on the 1999, 2004 and 2009 editions of the Tangshan Statistical Yearbook). In the previous five-year period, from 1998 to 2003, this proportion rose from 42.88

per cent to 44.69 per cent, an increase of only 1.81 per cent (the above data are based on calculations of the "Composition of Rural Labour Resources and Employed Persons" in the Tangshan Statistical Yearbooks for the years 1999, 2004 and 2009). It can be seen that, as an effective way of implementing macro-policies, farmer training has indeed brought about a great change in farmers' attitudes, so much so that it has become a habit for rural labourers to go out to work, and in the following five years (2009-2014), the proportion of rural non-agricultural workers to the total number of employees has basically remained at between 50% and 60%. In this regard, Feng believes: "The training in these five years is very important, for example, long-term and short-term jobs have now become a habit for farmers. Those who have a skill work in the city for a long time. Those with short-term jobs work in the countryside when there is farming to do, and work in the city when there is no farming. It is after five years of training that the changes have taken place, and the labour transfer training has basically changed the farmers' concept of focusing on farming". Zhou, a former teacher of the training course, also put forward a similar viewpoint: "In 2004, in the context of that time, especially in our province, we did not know so much about working outside the country. From the perspective of the whole country, some people from especially remote and poor places went to the south to work, but the skill level and income of the workers were still on the low side. Through the transfer of training, more training units are docking with employers to train people as required, and the results are still very good."

With the widespread implementation of labour transfer training, an industrial reserve army made up of farmers has been formed and developed. Since 2004, wage income/labour income has gradually replaced agricultural income as the main source of farmers' income, and in 2009, there

were 995 enterprises in Tangshan City with 9,493 vacant posts and a demand for 15,000 people of all kinds, excluding employed migrant workers, and the number of people who returned to their hometowns without a job reached 30,000 (Zhang, 2010). Such a large industrial reserve army provides a constant supply of labour resources for the development of the economy.

The "army of migrant workers" has also ultimately contributed to the formation of a situation in which the supply of non-agricultural labour exceeds the demand for it. by 2009, a large number of young farmers had been unable to find permanent jobs in the cities, and had been forced to become temporary labourers, small producers in the cities, or members of the "industrial reserve army", and, coupled with the expansion of the size of the college entrance examination enrolment, the Sun Project no longer focuses on labour transfer training for rural junior and senior high school graduates, and has instead aimed to raise the level of agricultural production by carrying out agricultural-policy and technical training for farmers on the ground.

3.3.2 Migration of Training Focus: From Labour Force Transfer Training to Farmer

Technology Training

As a matter of fact, the state's attitude towards non-agricultural employment underwent a subtle shift in 2008. In the Central Document No. 1 of 2008, the expression on non-agricultural employment of farmers was changed from "enhancing the ability of farmers to switch to other occupations and jobs" (State Council, 2006) to "expanding the scale of implementation of the Sunshine Project for the Transfer of Labour and Training of Rural Workers" (State Council, 2008). labour force transfer training and implementation of the Sunshine Project" to "improving the

environment for rural migrant workers to enter the city for employment and return to their hometowns to start their own businesses" and "promoting employment through entrepreneurship" (State Council, 2008), and in 2009, "stabilizing jobs" and "promoting employment through entrepreneurship". By 2009, "stabilising jobs", "implementing policies to support the entrepreneurship of migrant workers returning to their hometowns", and "expanding the space for non-agricultural employment in rural areas" had become the main means of expanding the employment of rural labourers (State Council, 2009).

At the same time, in response to the issue of building an agricultural talent team, the No. 1 document of the Central Committee in 2007 again appeared the expression "scientific and technological households" and "specialised households". The return of these expressions marks the return of the "household" as a key object of support in the development of modern agriculture, along with leading agricultural enterprises and farmers' professional co-operative organisations.

The "Sunshine Project" also followed the national policy in 2009 and quickly completed the turnaround, changing from rural labour force transfer and employment training to seven types of training, such as farmers' entrepreneurship, maintenance and use of agricultural machinery, and farmers' science and technology, etc. In addition, the Ministry of Agriculture also compiled corresponding specifications for each type of training, such as "Sunshine Project The Ministry of Agriculture has also compiled corresponding specifications for each type of training, such as the "Sunshine Project Farmers' Entrepreneurship Training Specification", "Crop Pest Control Training Specification", "Agricultural Mechanic Training Specification", "Farmers' Specialised

Co-operative Training Specification", etc., which respectively regulate the training of farmers and their employees. The "Norms for the Training of Farmer Mechanics" and "Norms for the Training of Heads of Farmer Specialised Co-operative Societies" have respectively stipulated the targets, duration, objectives, contents and assessment methods of the training. The reformulation of the "norms" shows the differences with the previous labour transfer training, for example, the types of training objects have increased, and on the basis of returning junior and senior high school graduates, large farmers, leaders of rural economic cooperatives, and ordinary farmers have been added; the length of the training has been shortened to about one week; and the objectives of the training have changed from cultivating non-agricultural workers to cultivating farmer entrepreneurs, farmer entrepreneurs, and farmers. The length of the training has been shortened to one week, and the objective of the training has changed from training non-agricultural workers to training agricultural workers, such as farmer entrepreneurs, farmers, and operators of agricultural music, and agricultural machinery service personnel. In the following section, we will continue to take Tangshan City as an example, examining its training programmes from 2009 to 2014 to illustrate the characteristics and effects of the transformed Sunshine Training.

Prior to 2009, Project Sunshine training in Tangshan focused on rural labour transfer training, covering only a small amount of technical training for farmers, and because of the small amount of funding available, each training session usually consisted of only one or two classes, lasting only half a day to one day. The target audience is ordinary farmers on the ground, and there is no fixed arrangement for the content of the training, which focuses on solving practical problems, such as answering questions encountered by farmers in the course of production. In addition, the

volume of training is very small, with only 7,500 people trained in the four years from 2004 to 2008, compared with 410,000 people trained in the same period for labour transfer (Liu & Guo, 2008).

After 2009, project training began to have specific requirements, the content of training in addition to agricultural technology, but also includes a small amount of rural policy, agricultural information technology, etc., the length of the training was also extended from 1 day to 4-7 days, mostly 4 days, was included in the training system of the scope of a wider range of personnel. However, at this time, the sunshine training has been nicknamed "laundry detergent training". In fact, "laundry detergent training" is a graphic summary of the problems with the training. Between 2009 and 2014, in order to ensure that trainees were able to participate fully in the training, the main providers of the training would give farmers material incentives, such as soap, laundry detergent, or books, during the process in order to attract farmers. However, from the farmers' point of view, it is suspected that they put the cart before the horse, and that obtaining material incentives became the main purpose of their participation in the training. This phenomenon also reflects the detached attitude of farmers towards training, and agricultural technology training is no longer seen as a closely related aspect of agricultural production. So how did this happen?

On the surface, it is the direction of the selection of training targets that is problematic. In this period, farmers in the training object, return to their hometowns accounted for a high proportion of migrant workers, but these peasants are not long-term return to their hometowns, and even still will go to the city to work as the main source of income, the detachment of agricultural production

leads to its low willingness to train. Wang, a staff member of the Municipal Agricultural Extension School, also mentioned: "This is mainly due to the reason that we did not find the right training target, and we did not have this problem in our training between 2004 and 2009. Because Tangshan's agricultural development is still good, especially greenhouse production and breeding. Peasants are very willing to participate in the training. In the training from 2009 to 2014, this problem appeared, firstly, the training in this phase was more frequent; secondly, it was longer, it had to be carried out for four days; thirdly, many of the trainees recruited were working outside in short-term jobs, and did not focus on the main business of agricultural production."

However, an in-depth examination of the training process reveals that "laundry detergent training" is the result of a combination of inadequate agricultural extension systems, a lack of teachers, and urban-rural disparities. This finding is highlighted below.

Usually, after the national training programme is formulated, the tasks are distributed to the municipalities through the provinces, and then to the counties by the municipal units. In the case of Tangshan City, after taking over the tasks issued by Hebei Province, the tasks would be distributed to the relevant units, with the training tasks in the agricultural sector usually undertaken by the Municipal Agricultural Extension School, and those in the education sector by the County Vocational Education Centre and the Adult Education School. However, no matter which training supply body, all of them face recruitment dilemmas. On the surface, there are many ways to recruit trainees: radio stations, television stations, agricultural information networks, newspapers, and other means of publicity can be used as media to announce training information

to the community, and township regional centres (still technical stations in some places) and township adult schools also carry out recruitment through the distribution of enrolment brochures. However, research and analyses of the enrolment process have revealed that the diversified enrolment channels are, in fact, a desperate attempt by the main suppliers of training to recruit trainees.

First of all, the training programme can be divided into two kinds of active training and passive training. Active training refers to the training supply main body for the completion of the training task initiative organised training. Taking the Tangshan Agricultural Extension School system as an example, the ways are:

Organising peasants to participate in training through regional stations.

After the collapse of the four-level agricultural network, the township technical stations in charge of agricultural technology promotion are in a state of famous but not real due to the self-financing and material services they have been providing, and the technicians mostly choose to leave their jobs to engage in the sales of agricultural materials; therefore, if we want to complete the task of agricultural technology promotion, we need to re-establish the agricultural technology promotion system, especially the spread of the agricultural technology promotion institutions at the sub-county level. before and after 2003, some regions set up on a pilot basis the "regional central station", the regional station refers to the cross-township agricultural technology extension institutions formed at the sub-county level. In order to avoid being constrained by the work of the township government and being unable to really play the function of agricultural technology

extension like the former township technical station, the regional station was set up as a unit directly under the county to undertake the purely public welfare task of agricultural technology extension. The operational service functions of the former technical stations were divested, and the rural business management system was no longer included in the grassroots agricultural technology promotion system. This setting was established in 2006 in the form of a policy (relevant document: Opinions of the State Council on Deepening Reform and Strengthening the Construction of Grassroots Agricultural Technology Extension Systems).

In other words, the regional stations are supposed to take farmers' training as an important duty and act as grass-roots mediums for higher-level training supplying bodies to release training information, recruit trainees and organise training. However, this kind of grassroots agricultural technology extension organisation has not been established in a systematic manner. In Tangshan, for example, the counties under it embarked on the reform of the grass-roots agricultural technology extension system in 2007. For example, Zunhua City (a county-level city) issued the Implementation Plan for the Reform of the Grass-roots Agricultural Technology Extension System of Zunhua City, and constructed 11 regional comprehensive service stations for agricultural technology extension in 25 townships in the city. However, this path of shaping the technical extension system under administrative orders was ultimately constrained by the market, industry, funding and personnel. Even though there was a detailed Implementation Programme, it still did not function because of the lack of funds and personnel. In the end, only a few of the 14 districts and counties under the jurisdiction of Tangshan City actually operated the regional station system. In the follow-up training process, the regional stations, as the mainstay of the "last

kilometre" problem, were given the least amount of training.

Peasants are organised through township governments.

The process of this method is as follows: the Agricultural Extension Schools send the training tasks to the township governments through the county governments, which then forward the tasks to the village committees, which then carry out the recruitment of trainees. It can be said that the training situation in this way depends entirely on how much importance the village committees attach to the training of farmers. Generally speaking, village committees busy with daily management affairs can only spare a little energy for agricultural technology promotion, and the phenomenon of completing tasks for the sake of completing tasks is very common. In addition to calling friends and relatives to participate in the training, some village committees also make use of the material incentives offered by the training provider to attract farmers, and the organisation of the training, the promotion of the training content, the selection of trainees, and the analysis of the suitability of trainees for the training content are often neglected in comparison with the completion of the task.

Peasants are organised through township adult schools.

Township adult schools emerged in the mid- to late 1980s, and in 1989, with the establishment of the "Hundred-County Rural Education Comprehensive Reform Experimental Area", comprehensive rural education reforms were carried out nationwide, and rural education was divided into three types: rural basic education, vocational education and adult education. Some of the Mao-era farmers' amateur technical schools were transformed into township adult schools,

which became the main vehicle for adult education in rural areas. However, the squeeze of modern industry and the pursuit of economic efficiency have kept rural adult schools, which focus on agricultural education, on the periphery of the education system, both in terms of funding and staffing. As a result, although the main responsibility of adult schools is farmer training, they do not have the capacity to carry out the training. Not only are adult schools not equipped with appropriate teachers, but their internal members have also deviated from their main business to rely on their side business to increase their income. As a result, in the process of cooperating with the agricultural extension schools, the adult schools are not able to perform their duties well, either in terms of recruiting trainees or in the organisation of training.

In addition to active training, there are two main forms of passive training organised by the main body of the training supply at the request of the training target:

Peasants are organised through farmers' professional co-operatives or agricultural parks.

Co-operatives have a certain number of members and relatively consistent breeding categories. In order to enhance competitiveness, cooperatives often have training needs, therefore, the main members of cooperatives will get in touch with the Agricultural Extension School, and the Agricultural Extension School will organise training and select training contents according to their needs, relative to the above several kinds of active training, this kind of training serving cooperatives has instead become the most common form of training organised by the Agricultural Extension School.

Village committees organise peasants.

Similar to the co-operatives, this is a way for the village to directly contact the Agricultural Extension School and then tell the farmers to attend the training through the village radio loudspeaker. This kind of village usually has a relatively uniform planting structure and category, which is often referred to as a specialised village.

Although the five paths mentioned above show the diversity of training organisation, they also reveal the message that during Project Sunshine, the agrotechnology extension network at the township level has still not been established nationwide. On the one hand, the training supplying body organises training in a random manner, and there is no stable grass-roots medium that fully serves the agricultural technology promotion in the process of giving training tasks; on the other hand, some grass-roots agricultural technology promotion units are limited by objective factors such as funding and staffing, and they are virtually useless, unable to play their actual roles. A survey on the implementation effect of farmers' scientific and technological training shows that trainees' dissatisfaction with the training effect is mainly centred on the impracticality of the training content, the lack of field guidance, and the irrationality of the training time arrangement (some of the trainings are arranged in the busy period of the farm), etc. (Mo, 2009). It can be said that these phenomena have a lot to do with the failure to make good preparations for the training (e.g. understanding the trainees' situation and local agricultural production).

Grass-roots agricultural extension organisations, as an intermediate link between modern agricultural technology and agricultural production, are weak, which means that it is difficult to

form an upward and downward situation for the implementation of farmers' training, and when high-frequency and large numbers of training tasks "come to us", we can only rely on the opening up of a variety of channels with a view to barely completing the task. At this time, the urgency of completing the task is much higher than the training effect of concern, in this way, will inevitably lead to the occurrence of ineffective training, so that the results of scientific research is difficult to be transformed into real productivity. This ineffectiveness is manifested in practice by the difficulties in recruiting trainees and the production of "laundry detergent" training.

In addition, the lack of teachers is one of the reasons why the training fails to attract farmers. On the one hand, the lack of teachers was quantitative, because at that time, all agricultural extension institutions, including agricultural extension schools and vocational education centres, did not have teachers related to agricultural technology, and therefore, in the course of training, teachers could only be hired from scientific research institutions; on the other hand, the problem was in terms of quality. On the other hand, the problem lies in the quality. Teachers from research institutes often have more theoretical than practical skills, and their knowledge system, though general, is not specific. In other words, these teachers are not able to solve the practical production problems of the trainees based on the local climate, soil and water, and industrial conditions, which naturally fails to stimulate the trainees' interest in attending classes.

Of course, the absence of grass-roots agricultural extension networks and the lack of teachers are only the direct causes of the poor results of farmer training. The fundamental reason for the effectiveness of farmers' training lies in the non-farming employment orientation of farmers and

their increasingly detached attitude towards agricultural production. The income gap between urban and rural residents has widened significantly since 2004, and at the same time, the resource gap between urban and rural areas in terms of education, medical care, social security and other aspects has also produced a huge siphoning effect on rural labour. This has led to the alienation of farmers from agricultural production. In addition to contributing to the significant increase in the number of "urban labourers", this alienation has also affected the reproduction process, i.e., fewer and fewer children of farmers are choosing to specialise in agricultural disciplines. In Liaoning province, for example, the number of students enrolled in agricultural majors in vocational schools with rural students as the main source of students is declining year by year, and in 2008, there were only 7 agricultural vocational schools among 135 vocational schools in the province, and the number of agriculture-related majors in these agricultural vocational schools accounted for only 48.72 per cent of the total number of majors (Shi, 2011). 2011, there were a total of 4 agricultural vocational colleges and universities in the whole province of Shandong, and 2 of them were only nominally agricultural vocational colleges and universities. of which were merely serving as nominal agricultural secondary colleges and basically stopped recruiting students majoring in agriculture (Wang, 2011). For Tangshan City, due to the lack of student sources, the number of teaching positions for agriculture majors in secondary schools was gradually cut after 2003, and by around 2008, the primary industry-related majors had ceased to exist, and the former teachers of agriculture were either transformed into secondary and tertiary industry majors, or transformed into teachers of cultural subjects. Thus, even though the system of unpaid training in agricultural extension was re-established during this period, it remained to a certain extent "ineffective", and its implementation did not change the mindset of rural youths who were intent on going out to

work, nor did it result in a general increase in farmers' yields and incomes.

3.4 The Role of the State and the Market in the Process of Shaping “New Farmers” During the Period of Early Reform and Opening

With the dissolution of the People’s Commune in rural areas, there is no longer a political and economic organization that integrates economy, politics, society, culture, and ecology. Some of these functions are performed by the national administrative agency. While the township government can replace the political function, the township enterprise can inherit an economic role, the village committee can exercise the social function, but the cultural and ecological roles will be vacant for a long-term (Kong, 2014). However, the paper's account of the farmers' training history confirms that the cultural function in the countryside continued to depend on the formulation of government policies, which were implemented by agricultural extension units. This has led to a tendency to see the State as the dominant actor in educational reform and cultural development in the countryside during this period. In 2001, the State Council released the “Outline of Agricultural Science and Technology Development (2001-2010)”, which proposed “to vigorously mobilise farmers, agribusiness and civil society organisations to participate in the popularisation of agricultural technology, and gradually form a new agricultural technology extension system that integrates state support and market guidance, and combines paid and unpaid services.” Since then, in addition to the official candidates, rural specialized cooperative, agribusiness and civil society organisations have become the main participants in both free and

paid farmer training.

However, an adequate measure of whether the state and the market have played a role in the shaping of the new peasantry is always to be found in the social consequences of cultural construction. In the first three sections of this chapter, the changes in the peasantry, the countryside, and agricultural production during this period have been analysed, the most obvious of which are: the emergence of new divisions in the countryside and the reshaping of the technological elite; the transformation of agricultural production into non-agricultural production, and the emergence and development of migrant labourers; and the transformation of peasants from being creators and users of technology to being consumers of it. So how are these social consequences linked to the state and the market respectively? What is the logic behind the changing status of farmers' roles? How do the transformations of farmers, the countryside and agricultural production affect the state and the market? The discussion of the role of the state and the market in shaping the new peasantry will be introduced by examining the consequences of peasant training, which are directly linked to the roles of policy, the peasantry, and the building of culture.

3.4.1 The Starting Point of Differentiation: Policy, Market Economy, and Technological

Elites

Under capitalist conditions, peasants would not give up private land for cooperative production

due to cultural, ideological, and institutional constraints (People's Food Sovereignty Network, 2018). As the commercialisation of means of production and livelihoods deepen, rivalry among farmers will become more intense, and this rivalry will lead to class division among farmers (Zhang, 2018). Small-scale family farming associated with agricultural capitalism, peasants are being replaced by new forms of agricultural business organizations such as leading enterprises and cooperatives (Yan & Chen, 2015).

These theories point to the root causes of differentiation as internal competition between farm households under private ownership and the external infiltration of the commodity economy into rural society. This universal assertion attributes differentiation to a combination of internal and external factors, of which internal factors are primary and external factors are secondary. The rapid changes in China's rural society after the reform and opening also confirm this thesis: the implementation of the division of land into households and the weakening of the collective economy have contributed to the disintegration of the collective labour mode of production, and the highly dispersed small farmers have evolved into independent small producers who have become the main units of production. Obviously, according to the law of differentiation, these small producers will eventually compete with each other to achieve the survival of the fittest and develop into capitalist family farmers and agricultural labourers. In Chinese practice, however, this process has been taking place at a much faster pace than could have been imagined. In the 1980s, just a few years after the dissolution of the People's Commune, the emergence of hired agricultural labourers and large families of hired labourers became widespread (see the first section of this chapter), and in just a decade the quest for mutual aid and co-operation and the

elimination of exploitation of the previous three decades was completely superseded by the "first to be rich" of a certain segment of the population. This phenomenon suggests a particularity of Chinese practice based on universality: capitalist relations of production were "forcibly grafted" onto rural society by external forces before quantitative changes led to qualitative changes.

The moulding and support of the technical elite is clear evidence of the involvement of external forces in the relations of production in rural society. In the process of farmer training, government policy favoured some cadres and skilled youths, who, through their access to technological resources, rapidly became specialists and demonstrators in agricultural production, which clearly became the starting point for the re-differentiation of rural society after the founding of China. The technical elite gradually used their competitive advantage in technology and means of production to acquire more resources, and on this basis they realised expanded reproduction. From this point of view, therefore, the state, the promoter of peasant training, not only used its political power to intervene in agricultural production, transforming the collective production system into a single-operator system, but also used its "cultural function" to select small farmers on the basis of their status, age, technological level, and level of education. With the help of the "cultural function", they used identity, age, technical level, and education level as criteria to screen out the farmers who met the requirements and moulded them into "technical elites", thus accelerating the process of peasant differentiation. The reason why external intervention is called 'forced grafting' is that this rapid change in production relations was not based on the peasants' subjective will from the bottom up, but long before the spread of capitalist ideology in rural society. As discussed in the first section of this chapter, until 1990, private agricultural operations had not been accepted

by the majority of peasants, and "exploitation" remained the basic judgement of peasants in relation to large-scale employers of labour.

In this sense, the government did contribute to the creation of a technological elite by interfering in the distribution of technology and resources, forcing changes in the relations of agricultural production. Technological innovation is an important part of the transition from the established production model to the new production model, which will contribute directly or indirectly to the creation of new production relations. However, in this process, there seems to be no trace of the "market", so can we conclude that the market has not played a role in shaping the new peasantry and transforming rural production relations?

The liberal economists represented by Schultz think that peasants are savvy "entrepreneurs", who are no different from capitalist enterprises, support economic development as the guide for promoting agriculture as the driving force of economic growth by optimising resource allocation. Therefore, liberalism emphasised the need to invest funds in the countryside, to use market mechanisms to encourage competition to increase the enthusiasm of farmers for production, and to encourage small-scale family farming to be replaced by large-scale farm production through the survival of the fittest. For China, the road of agricultural modernisation after the reform and opening has always revolved around "economic development", and how to improve the efficiency of technical training and agricultural production has become the centre of gravity of all political and economic activities, such as the training of farmers, as well as cultural construction activities.

Under the economy-centred paradigm of agricultural modernisation, state technical training began to evolve from education for the masses to education for the few, and the purpose of education began to evolve from the promotion of socialist ideology to the enhancement of agricultural yields and the growth of economic efficiency, so that young people with knowledge and skills naturally became the most appropriate targets for support. In this sense, although the government is the most direct shaper of the technological elite and the most direct intervener of changes in rural production relations, its underlying logic has always followed the principles of the market economy. Agricultural technology and knowledge are no longer invested in order to increase the peasant's sense of identity, let alone for the shaping of proletarian ideology, but rather as a new factor of production to realise an increase in economic efficiency.

It can be seen that the state and the market played important roles at the beginning of the differentiation of peasants. The former directly moulded the new peasants in rural society - the technical elite. These technical elites, under the aegis of the commodity economy, became the antithesis of the small farmer in the capitalist relations of production: the precursor of the capitalist family farmer. The market, although not directly involved in the training of peasants, dominates the overall thinking of the country's training of peasants, and it can be said that this "invisible hand" is involved in the whole process of change in the rural relations of production. All this happened before the class division of peasants caused by endogenous competition.

3.4.2 The Role of State and Market in Shaping Agricultural Technology Consumers

In the second section of this chapter, I have reviewed the process of transformation of farmers into consumers of agricultural technology, and on this basis, I have examined the logic of the appropriationist substitution of "technology" for "labour" in order to reveal the ways in which industrial capital has transformed the production chain in agriculture. The way: capitalisation of agriculture through the fusion of industrial technology with the means of agricultural production and production technology. Since agriculture at that time was still dominated by small-scale cultivation by one family, the degree of mechanisation was not high, and industrial technology could not be directly applied to agricultural production. Therefore, the infiltration of industrial capital into the agricultural chain could only be achieved through industrialised agricultural inputs and their supporting technologies.

The above analyses convey the message that while agricultural capital is becoming a carrier of technology, it is also contributing to the divestment of technology from farmers, which has become a key prerequisite for the invasion of industrial capital into agricultural production. Therefore, achieving the separation of agricultural capital from technology and maintaining the independence of technology seems to be the only way to solve the problem of farmers' de-technologisation. However, for the highly practical agricultural production, the implementation of farming technology will definitely be accompanied by the use of agricultural capital, which means that the separation of agricultural capital and technology can never be realised in the true

sense. In contemporary societies, the extreme fragmentation of technology as a result of the deep bonding between technology and farm resources makes this solution an "impossible task". Thus, the de-technologisation of farmers seems to be an inevitable consequence of technological progress.

However, when we jump out of the circle of thinking, temporarily put aside the topic of the relationship between agricultural materials and agricultural technology, and turn to re-examine the process of de-technologisation of farmers, we will find that the Maoist-era approach of attaching agricultural technology to agricultural materials has, on the contrary, become an effective way of popularising agricultural technology. For example, the agricultural "eight-character constitution" (refers to the technical measures to promote agricultural production) relies on soil, fertiliser, water, seed, density, protection, management, work eight kinds of agricultural production materials, the use of each kind of agricultural materials put forward the corresponding technical guidance. Taking Wuyi Farm in Shandong Province as an example, it concluded that for local soil conditions, wheat planting needs 30 cm deep ploughing, and some productive fields need 50 cm deep ploughing; for local climate, it concluded that 6-7 times of field irrigation (according to the season and production conditions can be divided into bottom moisture water, overwintering water, rejuvenation water, pulling water, etc.) can get a bumper yield; and combined with the ploughing situation, it pointed out that in the case of deep ploughing of 30 cm, sowing depth of 4-5 cm, and reasonable fertility and irrigation, it is possible to obtain good yields. 5 cm, and with reasonable fertility and irrigation, wheat will not fall over. The above agricultural technologies were not created by experts and implemented in a top-down manner, but came from the practical

experience of farmers, i.e. farmers became the creators of the technologies.

The practice of the Maoist era shows that the binding of technology to the means of agricultural production does not necessarily lead to the de-technologisation of farmers. When the state distributes agricultural capital as a public good and does not aim at capital profitability, what agricultural capital and technology reveal is the use value of the material itself; in a market economy, agricultural capital is traded and distributed for profit, revealing its exchange value as a commodity, and as a result, the phenomenon of industrial capital attempting to intrude into the chain of agricultural production in order to obtain the surplus of agricultural production occurs, hence the phenomenon of the occupation of the The technological substitution of labour in the logic of capitalism. In other words, it is the capital-driven commodification of technology that is the root cause of the "de-technologisation" of agricultural producers. In this context, industrial capital's vision of a new peasantry is that of a consumer of agricultural inputs and technologies who is able to use industrialised agricultural inputs, abandon traditional farming practices and apply the corresponding complementary technologies.

In the process of shaping the consumers of agricultural technology, industrial capital, as the leader and designer, is also the biggest beneficiary, and its implementation of the commercialisation of technology requires, on the one hand, new production technologies and, on the other hand, a new type of farmer who is able to adapt to them. In China's case, the natural barriers between urban and rural areas have slowed down the process of capital's invasion of agricultural production. In order to speed up the process of industrialisation and modernisation of agricultural technology, it

is necessary to use external forces to simultaneously industrialise and modernise the psychological state of farmers. The reformers will, therefore, spare no effort in dismantling the political organizations that shape the traditional agricultural society and reflect the existence of the agricultural society. By changing the identity and image of farmers, they will be able to embrace new agricultural technologies. When farmers do not like the so-called advanced farming methods, the government would take coercive steps to compel farmers to use chemical fertilisers and pesticides, which can cause farmers opposition, the outbreak of fierce conflicts, and even violent means (Tian, 2017).

The examination of the development of materialised services in section II of this chapter shows that the state, as the medium for the rapid entry of capital into the countryside, has acted as a facilitator in the shaping of technology consumers. Whether it was the dismantling of the "four-tier agricultural science network" as a result of the abolition of financial allocations, forcing agricultural technology extension units to be self-sustaining, or the introduction of paid services and competition, the commoditisation of technical services, which used to be a public good, has been driven by the state. With the widespread establishment of small agricultural distribution networks and the transformation of technical extension workers into "scientific and technological merchandisers", the mechanism of unpaid agricultural technology promotion no longer exists. When the farmers' psychology and consumption habits adapted to the "purchase of agricultural materials to obtain supporting technology" approach, farmers in the real sense, completed the transformation from technology users to consumers of technology. From a historical point of view, the short-lived technology contracting group is only an incomplete form of technology

commercialisation. Ultimately, de-technologisation has led to the gradual loss of the peasant's independence of production and his inevitable inclusion in the chain of agro-capitalism.

3.4.3 Freelancers and Industrial Capital: State and Market in the Birth of Migrant Workers

The central government's No. 1 document, "Opinions of the State Council of the Central Committee of the Communist Party of China on Several Policies to Promote the Increase of Farmers' Income," issued at the end of 2003, proposes that, in order to solve the problem of farmers' increasing production but not their income, the vocational skills training of the rural labour force should be strengthened, and that educational and training institutes and employers should be used as the carrier to train farmers in accordance with the skills requirements of different industries and types of work, so as to achieve the transfer of the rural labour force to the urban business sector. The document reveals two "natural" purposes of rural labour transfer training: 1. to provide the market and enterprises with skilled workers who meet the requirements; and 2. to improve farmers' non-agricultural skills and raise their wage income to increase their incomes. On the basis of the policy documents, we can surmise that the State's vision of moulding "new farmers" during this period was threefold: first, in terms of identity, to transform farmers into skilled workers; second, in terms of mode of production, to migrate young and middle-aged farmers from agricultural to non-agricultural production; and lastly, in terms of standard of living, to raise the standard of living of farmers by supplementing them with wage incomes.

However, shaping visions is not a "real" effect, and the state's expectations of "new farmers" and its role in shaping them need to be examined in practice. The second section of this chapter takes the Project Sunshine labour transfer training as an entry point to review the training process of migrant workers. It can be seen that the state, with the help of its cultural and educational functions, has had a significant impact on the formation and development of the rural migrant worker class. In Tangshan City, for example, during the period when the Sunshine Project training was carried out, the local farmers' wage incomes replaced their agricultural business incomes at an extremely fast pace, and in just five years the problem of insufficient labour in the secondary and tertiary industries was solved, with the formation of a huge industrial reserve army of young and middle-aged rural migrant workers (see Section II of this chapter). In other words, the country's vision of the new farmers' identity - from traditional farmers to skilled workers - and their mode of production - from farming to non-farming industries - have been realised.

To examine the vision of "farmers' living standards", it is necessary to analyse the changes in the absolute and relative values of farmers' incomes. In Tangshan City, for example, before and after the launch of the Sunshine Project, the per capita net income of local farmers increased significantly (Figure 1-1): between 1999 and 2003, five years before the launch of the project, the per capita net income of farmers did not fluctuate much, ranging from 3,400 yuan to 3,790 yuan per year. Taking 2004 as the point of departure, the per capita net income of farmers increased significantly, and by 2009, the per capita net income was already twice as high as that of six years ago. In order to further examine the relationship between the improvement of farmers' income and going out to work, the author has sorted out the situation of farmers' wage income and agricultural

business income during the period of 1999-2012 (as shown in Fig. 1-2), and it can be seen that, after 2004, the growth of wage income is higher than that of agricultural business income. To sum up, a basic conclusion can be drawn, that is, going to the city to work has indeed raised the absolute value of farmers' income in the Tangshan area.

Per capita net income of farmers in Tangshan City, 1999-2013 (Unit: RMB/year)

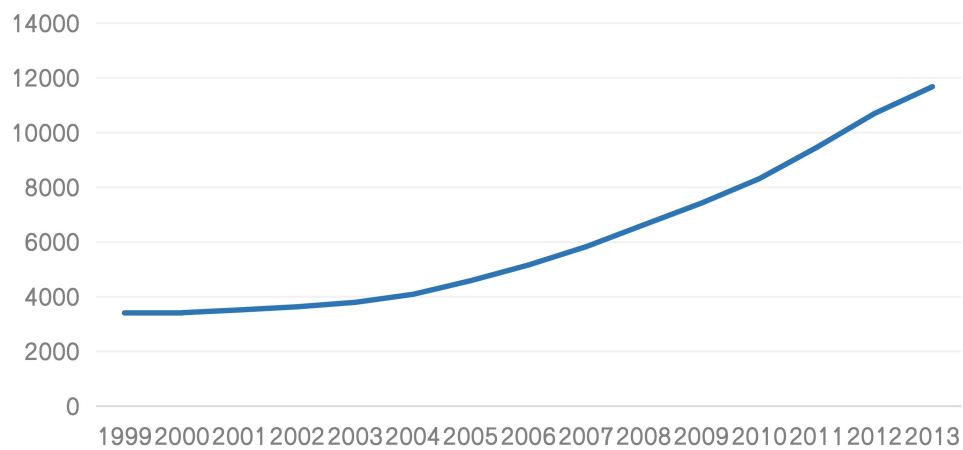


Table 3.1 Data source: Tangshan Statistical Yearbook Gross and net income per rural household (1999-2013)

Changes in Wage Income and Agricultural Operations
Income of Rural Residents in Tangshan City, 1999-2012
(RMB)

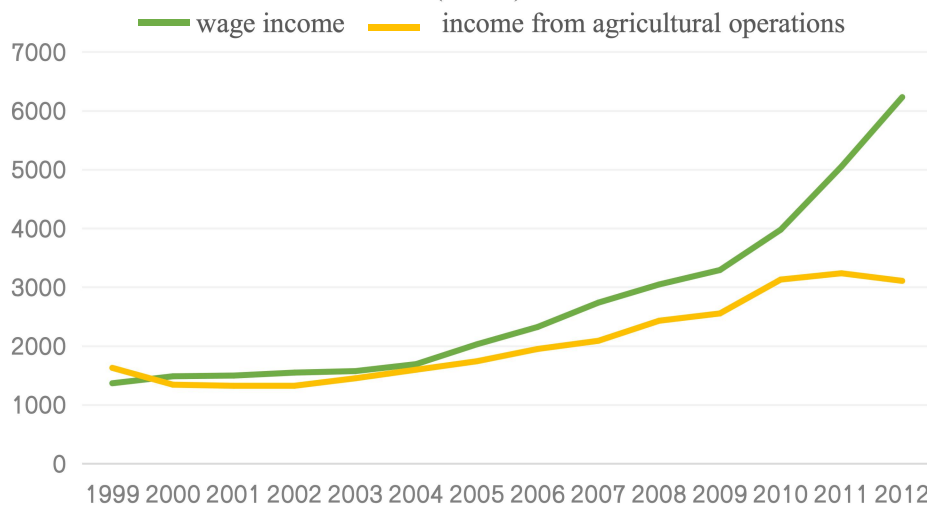


Table 3.2 Data source: Tangshan Statistical Yearbook Gross and net income per rural household (2000-2013)

However, along with objective circumstances such as inflation, it is not enough to look at the absolute value of income to measure whether living standards have improved. To achieve this goal, it is necessary to assess the income gap between urban and rural residents using the disposable income of urban residents as a reference (Figure 1-3) in order to project the relative value of the income of rural residents.

Income of urban and rural residents, 1999-2012

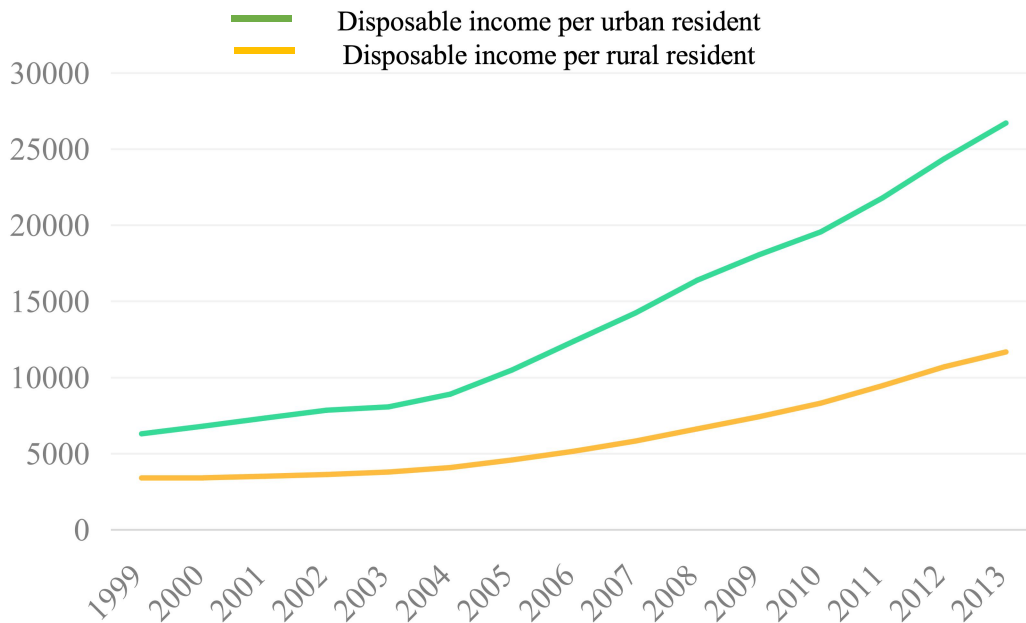


Table 3.3 Data Source: Tangshan Statistical Yearbook, "Statistics on per capita disposable income of urban residents by county and district", "Major economic indicators of farmers' livelihood by year" (2000-2014)

Although there is a difference between urban per capita disposable income and farmers' net income, from the meaning of the indicator to its disposable content, the trend in the relationship between the two still shows that the income gap between urban and rural residents tends to widen significantly after 2004. The marked increase in the income gap suggests that the relative value of peasant incomes has not only not improved with the birth of migrant workers, but has instead declined following the introduction of labour transfer training. In this sense, the move to urban areas has increased the absolute value of peasant incomes, but has not effectively improved the relative value of incomes, so that the third tier of the state's vision - the shaping of a large number of peasants with a high standard of living - has not been realised.

The contrast between the 'desirable' aims and the 'real' effects allows us to look into the national politics behind the shaping of the “new farmers”. On the surface, the birth of the peasant worker is the result of a two-way choice between peasants and urban industry. Shifting the focus of peasant training from the promotion of agricultural technology to the enhancement of peasant workers' non-agricultural employability and professionalism responds to the demands of peasants to change their status and improve their standard of living, while also meeting the needs of industrial development. However, the short and simplified skills training can only support migrant workers in low-skilled jobs. Migrant workers become the cheapest labour force under the urban industrial system and are inevitably trapped in the hardest manual labour. Rather than changing the position of small farmers in rural social relations, labour transfer training accelerated the pace at which these small producers moved into wage labour and were dragged into the 'assembly lines' of urban industrial capital.

In fact, the shaping of the migrant working class prioritised the need for cheap labour for the market and industrial capital. Marx had pointed out that the creation and accumulation of capital was made possible by the premise that the possessor of money was able to find free workers in the commodity market. Freedom here has a double meaning: on the one hand, the worker is a free man, able to dispose of his labour as his own commodity; on the other hand, the worker has no possibility of selling "the commodity in which his labour is objectified, and has to sell as a commodity the labour itself, which exists only in his living body" (Marx, 2009:197). In simple terms, it means that the occupier of labour can only obtain the necessary means of subsistence by selling his own labour. This theory seems to be reaffirmed in the transformation of Chinese

peasants into migrant workers.

Take Tangshan as an example, the industrial capital's demand for human resources has directly driven the development of the Sunshine Project training. Throughout the entire training project, the training process, training methods and training contents all reflect the characteristics of serving industrial capital. For example, the process of carrying out the Sunshine Project always revolves around the needs of the employers: firstly, the government issues training tasks according to the local industrial situation; secondly, the training supply body is responsible for recruitment and training matters; thirdly, training assessment and matching with enterprises. According to the recollection of Feng, a former staff member of the Sunshine Project Office in Tangshan City, the training conducted in Tangshan City is usually short- and medium-term in nature, with the specific duration depending on the difficulty of the training content, the amount of subsidies and the requirements of the employing units, of which the requirements of the employing units are the most important. This is because the employment rate of migrant workers is an important indicator of the completion of training tasks, which has led some training units to sign employment contracts with employers in advance of training, with the aim of providing training on an order basis in accordance with the requirements of the employers, so that trainees can be directly connected to enterprises and the employment rate of trained farmers can be increased in order to meet the standards in the performance assessment. This confirms the close relationship between the training of migrant workers and the market economy and the development of urban industry.

After the quantitative requirements of the labour force for industrial development have been met,

it seems that whether migrant workers can truly integrate into urban life has become less important. Along with the lack of salary arrears, social welfare and protection, the many problems faced by migrant workers in their subsequent production and life seem to remind us from another side that the so-called "two-way" choice does not lead to a "win-win" outcome. Migrant workers are always at the edge of the city and the countryside. This separation is reflected in the life and production of the migrant workers themselves on the one hand, and in the reproduction process on the other.

Firstly, the identity of migrant workers is twofold. One is a farmer and the other is a wage earner. They are both small producers who own a small amount of land resources and wage workers who sell their labour. This duality has contributed to the semi-proletarianisation of migrant workers. In contrast to the pure proletariat, migrant workers do not completely lose their means of production, i.e. the small amount of land in the countryside, yet they have to sell their labour to make ends meet. The transformation of peasants into migrant workers makes the wage income a supplement to the agricultural income, which in turn becomes the basis for the perpetuation of the cheap wage income (Yang, 2005), and in fact, such a mode of production, which seems to be conducive to a better standard of living, increases the exploitation of peasants by capital. On the one hand, capital obtains surplus value by squeezing the peasants who move to the cities for work, and on the other hand, the increasing cost of agricultural inputs leads to a constant compression of the peasants' room for profit and a deteriorating state of production. It can be said that the form of semi-proletarianisation deepens the exploitation of the peasants by capital and of the countryside by the city. A purely proletarian worker has to obtain all his means of subsistence from his wages,

while a semi-proletarian peasant worker can subsidise his livelihood on agricultural income, and capital is thus able to employ peasant workers with lower salaries and benefits than urban workers, in order to enhance its own profit margins and maintain the accumulation of capital. For the modernisation of the country, the semi-proletarianised class of migrant workers can both provide sufficient labour for economic development and act as a rural stabiliser by preserving the return route of migrant workers to the countryside, reducing the social risks that may occur (He & Yin, 2015). It can be argued that a semi-proletarianised migrant working class is able to maximise the needs of capital accumulation and social stability, and thus becomes a form that is deliberately maintained.

Secondly, the reproduction of migrant workers is dependent on agricultural production to supplement their means of subsistence. The production of labour refers to the reproduction of the workers themselves, and the reproduction of labour refers to the upbringing of their offspring by the workers themselves. Burawoy (1985) divides labour reproduction into labour force maintenance and labour force replacement, and explains the link between direct producers and replacement labour - the migrant labour force sends remittances to rural areas to supplement the basic livelihoods of children, the elderly, the sick and the unemployed who remain there. As a result, the household is divided into two interdependent parts, with the immediate labour force obtaining the means of subsistence for the household in the towns, and the upbringing of the replacement labour force being taken care of by other family members in the countryside. In the case of China, the upbringing of migrant workers' offspring and the maintenance of the elderly usually take place in the village community, i.e. the reproduction of labour is undertaken by the

village (Shen 2006). The production of labour refers to the reproduction of the workers themselves, and the reproduction of labour refers to the upbringing of their offspring by the workers themselves. With urbanisation, the production and reproduction of labour has been separated from the same location into two regions, with direct labourers working in economically developed areas such as towns and cities, and their offspring and fathers maintaining and developing in less developed areas (Yin, 2020). While this approach allows the reproduction chain of migrant workers to operate at low cost on the basis of the village community, it also forces migrant workers to face a split between production and living sites. As a result, the labour reproduction process is external to the production field. Although this approach allows the reproduction of migrant workers to operate at low cost on the basis of the village community, it also forces migrant workers to face the split between production and living space.

Thus, like the reshaping of the technical elite, under the logic of the development of the market economy, the state has, on the one hand, promoted the "untying" of peasants from the land through policies that enable them to enter the towns as free people to engage in production and live. On the other hand, through education, technical training and other ideological means, the State has transformed the traditional identity of the peasants and stimulated their psychological aspirations for urban life. As the income from the primary sector did not cover their consumption needs, the peasants no longer relied on farming as their main means of subsistence, but on wage income, and this led to an essential change in their perception of agricultural production. This change in the peasants' identity formed the basis of the labour force for the development and accumulation of industrial capital after the reform and opening. The peasants began to give up

their identity as small producers on a subjective level and voluntarily became wage workers on the industrial assembly line. The transformation of the peasants' identity role formed the basis of the labour force for the development and accumulation of industrial capital after the reform and opening.

Therefore, the fundamental reason for the formation of an army of migrant workers is the demand of industrial capital for cheap labour. However, this demand has doomed migrant workers to a subsistence wage and, at this level, the general improvement in the standard of living of peasants is completely at odds with the development of industrial capital, which is the most direct reason for the failure of the state to implement the third tier of the "new farmers" vision.

On the surface, the history of peasant training during the early reform and opening period is complex and varied, ranging from the transitional phase of continuing the four-level agricultural network system of the Mao era to the phase of collapse and reconstruction of the training system. However, an examination of the training objectives, training targets and training content shows that the different forms of training at different stages all point to one common goal, namely the enhancement of economic benefits. In the vein of economic development, the acceleration of the accumulation of industrial capital became the main objective of national modernisation, hence the emergence of labour transfer training to provide an industrial reserve for urban industry. The same modernisation approach also influenced agricultural technical training, with a tendency to allocate training resources to a small number of people in order to increase training efficiency. The resulting technical elite has led to a direct division of rural society. So, have these "new farmers",

who carry the promise of "encourage those having got prosperous first to help others catch up", led to the development of rural agriculture as the state had hoped? And what fate have they brought to the old farmers? Chapters 4 and 5 of this article will take the development of farmer training as a clue to the situation of the farmers, who have become clearly differentiated during the period of land transfer.

Chapter 4: Transition from Identity to Occupation: Training of New Vocational Farmers and Capitalisation of Agriculture in the New Era

The division of land into households has led to small-scale family farming replacing collective labour as the dominant production system in Chinese agriculture. Small-scale family farming is also regarded by some scholars as the best way to modernise agriculture. Relying on Chayanov's theory, proponents of small-scale family farming argue that the family of farmers as a unit of production, their labour output will depend on the size of the family, the composition of the family, and the productivity of the unit, that is, the degree of peasants' self-exploitation, which is conducive to the survival and even victory of family farms in a capitalist environment (People's Food Sovereignty Network, 2018). Farmer differentiation as a shift in the ratio of population dependence brought on by various stages of the family life cycle, rather than class division, which would not form capitalist relations of production. Whereas, peasants will compete with big capital through economic cooperation (Zhang, 2018). Huang (2014) claims that "small and refined" family farms are conducive to truly modest-scale agriculture development in China. Furthermore,

Chinese agriculture will still be dominated by family farming; it is neither capitalist nor collectivised, but it is a direction of growth pursued through the market-oriented farmers' cooperative organization (Huang, 2012).

However, the situation of agricultural production under small-scale family farming is not favourable. By the end of 2020, the proportion of the population living in rural areas in China had fallen to 36.11 percent from 50.32 percent in 2010. With the serious commercialization of agricultural means of production and living, peasants are not united economically, and more and more peasants choose to work in cities where resources are more abundant. The problem of "hollowing out" of the countryside is becoming more pronounced.

It can be seen that the current agricultural production mode of peasants is still small-scale family production, which is no different from the second period of this thesis - the early stage of reform and opening up. But the living space of peasants is further squeezed, and the situation is more severe. In this sense, it is entirely possible to draw on the arguments of some scholars and refer to this period and the period after 2000s as the "post-reform period". This is because the new era is indeed an extension of reform and opening up, both in terms of agricultural production methods and attitudes towards the market economy.

However, why does this thesis use the term "New Era" to refer to this period? In fact, in official discourse, the new era has been explicitly used to refer to China after 2012. On 18 October 2017, president Xi Jinping made a report entitled "Winning the Comprehensive Completion of a

Moderately Well-off Society and Seizing the Great Victory of Socialism with Chinese Characteristics in the New Era" at the 19th National Congress of the Communist Party of China (CPC), pointing out that from the 18th CPC National Congress (2012), socialism with Chinese characteristics has entered a new era. It also pointed out that the "main contradiction in Chinese society in the new era has been transformed into the contradiction between the people's growing needs for a better life and unbalanced and insufficient development." This is China's re-judgement of the main contradiction in society after more than 30 years of reform and opening. The so-called "unbalanced" development mainly includes urban-rural imbalance, regional imbalance, and population imbalance (Xinhua Network, 2017).

At the same time, and more importantly, it is necessary to face up to the great changes in the countryside after the 2010s, rather than treating them indiscriminately with the reform and opening up. Firstly, at the policy level, the government further encourages "land transfer". At present, the proportion of land transferred nationwide is increasing year by year. By 2019, more than 70 million households have transferred contracted land nationwide, and the area of transferred contracted land has accounted for 37 per cent of the area under family contract (Ministry of Agriculture and Rural Development, 2018). By August 2022, the area of family-contracted arable land transferred nationwide had reached 532 million mu (Ministry of Agriculture and Rural Development, 2022). The change in the utilization and distribution of land has accelerated the transformation of specialized households into capitalist family farmers and peasants into proletarian peasants. Secondly, on the basis of land transfer, the government has increased its encouragement and support for large-scale agricultural production. Rural resources

and industries were integrated. In this process, the government encourages "capital to the countryside" on the one hand, through the development of land resources, revitalisation of land, resources into capital; on the other hand, it encourages local specialized households, family farmers as the leading mode of large-scale management (Zhou & Liu, 2017). It can be said that both methods focus on agricultural production and economic growth, and advocate large-scale farm production to replace small-scale family production on the basis of market competition mechanism.

It can be seen that in the presupposition of the Chinese government, the current focus of rural work has changed from providing support for economic development in the early stage of reform and opening up to solving the imbalance and solving the problem of sustainable development of agriculture. After the 18th National Congress, the Chinese government redeployed its rural work to address the imbalance. For example, "precision poverty alleviation" in 2013; rural revitalisation in 2017, and pilot work in the Common Wealth Demonstration Zone in 2021. However, influenced by liberal economics, the problems of agricultural production and rural economic development caused by "hollowing out" are tried to be solved by mechanization and modern management.

Anyhow, the above facts indicate that China's rural society has entered a new stage of development, and it will inevitably need "new" farmers to match it. Therefore, in 2012, different from the previous "washing powder training", farmers' training with a higher level of organised and more participants appeared.

What are the characteristics of the new farmer training? Can farmer training help large-scale agricultural production, and then effectively solve the problem of imbalance in China's social development? Can it effectively raise the living standards of farmers, especially peasants, achieve common prosperity of farmers, and then comprehensively solve the problem of rural economic and cultural decline and stagnation caused by the reduction of rural population and land abandonment?

Therefore, this chapter will take the beginning of the "new era" in 2012 as the starting point, and take the "new vocational farmer training" that started in 2012 as the main object of observation, and examine the situation and development direction of farmer training in the new era, so as to clarify the characteristics of the farmers in this period and respond to the above questions.

Depending on the training provider, new vocational farmer training can be divided into three types: farmer training conducted by the government; farmer training conducted by enterprises; and farmer training conducted by social organisations. As the three types of training are very different in terms of training targets, training methods and training purposes, they also reflect the different visions of the training supplying bodies for the "new farmers" of different natures. Therefore, this thesis will focus on each of the three types of training. In this chapter, the first type, i.e., new vocational farmer training conducted by the government, will be analysed, based on which the role of modern technology in the transformation of agricultural production methods and production relations will be analysed.

4.1 Training of New vocational farmers from Different Theoretical Perspectives

With the large-scale land transfer, "new vocational farmers", who are different from small farmers in terms of design vision and can fully adapt to large-scale production, have started to become the development direction of farmers' training. 31 December 2011, the CPC Central Committee and the State Council issued "Several Opinions of the CPC Central Committee and the State Council on Accelerating Agricultural Scientific and Technological Innovation to Continuously Strengthen the Supply Guarantee Capacity of Agricultural Products", which clearly put forward the need to vigorously cultivate new vocational farmers. Enhance the supply of agricultural products to ensure the ability of a number of opinions", clearly put forward to vigorously cultivate new types of vocational farmers, to the 2013 Central Document No. 1, new types of vocational farmers are regarded as an important part of the construction of a new type of agricultural management main body, but also the development of modern agriculture is an important force. However, until the formal implementation of the "training of new vocational farmers" in 2014, scholars were still divided in their understanding of the connotation of new vocational farmers.

Some scholars believe that the new type of vocational peasants are originally the farmers, and they are labourers who are the long residents in rural areas and engaged in agricultural production for a long time with agricultural production resources such as land. The characteristics of distinguishing between farmers and non-farmers are that farmers have productive arable land, long-term agricultural work, the main source of income for agricultural production and management, and long-term residence in rural communities. Additionally, the difference between traditional farmers

and part-time farmers lies in: 1. New vocational farmers are the main players in the market. 2. Highly stable: farming is a lifelong occupation and has a successor; 3. Has a high sense of social responsibility and modern responsibility: Responsible for consumers and the environment (Zhu & Wen,2012).

Some scholars believe that vocational farmers refer to farmers who regard farming as a profession.

In a narrow sense, vocational farmers are farmers who use agriculture as an industrial operation, use market mechanisms and rules to obtain remuneration, and pursue their profits to the maximum.

The vocational farmers mainly include: farmers who own certain land and other means of production, and implement autonomous self-managed farm; possess exclusive vocational and technical qualification certificate, mainly engaged in agricultural technology work; agricultural worker-type farmers employed by farmers who specialise in grassroots farming operations. The differences between vocational and traditional farmers are 1. Different quality: master advanced technology and possess strong market operation ability; 2. Different degrees of mobility: flexibility and openness, not subject to geographical household registration; 3. Different options: self-selection, either short-term or life-long career; 4. Different ways of operation: focus on business characteristics to obtain high profits, and a high degree of commercialisation; 5. Different scale of operation: the pursuit of maximum profit, large production scale, and complicated production process (Li, 2012).

Besides, some scholars have suggested that "farmers" should be a profession, not an identity. On the one hand, through the household registration reform, it is necessary to completely eliminate

the differences in the identity of urban and rural residents and the unequal urban and rural rights attached to household registration for a long time, to ensure that urban and rural residents enjoy equal access to basic public services and social welfare such as education, housing, and social security. On the other hand, it is necessary to study the establishment of a mechanism to make farming a profession rather than an identity, so that all talents can migrate to the countryside and stay in the countryside without any reservations. (Lu, 2011)

On 9th January 2017, the Ministry of Agriculture promulgated the "13th Five-Year Plan for the Development of New Vocational Farmers Training in China" (referred to as “the plan”). The plan clarifies the meaning and scope of new vocational farmers and elucidate that new vocational farmers are the modern agriculture practitioners who use agriculture as their occupations, with corresponding vocational skills, and whose income mainly comes from agricultural production and management; achieving considerable levels of income of modern agricultural practitioners. The official classification of new vocational farmers is divided into three categories: production management, vocational skills, and social services. Among them, the production management category refers to the core business engaged in large-scale, specialised, and organised production, mainly involving large specialized households, family farmers and professional cooperative leaders. Whereas the vocational skills category signifies to the agricultural labour force specialised in a certain aspect of production and management activities in the above-mentioned business entities; including agricultural workers, agricultural employees, etc. Follow by the social services category that denotes the agricultural socialisation service personnel engaged in agricultural pre-, mid- and post-production services; mainly including cross-regional agricultural operators,

village-level animal epidemic prevention personnel, rural brokers, and general agricultural technicians. All of the above objectives must be achieved through “new vocational farmers training”.

According to the official point of view, the difference between the new vocational farmer and the traditional farmer is that the former is an active choice of "occupation" and the latter is a passive "identity." Some scholars believe that this kind of change will be conducive to the sustainable development of agriculture and rural areas, and optimise the allocation of the labour force on a large scale. At the same time, it will also respect people's individuality and help to stimulate the enthusiasm and creativity of the masses. Different from the “identity farmers”, the “vocational farmers” will be “profitable”, “professional” and “well-off” (Zhu,2013).

It can be seen that the training of new types of vocational farmers has changed the training tradition of classifying farmers on the basis of the amount of means of production possessed and the level of technology during the period of reform and opening to a classification oriented towards occupational division. On the surface, this is a method of stratifying rural society using occupational differentiation as a starting point, i.e. analysing farmers of different occupational types through horizontal comparison. For example, rural society is divided into the class of agricultural labourers, the class of migrant workers, the class of hired labourers, the class of peasant intellectuals, the class of individual workers and individual business owners, the class of private entrepreneurs, the class of township enterprise managers, and the class of rural managers (Lu & Zhang, 1990).

However, the distribution of the roles of agricultural production managers, skilled agricultural workers, and service workers again seems to be implicitly differentiated. The gap between workers and managers in terms of rights, economic income, and social status reflects the vertical stratification of classes. From the perspective of political economy, studies of vertical stratification usually analyse different layers of peasant groups in rural society in terms of production relations, culture, economic income, prestige and status. These studies are mostly based on two major theories, one is Weber's theory of multiple stratification and the other is Marx's theory of class.

“Multi-stratification ” is a theory based on the framework of the market economy, which expresses social stratification in terms of the distribution of power, with class, status and party as factors influencing the distribution of power, in order to show that social stratification is influenced by multiple factors. In this context, market opportunity, i.e. the probability of having access to market opportunities, is presented as an important condition for stratification, and the class status of an individual is in a sense equivalent to the market situation in which he/she finds himself/herself. Studies on the stratification of rural society, influenced by the theory of multi-stratification, are often conducted from multiple perspectives. For example, by taking the employment and economic status of farmers as the starting point, they are divided into the business class, the half-working and half-agricultural class, the part-time peasant class, the family working class, and the poor and weak village class (Chen 2009). Or, by studying the transformation of farmers' property, occupational and community identities, the members of rural

society who have left the farm are classified into several types: those who enter factories (shops) but do not abandon their fields, those who also work (business) but also farm, those who do not work but do not farm, those who enter the city but do not leave the village, and those who also live in the city but also in the countryside (Lu 2007). These studies are more of a description of the existing rural order, but do not explain the role of social resource appropriation in the division, nor do they present the relationship between the various classes of rural society.

In contrast, Marx's theory of class analysis focuses on the analysis of 'relations', which mainly refers to the relations of possession of the means of production (land, labour, capital). Who owns the means of production, the division of labour in the production process and the way in which the products are distributed are used as the basis for class division. In the case of Chinese rural society, some Marxist scholars have divided the peasants into the upper middle class, the middle class, the lower middle class and the poor and weak class. Among them, the middle and upper classes move out and do not cultivate land; the middle class cultivates their own land and the land transferred to them; the lower and middle classes tend to work outside; and the poor and weak classes cultivate less land and are unable to go out to work (Yang 2011). Some scholars, after analysing rural production relations, especially agricultural wage labour, argue that individual farmers, new "middle peasants", capitalist family farmers and leading enterprises together constitute the current agricultural production system. Among them, the new "middle peasants" expand their farming scale (20-50 mu) by transferring the land of their neighbours and friends who have gone out to work at low or no cost, and their business logic is often similar to that of individual farmers; capitalist family farmers, on the other hand, pay transfer fees to build up a certain scale of land

(50-500 mu), and have a predominantly family workforce. Their business logic is very different from that of the individual farmer, and they often expand their production by means of high capital investment in order to maximise profits (Chen 2013).

Lenin (1987) used the presence or absence of agricultural labour as an important indicator to define the class of proletarian peasant and the class of farm owners. The proletarian peasant actually refers to the rural proletariat, which includes both farmers who are completely proletarian and those who own small plots of land for simple reproduction, who cannot survive entirely on the land and have to sell their labour to obtain their means of subsistence. The family farmers class operates commercial agriculture and invests idle money in rural business activities such as buying and leasing land to expand production. The formation of agricultural labourers was a necessary condition for their existence. Therefore, in the framework of Marx's class analysis theory, the class situation in rural society is measured in three ways: 1. the possession of the means of production; 2. the use of agricultural labour; and 3. the mode of agricultural production.

In the face of the complexity of relationships in rural society today, neither the perspective of occupational differentiation nor that of pluralistic stratification is sufficient to describe the impact of technological services on different groups of people. This is because the impact of technical services does not stop at the technical improvement itself, but lies in the corresponding social consequences. Take the training of new vocational farmers as an example, in terms of training content, objectives and process arrangements, the production and management training for family farmers and large specialized households is very different from the professional skills training for

small farmers, and these differences have a direct impact on the existing rural social relations, either maintaining or transforming the existing order. Therefore, analysing the implementation of new vocational farmer training from a class-analytic perspective will help us explore the social consequences triggered by technical training, which also hints at the top-level design behind the technical extension programme's vision of shaping the future farmer and imagining a Chinese-style agricultural modernisation. In the following section, I will explore these issues with examples of the implementation of new vocational farmer training that I observed during my research.

4.2 Three Classifications of New vocational farmer training

In the past, it was customary to categorise farmers on the basis of factors such as their level of knowledge and skills. The essence of trainee selection is to categorise local farmers according to certain criteria in order to select training participants. This is the only time that people are classified during the training programme. In contrast, the implementation of the new vocational farmer training programme has to go through at least three "classifications", which are reflected in the project allocation stage, the project implementation stage and the follow-up effects of the project, and are characterised by the intertwining of implicit and explicit classifications.

In the course of my research, I focused on the training of new vocational farmers at two agricultural extension schools in Hebei province. School A is located in Wuchuan County, a more

economically developed county in the province, and School B is located in Sanjiang County, an economically poor county. Observations of the training situation in School A and School B revealed that, while both are training new vocational farmers, they are very different in terms of training objectives, training targets, and training contents. It can be said that these differences are the cause and effect of the three "classifications" of the training programmes. This section will focus on explaining the reasons for this.

4.2.1 Training for new agricultural business entities in Wuchuan County

The first "classification" was reflected in the allocation of projects, which meant that before the implementation of the training projects, the entities of the training providers had already chosen the types of training according to the local economic development. For example, Wuchuan County had undertaken the training of new agricultural business entities that fully served large professional households and family farmers but correspondingly had not carried out training for skill-oriented vocational farmers. The reason why it only carried out the training for new agricultural business entities was, on the one hand, it was guided by policy: in 2018, the Hebei Provincial Department of Agriculture, the Provincial Department of Finance and other departments jointly issued the Implementation Plan for the New Professional Farmer Cultivation (Rural Practical Talent Training) Project, which stipulated that professional skill oriented and professional service oriented farmers should targeted poverty-stricken households in poor villages with working capacity and willingness to train (including those still enjoying poverty alleviation policies). Non-poverty-stricken counties only implemented training for leaders of new agricultural business entities, with large specialized households, family farm operators, backbones of farmers' cooperatives and returning agricultural

entrepreneurs as the main training targets.

On the other hand, it was motivated by the recognition of the development path of large-scale agricultural production and the rejection of smallholder production. In recent years, the number of people employed in agriculture in Wuchuan County has been decreasing year by year. As of 2019, the number of people employed in the primary sector was 95,501, accounting for only 28.51% of the county's total rural workforce. Agricultural income was no longer the main source of income for most rural residents. In 2019, the disposable income of rural residents in the county was RMB 18,636, of which 66.01% was wages income and 18.73% was agricultural business income (the rest was property income and transfer income). In other words, a large number of small farmers have abandoned their land and agricultural production and opted to earn income by working in cities. However, thanks to mechanical production techniques, the sown area in Wuchuan County has not been affected by the shrinking labor force in the primary industry. Wuchuan County, known as the "granary of Jidong", is a well-known important agricultural county in the local area, with wheat, maize and cabbage as the main crops. In 2019, the sown area of grain crops in the county was 85,549 hectares, and it reached 86,533 hectares by 2021, with a steady increase in the area sown. Along with the high rate of land transfer, large-scale agricultural operations have become the mainstream trend of agricultural production in Wuchuan County. As of 2020, the land transfer rate in Wuchuan County had reached 43.98%, of which the land transfer area on a scale of over 20 mu was 358,600 mu, and the agricultural scale operation rate had reached 75.5%, ranking first in the city. This seemed to strengthen Wuchuan County's determination to achieve grain mass production through large-scale production. This determination was directly reflected in the choice

of direction for the training program. Of course, the choice of training for new agricultural business entities did not mean the elimination of smallholder farmers in Wuchuan County; on the contrary, smallholder farmers were still the main composition of agricultural laborers in the county. In other words, smallholders were excluded from the training of new agricultural business entities.

The second "classification" was reflected in the selection of trainees. Compared to the selection mode of the reform and opening period which focused on farmers' knowledge and skills, this time, the selection criteria had changed: the scale of farming and the age of farmers had become the main basis for admission. In 2018, Wuchuan County took on the task of training 320 new types of vocational farmers, all of whom were the production and operation-oriented trainees, with 270 enrolled in School A and 50 enrolled in the Mechanized Technology School (Agricultural Machinery Service Station). According to the training content, School A divided the training class into two types: planting class and breeding class, and enrolled trainees according to certain standards. For example, the cultivation area of trainees in the planting class usually needed to reach 50 mu or more, and their age needed to be controlled under 45 years old. The former was regulated and determined by the agricultural extension units themselves in the course of project implementation, while the latter was set by the city following national policy requirements.

Although the training providers would give priority to large specialized households and family farmers as the source of trainees, in practice, smaller contractors were often included in the training system. There were two reasons for this: firstly, there was often a shortage of

"high-quality" trainees, and the number of large households that were fully up to standard could not meet the training requirements. For example, in the first year of the new type of vocational farmer training, Wuchuan County stipulated that trainees participating in the facility vegetable training needed to have a production scale of more than 30 greenhouses, and soon they encountered difficulties in enrolling, then the requirement was lowered to three. Secondly, the dispersion of trainees increased the difficulty of the training organization. Even though the number of large households in the county was able to meet the volume of training task load, they were unable to register nearby because they were in different towns and villages, resulting in the problem of absenteeism. For example, the first year of planting class in Wuchuan County enrolled more than 30 trainees with a production scale reaching more than 300 mu, but most trainees could not guarantee attendance due to the long distance, and the seemingly ideal source of trainees could not achieve good training results. To solve this problem, School A not only switched to the method of township rotation training but also adjusted the admission criteria to a production scale of 50 mu or more.

Age as an important criterion for the selection of trainees was mainly influenced by policy and the direction of modern agriculture development. The Notice on the cultivation of high-quality farmers in 2022 issued by the General Office of the Ministry of Agriculture and Rural Affairs clearly stated that young farmers should be guided and encouraged to participate in farmer training, and that corresponding special training courses for young farmers should be organized. Since 2017, the city where Wuchuan County is located has set the age of training participants to be under 45 years old. Although the requirements vary among cities and counties, with some

places still setting the age at 60, the overall trend towards a younger target group for new vocational farmer training is very clear.

Of course, the trend towards youthfulness is not simply a reflection of micro-practice on macro-policy but also contains the objective requirements for the quality of farmers in the current direction of agricultural modernization. In fact, the inclination of training resources for young farmers is the need for large-scale and standardized agricultural production. The No.1 Central Document in 2022 stated that the construction of digital countryside should be vigorously promoted, the development of smart agriculture should be advanced, and the modernization of agriculture and rural areas should be accelerated. The agricultural intelligence revolution in the form of smart agriculture has arrived (Xu, 2022). The advancement of smart agriculture indicates that standardized agricultural production, as an "upgraded" version of "specialized production", will put forward new requirements for the agricultural industry chain, such as the gradual establishment of corresponding standards and norms for agricultural production environment, production technology and product sales. The implementation of these standards is usually based on information technology and completed through intelligent equipment, which includes both the digitization of agricultural production factors and the intelligence of the production process, as well as the collaboration of the processing process and the networking of the marketing process. Therefore, as traditional agriculture is gradually replaced by smart agriculture, farmers' original agricultural knowledge and experience systems are beginning to be impacted, and their ability to process and apply information technology has received increasing attention. In this context, it is clear that young farmers who are more capable of learning and quicker to accept new things are

avored over older farmers.

By sorting out the above points, we can draw an image of the trainees in the training of new business entities: young and middle-aged farmers or large farmers in non-poverty-stricken areas with a large production scale and capacity to expand production. So, how does the training carry out for this group?

In terms of the training process, to realize the rotation of training for several townships under its jurisdiction, School A usually selects a different training location based on the ones in the past 2-3 years of training. On this basis, the training content is arranged according to the requirements of the superior and the agricultural industry situation of the training location.

In concrete practice, farmer training at School A requires cooperation with other township units. This is because the Agricultural Broadcasting School only has four levels of organizational system: central, provincial, municipal and county. As a county-level unit, School A does not have any subordinate units. To achieve the "implementation" of the training program, they need to rely on the relevant departments at the grassroots level. Since 2018, School A has chosen the towns of Wotu and Fengshou as training locations, with the training in Wotu organized by the regional station and the training in Fengshou organized by the local leading agricultural enterprises. Due to the different nature of the partners, the two trainings show great differences in the process. This section will mainly focus on the former, while the training in Fengshou will be described in detail in the section on "Enterprise Training".

In the process of cooperation with the regional station, School A is responsible for the overall design of the training process, such as teacher recruitment, training content selection, training course arrangement, and visiting and learning plan. And the regional station is responsible for the concrete implementation of the training, such as accommodation arrangement, teaching venues, class schedule, and trainees selection. As a county-level unit, School A is not familiar with the actual production and living conditions of farmers, and the selection of training targets needs to be completed by grassroots units. However, as the actual provider of the training, School A does not interfere too much.

In terms of the content arrangement, School A has arranged two types of training in Wotu Town, one for planting and one for breeding. Roughly speaking, the planting class mainly contains training on the cultivation of crops such as wheat, corn, and rice, while the breeding class contains training on the cultivation of poultry and livestock such as chickens and pigs. Of course, the curriculum is similar for both planting and breeding. In terms of curriculum, unlike previous training such as the Sunshine Project, which focused on theoretical teaching, the training of new business entities divides the total 15-day course into three parts: theoretical learning, visiting and learning, and on-site instruction. In contrast to the period of reform and opening, the content of the theoretical study has developed from a single technical module to three modules including technology, management and marketing. Take the "Young Farmers Class" in School A as an example, a total of 9 courses are set up, including "Modern Agricultural Production and Management", "Farmers' Literacy and Modern Life", "Rural Policies and Regulations", "Modern

vocational farmers' Innovation and Entrepreneurship", "Safe Use of Pesticides and Fertilizers", "Corn Production Technology", and "Beautiful Countryside Construction", among which only one is directly related to production technology. In other words, the training of new vocational farmers is gradually diluting and weakening the proportion of technical training and increasing the proportion of courses related to marketing, personal literacy and production quality and safety. At the same time, "Visiting and Learning" has also expanded from local demonstration fields to other places. School A organized a visit to a national agricultural base in Beijing in 2018. In the view of the training organizer Zhang (headmaster of School A), it is necessary to broaden the scope of visiting and learning. "Apart from broadening the horizons of these trainees, there is another very important reason: those good teachers with the national level, experts from good schools were not available to come over (to the local area and townships), so the purpose of visiting Beijing was to make use of their teacher resources. For example, the teacher who gave the lecture this time was involved in the rural revitalization strategy, and he was able to explain the details to you clearly, which you could not hear at all in the local area. We went at the same time with one or two hundred people, and the teachers were willing to give lectures if there were many people." In Zhang's view, the biggest problem facing training is the shortage of teachers, and the experience of visiting more developed provinces can go some way to making up for the lack of teachers in areas such as grassroots agricultural policy and agricultural production management. The last part, namely "on-site instruction", is usually interspersed with "theoretical learning". Before the training starts, the organizer will select the farmland of some trainees (usually contact households and demonstration households of agricultural extension) as cases. During the teaching process, the teacher in charge of technical training will take the trainees to the predetermined place for on-site

teaching and guidance.



Figure 4.1 Visiting and learning in the training of new agricultural business entities in a certain place

However, in terms of training results, the training of new agricultural business entities cannot be considered successful technical training. Despite the variety of courses offered by the training organizers, attendance was not guaranteed. Some trainees were too busy with their own farms or farm business to attend the whole course; some trainees often took time off due to the inconvenience of transportation and family matters; and others had family members, such as parents and wives, attend the course instead of themselves. To solve the attendance problem, the regional station in Wotu Town on the one hand will ask old trainees who know the discipline of the training to recommend new trainees in order to get the "reliable" source of trainees. On the other hand, before the formal enrollment, there will be a conversation with reserve students to emphasize attendance discipline, and only those reserve students who guarantee their attendance

will be officially admitted. "And what if he promised before, but just didn't come to class?"

(Author) "There's no way, so we will look for people who are familiar and know each other. We are all villagers, and he will be too embarrassed to go back on his word." (Regional Station Manager in Wotu Town, Lu) Meanwhile, the superior unit of School A, the city's Agricultural Broadcasting School, has taken the approach of issuing academic certificates in order to attract students: farmers who participate in training for new agricultural business entities can obtain a technical secondary school certificate issued by the Agricultural Broadcasting School. The acquisition of academic certificates has also become one of the major reasons for some large farmers to voluntarily participate in the training. In this sense, the educational function of training for new agricultural business entities is actually based on "favors" and "inducements".

However, it is important to note that the failure of the educational function does not mean that the training has failed. Observations of the curriculum and the trainees' selection process for farmer training in Wotu Town showed that the training of new agricultural business entities in the era of land transfer has two distinctive features: first, the content of the training had shifted from purely technical training to policy training, management training and market training; Second, the training targets were increasingly standardized. Young and middle-aged family farm owners and large farmers with expanded production capacity were the main targets of training. Combining the above two characteristics and training-related policy documents, it is easy to see that the ultimate aim of training for new agricultural business entities is to cultivate organizers and managers in large-scale agricultural production. Therefore, the final assessment of the effectiveness of the training needs to be based on the shaping effect of agricultural production managers. The ultimate

effectiveness of the training also becomes the basis for the third classification. In other words, as mentioned above, the third classification of new vocational farmers' training is hidden in the training effects of "training for new agricultural business entities " and "training for skill-oriented vocational farmers", which actually refers to the ultimate effectiveness rather than the performance of the educational function. In the following section, we will take School B as an example to analyze the implementation of skill-oriented vocational farmer training and compare the final training effects of the two.

4.2.2 Skill-oriented vocational farmer training in Sanjiang County

In fact, training for new vocational farmers is not only aimed at large contracted households, but in some poor areas of Province Hebei, small farmers are also included in the training for skill-oriented vocational farmers.

Sanjiang County, where School B is located, is known as a poverty-stricken county in the province (it has been lifted out of poverty in 2020). In 2019, the disposable income of rural residents in Sanjiang County was RMB11,858, and the rural labor force engaged in the primary industry accounted for 65.54% of the total, with agricultural income still being the main source of income for most rural residents. Due to its mountainous location, agricultural cultivation in Sanjiang County is dominated by nuts. In 2019, the nut planting area was 60915 hectares, with chestnuts as the main crop; The sown area of grain crops was 21952 hectares, mainly corn; And

The orchard covered an area of 16943 hectares, mainly apples and pears. At present, agriculture is still the main industry in Sanjiang County. As of 2017, the ratio of the output value of the three industries was 35.9:14.8:49.3. Sanjiang County has jurisdiction over 25 townships and 396 administrative villages. Before 2016 (the period of poverty alleviation), the impoverished population usually accounted for 20% of the total rural population, and life was hard for them. Therefore, School B carried out professional skill-oriented training for impoverished households in Sanjiang County based on the policy document of Province Hebei.

As Sanjiang County has not set up a specialized agency for township agricultural extension such as a regional station, the training of School B mainly relies on the village committee. In terms of task allocation, School B is responsible for the selection of course content, curriculum arrangement and teacher recruitment like School A, while the village committee is responsible for the site arrangement and selection of trainees. After selecting the training location and majors, School B will select several nearby villages around the training location and entrust the village committee to recruit trainees. As the village committee is not a specialized agricultural extension department, the information on enrolment is conveyed in the same way as other information, through WeChat, radio and word-of-mouth within the village. There are two main admission principles: first, under 50 years of age; second, poverty-stricken households. For poverty-stricken counties, most of the local villagers are poverty-stricken (in recent years, with the implementation of precise poverty alleviation policies, more and more farmers have removed the label of poverty-stricken households). Therefore, professional skills-based training is not aimed at the technical elite, but at small farmers in the region, especially the poor and weak ones.

In 2019, School B set a fruit tree class and a Chinese herbal planting class in terms of curriculum. If the curriculum for the training of new agricultural business entities tended to focus on the teaching of comprehensive and managerial knowledge, then this seven-day skills training was more focused on the enhancement of specific cultivation techniques. The courses offered were mostly related to operational techniques, such as "improved seed cultivation", "safe use of pesticides and fertilizers", "chestnut cultivation techniques", "Chinese herb planting" and "comprehensive pest control". Due to factors such as time, transportation (mountainous areas), manpower and funds, the curriculum of the skills-based training at School B was very simple, only consisting of theoretical teaching and a small amount of on-site guidance, with no visits. At the same time, the process of conducting the courses was also more casual. Unlike School A, which talked to alternative trainees to ensure attendance, School B used a "laissez-faire" approach to trainees, which did not require too much discipline in attendance. However, miraculously, absenteeism was not common. On the contrary, some villagers who were non-trainees would stand outside the classroom to sit in on the courses. These villagers were usually small farmers who failed to meet the training criteria and could not become trainees.



Figure 4.2 Non-trainee villagers sit in on the training course at the door of the classroom

The popularity of the course among villagers is closely related to the planting experience of the teachers and their teaching methods. Unlike School A, School B is not in a position to invite national experts to give lessons, and its teachers are mainly 'indigenous experts'. In the Chinese context, 'indigenous' is the opposite of 'foreign' which means local, indigenous, folk and non-modern. For this reason, in farmer training, local old farmers with rich farming experience are often referred to as local experts. In contrast, university teachers or researchers with strong theoretical skills and higher education become the representatives of 'foreign'. For example, Pei, a technician from the Mao era I interviewed before, mentioned that all they had to do to judge the texture of the land was to rub a strip of mud in the field. If it broke when they lifted it, it was sandy soil. And if it didn't break and was soft and heavy, it was clay. Besides, when the soil was kneaded into a ball and thrown down from a position of 20 cm without scattering, it meant the

moisture content was relatively high. And if the soil was scattered, it meant the moisture was just right. Another example is the judgment of wheat pests and diseases, which can be prevented in advance by observing whether there were eggs and adult insects on the land from low-lying positions. Local experts and local technology are therefore based on planting experience and practical experience. In contrast, the method of relying on instruments in the laboratory to calculate, measure, and analyze soil quality is a foreign technique.

As agriculture is strongly influenced by region and climate, relying solely on technical theory is not a good solution to the practical problems encountered in local agricultural production. Therefore, local experts with rich planting experience and a better understanding of the local climate, natural environment and industry are increasingly welcomed by trainees and valued by the training organizers. "We just love to listen to Mr. Song's lessons (one of the local experts), which are very interesting. And he indeed gets the point and points out the problems at once. When it comes to pruning, what he cut out is really good. The chestnuts in his plantation are big and good (Non-trainees villager W, 8 November 2019, 10:00 am)." It can be argued that these local experts have similarities with the old farmers of the Mao era. They all have rich experience in agricultural cultivation. The difference lies in the fact that today's local experts often have a variety of identities, not only training teachers but also technicians, or even farm owners or specialized households. In the 2019 skills-based training, School B invited a total of three local experts to give lessons, and the author found in interviews that all of them had experience in agricultural extension work, such as technical stations in their early years. And all of them have extensive plantation areas in the present day.

In terms of its educational function, School B's training is undoubtedly successful as it is well received by the trainees. However, this method of improving the planting skills of impoverished households through training is not sufficient to support them to become independent agricultural business entities. At the beginning of organizing the training, School B proposed the goal of "Vocational education for one person, employment for one person, poverty alleviation for one household", positioning the future development of trainees for agricultural laborers. Therefore, neither the setting of the training objectives nor the selection of the training content involves any marketing or business management-related content, showing a great difference from the training of agricultural business entities. The assessment of the effectiveness of the training of skilled vocational farmers then needs to rely on the real purpose of this type of training, i.e. whether it has shaped the "industrial workers" who fit into the current agricultural industry chain.

4.2.3 The Third classification based on training effectiveness

Generally speaking, although the training of new vocational farmers is still classified in the same way as during the reform and opening period, it has new characteristics. Firstly, the scope of training targets is broader. In addition to the returning junior and senior high school graduates, vocational farmers and large households that were taken as key targets in the early stage, the new vocational farmer training also covers the rest of the local small farmers into the training system. Secondly, there are differences in classification methods and criteria. During the reform and

opening period, trainees were usually selected on based on their status and skill level, and graduates from junior and senior high schools, specialized households and scientific and technological households were the main training targets. On this basis, different courses were offered for trainees to choose according to different professional contents and training directions. In contrast, training for new vocational farmers classifies the training targets into three types: the first is to select the type of training based on the local economic situation, a 15-day training for new agricultural business entities and a 7-day training for professional skill oriented and social service oriented vocational farmers; the second is to select trainees based on their business scale and their age. Farmers who meet the criteria can participate in the training. Otherwise, they will be excluded from the training system.

The third is to divide the evaluation criteria of the training effectiveness and measure the effectiveness of different types of training based on whether managers and agricultural workers who meet the requirements of large-scale agricultural production are shaped. From the above analysis, it can be seen that the training of new vocational farmers takes the professional roles as the framework, guiding farm owners and small farmers respectively, attempting to shape the former into employers in modern agricultural production and managers of rural society, and transforming the latter into labor force in agricultural production. That's to say, without changing their class nature, the new vocational farmer training gives the trainees a "professional" disguise. Under this disguise, the actual effectiveness of the training is not so much in its educational function as in the cultivation of trainees' "job adaptability". Even if the teaching effect of School A is not as good as that of School B, it does not mean that the final effect of training in School A is

not as good as that of school B. The level of training efficiency and the quality of training can only have a very limited impact on the outcome of the training. This is because the occupational roles of trainees are fixed before training - class nature determines the occupational roles of trainees and the class color carried by the professional role itself is no longer influenced by the level of technology. In other words, although the "skill-oriented vocational farmer training" mainly focuses on technical upgrading, the small farm holders can only become agricultural laborers in the industrial chain. In contrast, the training of new agricultural business entities is no longer concerned with the acquisition of skills, but aims to shape managers in agricultural production.

In this context, it is only natural that the assessment criteria of training effectiveness should change from focusing on the improvement of trainees' agricultural production skills to the cultivation of professional roles. Training has always acted as a technical medium in the agricultural production process. Farmers acquire new technologies through training and apply them to production, and the cumulative differences in production caused by technology have further changed the relations of production in rural society. However, the training of new vocational farmers heralds a change in this situation. For the "training of new agricultural business entities", whether or not to shape managers in agricultural production is a sign to measure its success. However, for the "training of skill-oriented vocational farmers", the evaluation criterion is the cultivation of agricultural industrial workers. The evaluation criteria for the two new types of vocational farmer training are so different that they are divided into two categories, which is the "third classification" of new vocational farmer training. However, this raises some questions:

since the realization of educational function has become not so important, what is the point of national implementation of farmer training? How is the actual effect of the training achieved?

4.3 "Chain-building tools" and vocational farmers: the typology of agricultural production managers and agricultural employees

In the period of land transfer, the large-scale agricultural business models had been recognized by the mainstream and become the direction of agricultural modernization. Obviously, what was needed most for the transformation of agricultural production methods was matching agricultural producers. Therefore, the most direct aim of farmer training is to provide new producers for large-scale agriculture.

In simple terms, large-scale farming means the unified management of cultivation, harvesting and marketing. In the Chinese context, the biggest dilemma of large-scale agriculture lies in the contradiction between large and small-scale production. The key to resolving this conflict is how to achieve the transformation from decentralized management into unified management. However, there are still great differences in academic circles on the realization mode of large-scale agriculture. The liberal school of economics has always emphasized the need to rely on market mechanisms to achieve the survival of the fittest and promote the replacement of small-scale farming operations by large-scale farm production. In contrast, Marxists stated in their research on China's cooperative movement that collectivisation makes scale effects possible, which is

reflected not only in the fact that collective agriculture enables large quantities of farmland to be merged and provides an effective carrier for mechanisation but also in the collective strong organisational and mobilising ability - during slack farming, labour will invest in rural infrastructure development and rural industrialisation, which has also made large-scale irrigation projects possible. (Bramall, 2009).

The theoretical differences between the two are reflected in concrete practice. there are generally four directions of land circulation: 1. local farmers as the main contractors: a small amount of land is contracted to produce traditional agronomic crops, and most of the labourers are either young or middle-aged peasants who are residing in the area; 2. local farmers as the main producers: the contracted land area is larger, the scope of management is no longer limited to traditional agronomic crops, and most of them are villagers with additional knowledge or experience from egress labouring; 3. agribusiness as the main contractors: the contracted area is large, and the business scope is allied to the production of the enterprise; 4. collective contracting: comprises both the collective economy that has not been disbanded after the reform and opening and villages that have regained the collective economy (Zhang, 2019). From this, it can be seen that land use is shifting from small-scale household operations to large-scale agricultural centralisation. The ways to facilitate circulation include both the collective economy, individual capital, and industry and commercial capital.

Under the dominance of the collective economy, the focus of large-scale agriculture lies on the organization and cooperation of small farmers, while under the market competition mechanism,

the focus of large-scale agriculture lies on the elimination of small farmers by large farms. It can be said that the different paths of realization of large-scale agriculture place different demands on agricultural producers. This makes the training of new vocational farmers in the two paths show different characteristics.

Farmer training under the domination of the collective economy shows the characteristics of eliminating differentiation in the overall design. Taking Yantai City, Shandong Province as an example, the farmer training conducted there has a clear tendency to be mass-oriented. Firstly, in the construction of the training system, Yantai has set up several field schools in each township under the county-level agricultural extension department as the terminal of the training system to solve the problem of the "Last Kilometre"; secondly, in order to implement the training policy smoothly, vertical military management of training is implemented by following the example of the four-level agricultural science network of the Mao era, with training tasks assigned level by level from city to township. The last and most striking feature is the training method of classification in unity. The so-called unity means that the field schools are the main training venue for farmers, and the trainees are trained in a unified way in professional skills. The trainees come from both small farmers and large specialized households, both of whom are in the same class. For example, among the trainees of one family farm field school in Yantai, the proportion of small farmers was as high as 39.35%, 21% were family farmers, and the rest were large farmers and cooperative backbones (Li, 2022). The so-called classification refers to the classification of course content: training at the county level and below focuses on production skills training, mainly including "Planting and Breeding Techniques", "Production and Management of Agricultural

Products", "Prevention and Control of Agricultural Insect Pests" and " Pruning Techniques of Fruit Trees". After completing training in the county-level branches, the municipal agricultural extension units will then carry out management training, mainly including "Live E-commerce for Agricultural Products", "Integrated Development of Primary", "Secondary and Thrid Industries", "Brand Building of Agricultural Products", and so on. In other words, in the "Yantai model", all trainees need to learn the same courses. Small farmers need to learn management knowledge, and large vocational farmers need to learn planting and breeding techniques. It can be argued that farmer training under the leadership of the collective economy never aims at the shaping of technical elites or the framing of farmers by occupational roles, but rather aim at eliminating divisions and making training resources available to as many farmers as possible. Unfortunately, at present in China, only a few cities and counties under the jurisdiction of regions such as Shandong and Guizhou provinces are practicing the large-scale business model led by the collective economy.

In contrast, farmer training under the market mechanism implies the recognition and encouragement of the current state of farmer differentiation, and it has become more of the maintenance of the inherent order in rural society than a catalyst for change. As mentioned above, the division of roles between managers and agricultural workers is based on the current social structure of rural society, oriented by occupational divisions. As the relations of production in rural society have solidified, the pre-training farmers and the smallholders remain the same after training, and it is difficult for smallholders to rely on the acquisition of new technologies to achieve class leapfrogging. On the surface, the reality of class differentiation is concealed under

the guise of 'occupation', and class inequalities are simplified as differences in occupational roles.

However, this is not the major role of training for new vocational farmers.

In the period of land transfer, farmer training had moved beyond its role as a technical medium to a direct role in the rural social order. Since the implementation of the new vocational farmer training in 2012, the training of new agricultural business entities and the training of skill-oriented vocational farmers had undertaken their respective roles to provide professional managers and labor force for the modernization of agriculture. However, these roles were not fulfilled through education, and the assessment of training effectiveness had moved away from the improvement of the technical level to focus on the shaping of the professional roles of agricultural production managers and agricultural laborers. In the existing concept, a short 15-day course plays a limited role and cannot even result in an unequal distribution of the important means of production of "agricultural technology". However, this is far from being the case, as the following two typical examples from School A illustrate.

Case one. In 2012, Wuchuan County transferred some land from small farmers under the leadership of the government to build a planting demonstration park, with contracting rights opening to large households (the contracting fee was equal to the local average, which was RMB 800-1000/mu in 2019). The planting species were at the discretion of the contracting households. L (1986, female) was one of the first trainees in the new vocational farmer training in 2012 to learn strawberry planting. In 2013 she joined the park to replace her sister (who owned 5 greenhouses), who was poorly managed, to plant strawberries but suffered serious pest and disease problems in the process. In order to reduce her losses, L contacted the teachers and the organizer of the previous training.

Firstly, the teachers provided her with some solutions by telephone, and secondly, the training organizer contacted relevant experts to visit the site to see her planting situation. The experts regularly went to the greenhouses to give guidance on all key aspects of strawberry planting, which not only solved the problem of pests and diseases but also improved the quality of the strawberries by leaps and bounds. While helping L, School A also promoted her as a typical case, seeking policy support and financial support for her. In a few years, L's planting scale had developed from 5 greenhouses at the beginning to 38 in 2019, becoming a famous local strawberry picking garden, and L herself, as a typical farmer to get rich, was elected as a representative of the Municipal People's Congress and a part-time vice chairman of the County Women's Federation.

Case two. In 2018, School A was commissioned by the Agriculture Bureau to organize and set up a "High-Quality Farmers Development Alliance" based on the information of trainees in the previous years, whose members were all large specialized households who had participated in the training. "Inside it, there are all the ones who are doing well in agriculture in our county." A school office director said, "The purpose of setting up is to promote group development. We communicate with large households smoothly, but communication among them has not been established. Farmers who do planting can be linked to each other through training, but farmers who do planting and farming, farmers who do farming and food processing cannot connect to each other because they are in different training classes. If they can share information, it will be a direct production and marketing chain, which can solve the problem of production and marketing very well." Although the "Development Alliance" has not been established for a long time, several large farmer households have already established a complete agricultural industry chain integrating production, further processing and marketing through mutual connections.

On the surface, the training only provides trainees with a theoretical perspective on the

management of the production, distribution, processing and marketing of agricultural products, and cannot be directly applied in practice. However, the training process for new agricultural business entities carried out by School A and previous typical cases prove that the role of training is not limited to the scope of the curriculum. For the training of new vocational farmers, the allocation and integration of resources in the post-training phase can help the training to be directly applied to production, or even to the rebuilding of the industrial chain.

Specifically, as a 'chain-building tool', training can be used to shape the key role in the chain - the managers of agricultural production - in two main ways. The first is to play the role of technology in production relations. The differential allocation of technical resources by the training platform results in an imbalance in technology accumulation among farmers. A family farmer on the verge of "bankruptcy", with the support of the agricultural extension department, solved the problem of pests and diseases, obtained good seeds and financial support, grew into a well-known local professional farmer, and even gained political capital on based on economic capital. It can be said that large vocational farmers have acquired or maintained their core position in rural social relations with the help of training.

The second is to use platform resources to transform agricultural production methods. Promoting the integration of agriculture with secondary and tertiary industries and developing rural communities into places where agriculture, industry, and commerce are integrated seem to have become the mainstream development direction of agricultural modernization. During the training, the communication platforms set up by the main training providers, either actively or passively,

create conditions for connection between trainees, even across border connections. In the long run, these connections have a great impact on the reconstruction of the entire agricultural industry chain. The process of business integration between large specialized households in different parts of the agricultural industry chain is a process of mutual pervasion and cross and even integration of the primary, secondary and tertiary industries. As can be seen from the distribution of training content, the current training for large specialized households focuses on the circulation, processing and marketing of agricultural products, as well as the management of the production process. However, this production process is not smallholder production in the traditional sense, let alone the collective labor during the People's Commune period, but rather the operation and management of cooperatives and agricultural enterprises. In other words, whether it is the proposal of large-scale and standardized production models, or the group development and joint growth of new agricultural business entities, they all try to recreate the agricultural production process through strong alliances and industrialized development ideas. In this sense, it is inevitable for small farmers to be excluded from the training of new agricultural business entities.

The shaping method of training for agricultural laborers, the other side of the industrial chain, can be found in the training process of B school. In order to solve the employment problem, the organizer's staff or teachers will introduce local leading enterprises and cooperatives during the training process. For example, one of the fruit tree planting classes had introduced a local leading enterprise undertaking industrial poverty alleviation projects. This enterprise employed 19,695 impoverished households in the chestnut industry in 2019, buying chestnuts from poor households at market prices and increasing the income of impoverished households by an average of 1,600

yuan as a result. Obviously, this type of case presentation will have two consequences: firstly, it will attract impoverished households to work in the relevant enterprises, and secondly, it will lead farmers to sell their agricultural products to the enterprises.

Therefore, even the more effective training of skill-oriented vocational farmers cannot change the bottom position of impoverished households in the industrial chain but rather indirectly exacerbates the constraints of small farmers in terms of planting varieties and planting methods. One farmer mentioned that there were corresponding standards for enterprises to purchase chestnuts, and for products that did not meet these standards, farmers had to sell them to second-hand dealers (retail farmers who go to the countryside to buy agricultural products) or take them to the market for sale. In order to make more money and save some time, they would try to follow the enterprises' requirements in the future. In this sense, impoverished households are gradually becoming a new type of "agricultural employees" without a basic wage and employee security. With the deepening commercialization and marketization, impoverished households have neither the funds to expand their production nor sufficient labor force and can only stay at the bottom of the agricultural chain to provide primary products for the enterprises in the middle and upper reaches.

Overall, the weakening of educational function highlights the changing role of farmer training. Farmer training no longer focuses on technical promotion but has become an important tool for building the agricultural industrial chain. It is important to note that farmer training under the dominance of the market economy is different from the development expectations of the collective

economy to eliminate the polarization between the rich and the poor, but instead accelerates the polarization. Compared with small farmers, large farmers not only occupy a large number of means of production but also have advantages in all aspects of the production chain through strong alliances. On the one hand, these advantages have accelerated the reality that small farmers become vassals of capital, and on the other hand, they also collaborate with measures such as the transfer of land and large-scale production to exclude a large number of small farmers from the scope of business entities in an unequal competitive environment and turn them into agricultural laborers or agricultural labor employees.

In other words, in the context of capital-led industrial integration, the employment relationship that exists in agricultural production will deepen until it becomes an 'agricultural factory' that is no different from urban factories. The training of farmers at this time is framed by occupational roles and guides farmers and smallholders separately. It attempts to shape the former as employers in modern agricultural production and managers of rural society and transform the latter into laborers in agricultural production labor to meet the requirements of industrial agriculture for the division of labor. In this sense, the replacement of the status farmers by the vocational farmers reflects the reshaping of the agricultural chain by industrial management thinking. This is not, of course, random speculation. On the one hand, the idea of training for professional skill-oriented and service-oriented vocational farmers in the new vocational farmer training confirms this speculation. On the other hand, some privately-held cooperatives and leading enterprises have already turned 'agricultural factories' into reality. The fifth chapter of this thesis, "vocational farmers and Identity Farmers under the Diversified Training System," will continue to sort out and

analyze the training situation of other types of farmers besides the government.

Chapter 5: Professional Farmers and Identity Farmers Under the Diversified Training System

In 2001, the State Council released the “Outline of Agricultural Science and Technology Development (2001-2010)”, which proposed “to vigorously mobilise farmers, agribusiness and civil society organisations to participate in the popularisation of agricultural technology, and gradually form a new agricultural technology extension system that integrates state support and market guidance, and combines paid and unpaid services.” Since then, in addition to the official candidates, rural specialized cooperative, agribusiness and civil society organisations have become the main participants in both free and paid farmer training. In 2007, it was reported that 24.76% of farmer training was provided by leading enterprises, and 17.2% was provided by professional associations and agricultural cooperatives.

As a crucial part of the agricultural science and technology extension system, the farmer training implemented by leading enterprises and professional cooperatives is commonly concerned by scholars. Most studies have supported the premise of "diversity" and support a variety of training providers. For example, encourage agricultural science and technology and popularise the socialisation of the extension service system (Bai, 2006); promote government-based multi-agent training in funding mechanisms (Ma, 2004); exploring the cooperation model between leading enterprises, specialized cooperatives and farmers (Ren, 2016). However, these studies rightfully

support farmers training in agribusiness and cooperatives, and unsurprisingly put forward requirements on the training content and methods from the perspective of government needs and farmers' needs, or think that the training motivation of the government, agribusiness, and professional cooperatives are consistent, but did not study the differences. This has directly led to the policy binding on different subjects without distinction, such as in the “Response No. 6658 of the Second Session of the 13th National People’s Congress”, the Ministry of Agriculture and Rural Affairs cited: “All localities actively organised and mobilised various kinds of education and training institutions, agricultural colleges, scientific research institutes, technology extension units, administrative management departments, large specialized households, family farms, rural cooperatives, agribusiness, agricultural parks, etc. to recommend outstanding teachers, experts and talents participated within the farmers’ education and training, and can be included within the farmer education and training teacher database in the national agricultural science and education cloud platform for dynamic management.”

This section aims to observe the role of training providers other than the government in shaping “new farmers”. It mainly includes farmer training provided by profit-oriented enterprises and non-profit organizations. Exploring the motivations of different training providers and the similarities and differences in the training content and methods will help to refine the characteristics of “new farmers” during the land transfer period and analyze the impact of different training providers on the shaping of “new farmers”.

5.1 The Duality of Farmer Identity: The Dialectical Unity of Agricultural Producers and Consumers of Agricultural Materials

Current farmer training carried out by enterprises can be divided into two forms according to the scale of the training providers: training for agricultural material dealers and training for leading agricultural enterprises. This section focuses on farmer training conducted by small-scale agribusiness, while farmer training conducted by leading agricultural enterprises will be discussed in detail in the next section.

During the period of land transfer, there were two main types of farmer training carried out by small-scale agribusinesses, one was joint training and the other was independent training. Joint training referred to the training of new vocational farmers commissioned by the relevant government departments, while independent training specifically referred to the training carried out by agricultural enterprises themselves. The research revealed that the differences between the two types of training were mainly in the forms of organization. The former had a detailed training plan and was organized only once or twice a year, while the latter was more random, ranging from dozens to hundreds of training a year.

In fact, independent training could be traced back to the widespread establishment of agricultural material distribution networks in the 1990s, as mentioned earlier. With the liberalization of the management right of agricultural material, the former science and technology merchants ventured into business and left the agrotechnical stations to become agricultural material dealers. The

training organized by agricultural material dealers usually did not have a fixed place and was relatively free in terms of time, place and even the arrangement of teachers, and the training time was very short. The main training contents were the usage methods and effectiveness of agricultural materials products. At present, for some large dealers, the farmer training organized each year is usually on a village basis, with technicians traveling to and from different townships, and the number of training reaches 500-600 (Chen, 2021). In the training of agricultural material dealers, the training providers regard farmers as consumers, and the sale of seeds, fertilizers, pesticides and other agricultural materials to farmers who attend the classes is the fundamental purpose of their training. And for farmers, they know the purpose clearly. However, there is still a very large number of farmers who choose to participate in this type of training. There are three reasons: firstly, the number of government-sponsored training for farmers is relatively small and the coverage is not sufficient for ordinary farmers, who can only learn about the application of fertilizers and pesticides through private training sessions. Secondly, they can often get some gifts such as water basins, buckets or small amounts of seeds; and finally, they are influenced by other villagers to participate in the training to buy the recommended agricultural materials.

In independent training, farmers often participate in the training as consumers of agricultural materials. However, by the time of land transfer, in another type of farmer training jointly organized by the government and agribusiness, farmers played the role of product producers in addition to the role of consumers. The product producers in this context did not refer to those who were engaged in agricultural labor in the general sense, but those who supplied primary agricultural products to the agribusiness. So how does the dual identity of consumer and product

producer unite the farmer? This section will focus on the new features of joint training that emerged in the period of land transfer.

In joint training, the agricultural enterprises entrusted by the government were usually well-known professional cooperatives within townships. These cooperatives were often privately or minority-owned, as opposed to publicly owned rural collective economic cooperatives. In the process of the cooperation between the two, the government agency was the contracting party for training and cooperatives were the actual implementation units of training. As the regional stations mentioned earlier, agricultural extension departments such as Agricultural Broadcasting School and vocational education centers, after determining the general direction of the training, would entrust specific tasks such as the selection of trainees, venue arrangement and time arrangement to the cooperatives. However, due to the different attributes of cooperatives and regional stations, there were also great differences in the selection of trainees between the two. If the regional stations selected trainees based on comprehensive consideration of industrial development, policy implementation and the effectiveness of the training from the perspective of synergy theory, cooperatives select trainees intending to meet the needs of enterprises, as illustrated by the case of Cooperative D below.

Cooperative D is located in the town of Fengshou, a large agricultural town in the southwestern part of Wuchuan County. Due to its flat terrain and rich sandy soil, Fengshou Town takes the cultivation of protected melons and vegetables as its leading industry. Cooperative D is the one that focuses on the cultivation of protected vegetables, such as tomatoes and cucumbers. This

cooperative is characterized by its "driven by competent people". In 2019, the cooperative had more than 200 members and 65 shareholders. Among the major shareholders, L's family of three held 75% of the shares.

Since 2017, Cooperative D has acted as a grassroots medium 11 times, undertaking training for new agricultural business entities carried out by Agricultural Broadcasting School in Xizhou City. As the main supplier of training, the Agricultural Broadcasting School will provide a certain amount of training contract fees to Cooperative D after specifying the training content, courses, number of trainees, and training hours, and Cooperative D coordinates all matters such as recruitment and venues. At the end of 2019, the Agricultural Broadcasting School opened a training course on protected vegetables in Cooperative D, enrolling a total of 55 trainees. All trainees were members of Cooperative D. When asked about the way the students were selected, Ms. Li, one of the people in charge of Cooperative D, mentioned that the cooperative would enroll trainees in a WeChat group. "We have a group of 300 people, and all of them are members and customers. If we have training information, we will send it to the group. Soon the places will be full. Generally, it is first-come, first-served, but sometimes we will also make a selection". The selection that Ms. Li referred to took place when there were too many people enrolled. According to policy requirements, cooperative D excluded people over the age of 45 and chose among the co-op's main customers, who were also members of the co-op. They purchased seedlings from the cooperative and also sold their agricultural products to the cooperative, thus possessing dual identities as consumers and producers. This meant that farmers who were not members of cooperatives did not have the qualifications to participate in training.

Cooperative D has always regarded the members of the cooperative as the only source of trainees. This is not only for the convenience of enrollment but also for promoting the sale of seedlings. Although, the type of course will be determined by training contractors, in practice, due to the wide range of agricultural courses which not only have field crops but also various types of cash crops, the relevant government department will simply choose the appropriate courses according to the business scope of the contracted enterprises. For example, if the training area has both field and herbal cultivation, but only herbal medicine enterprises can undertake the training, the official will set up herbal cultivation classes according to the nature of the enterprises. The enterprises will have many opportunities to promote their agricultural materials, such as seedlings, seeds and fertilizers, to the trainees during the training organization. The same is true for Cooperative D. Although it has many members, most of them do not hold shares in the cooperative, and the connection between the cooperative and its members is not strong. So the members have the right to choose where to buy agricultural materials according to their own preferences. In order to attract members to purchase seedlings, Cooperative D often "put hidden advertisement "(夹带私货) during training. For example, recommending the local 'planting expert' (who is probably the shareholder in the cooperative or has close ties with it) as the training instructor to focus on explaining the advantages of cooperative D's seedlings during training. At the same time, Cooperative D will also emphasize the price advantage of purchasing agricultural products during the communication with its members to attract them to sell their ripe tomatoes and cucumbers to the cooperative. The so-called price advantage mainly includes two situations, one is the purchase price is a little higher than the market price, and the other is the prior agreement that the price will

not be lower than the market price. When the purchase price is lower than the market price, the cooperative members have the right to sell their agricultural products elsewhere. In this way, members will be more willing to sell their produce to Cooperative D, which is convenient while also ensuring profits to a certain degree. For Cooperative D, this method helps to stabilize the membership structure and ensures the customer base for the sale of seedlings. At the same time, it can acquire primary produce of the same species with relatively uniform standards, so that the produce can be sold to supermarkets, processing plants and other upper levels of the industry chain at a better selling price.

Farmers trust the official training jointly organized by cooperatives and government departments more than the small-scale lectures conducted by agricultural material sellers. Through word of mouth, the reputation established by early training for Cooperative D's seedlings attracted more small farmers to become members. They chose to join the cooperative in order to buy the seedlings that only members were entitled to obtain, and sold their produce through gradual communication with the cooperative. Unconsciously, a group of farmers with dual identities as agricultural producers and consumers of agricultural material has been formed to serve the Cooperative D especially.

With a growing number of members, Cooperative D expanded rapidly over the years. However, after its development and growth, Cooperative D did not continue the previous business model. By 2019, Cooperative D had stopped accepting “new farmers” as members and began to enter the transformation stage. The transformation was from a mere seller of agricultural materials and

products to a regional or even national seedling cultivation base. This also meant that the target group of Cooperative D had changed from small local farmers to small agricultural enterprises, and the partners had also changed from small farmers to a few large households with both funds and scale. Under the transformation of the role, local smallholders had been gradually marginalized. Although the original members could still buy seedlings from Cooperative D and sell their produce to it, they were no longer able to get good prices. More and more smallholders had to sell their produce to the market again.

At the same time, Cooperative D had a greater demand for skilled agricultural workers. The existing local agricultural employees were no longer able to meet the upgrading of the varieties sold by Cooperative D. Ms. Li mentioned that the shortage of the cooperative now was grafting workers, who can only be hired from other places at a high price during the busy agricultural season. In this case, in the continuous communication with the Agricultural Broadcasting School, Cooperative D hired experts to provide technical training for specific members of the cooperative. On the surface, the training was intended to improve the production techniques of local farmers, but in fact, it was to cultivate scarce technical personnel for seedling production for Cooperative D.

In this sense, cooperatives or agribusiness are the biggest beneficiaries of the joint training process from the beginning to the end. Through training, the contractors can build up a large client base with dual identities of producers and consumers, rapidly accumulate capital and, in the process of transformation, receive more technical support and training resources through the training

platform, thus laying the foundation for acquiring skilled personnel most needed for the development and growth of enterprises. In contrast, with the transformation of contracting units, both former members and unaffiliated small farmers will once again return to the small-scale family production mode of agricultural business. What is waiting for them is the fate of being trapped by agricultural capitalism like other small farmers.

The unity of the duality of farmer identity is the result of the gradual integration and upgrading of the agricultural industry chain. In fact, the duality of farmer identity was derived during the reform period. With the invasion of commercialization and marketization on rural society, the cost for farmers to purchase agricultural materials is increasing, and the price of agricultural products sold to the outside world fluctuates with the market. It is just that from the perspective of the industrial chain, the roles consumer and producer of farmers are separated. The role of the farmer as a consumer is only manifested in agricultural production and sales enterprises, while the role of the farmer as a producer is present in the process of agricultural product sales, targeting both agricultural products processing companies, 'two-way merchants', and direct urban consumers. At this time, agricultural capital as a whole tends to be dispersive and the various links in the chain are independent of each other. However, in the period of land transfer the roles of farmer, consumer and producer, were played in one enterprise at the same time. This change did not start with farmers but was because more and more agricultural enterprises were shifting their business direction from single to comprehensive, with multiple functions such as the sale of agricultural materials, the purchase of agricultural products, and even the processing of agricultural products. In this sense, the gradual integration of the primary, secondary and tertiary industries is the key to

unifying the dual identity of farmers.

However, for smallholder farmers, the unity of identity and role does not equate to the convenience of the production process but rather signals the deepening of capital's constraints on farmers. As in the case of Cooperative D, small farmers would only rely more and more on the agricultural material sales platforms and agricultural product acquisition platforms provided by agricultural enterprises in their interactions with them. Under the survival of the fittest, the growth of some agribusinesses is often accompanied by the bankruptcy and merger of other small-scale agribusinesses, leaving farmers with fewer and fewer options. From the training perspective, fewer and fewer small farmers will be able to participate in training because the demand of training providers for trainees has changed and farmers, as consumers and producers, are no longer able to meet the future profits and development needs of agribusinesses. What about the farmer training provided by large agribusinesses? What is their vision for farmer training? These questions will be illustrated in the next section, using the example of vocational farmer training carried out by agribusiness F.

5.2 Agricultural "White-collar Workers", Agricultural Employees and Agricultural Factories: The Redefinition of Professional Farmers by Capital

The city of Taizhou, where Company F is located, is located in the hinterland of the North China Plain, with a grain sowing area of 730,000 mu in 2021, of which more than 180,000 mu is sown

with strong wheat. It can be said that wheat cultivation has become one of the pillar industries in the area and is closely related to Company F. As a local enterprise in Taizhou, Company F has been producing noodles that have been the number one seller in the country for many years. In addition to flour processing, Company F has completed the construction and extension of one, two and three industrial chains, expanding its business to the whole country. In 2012, Company F set up a branch in the local township of Lianhua, specialising in land transfer and farmer training, with a total of 30,000 mu of land in the surrounding townships, centred on Lianhua Township, for the construction of a demonstration base for wheat cultivation. Like other companies and co-operatives, the company's wheat planting base has been established by the government as a "field school" and has been tasked with training 100 farmers in 2021. It is important to note that in addition to this, Company F has a separate farmer training system, with an average of 40 trainings per year, for "new farm management personnel" who meet the company's requirements and who manage the demonstration bases. This section mainly introduces the new farmland management personnel training.

According to Mr. Shi, the general director of the training, the 30,000 mu of land used for the construction of the demonstration base was all transferred from large local households. Due to poor management and inability to maintain production, these large households had to transfer their land to Company F. Before that, most of the local small farmers had gone out to work. Company F spent three years to make the land transferred in place and started the training related to new farm management personnel in the first year, i.e. 2017.

Throughout the training process of Company F, the training of new farmland management personnel is not essentially aimed at farmers' training, but rather at employee training for enterprises. Company F limits the enrollment range of trainees to males between the ages of 30 and 45. Unlike other farmer trainings, Company F does not restrict the status of the trainees. Whether they are farmers or urban residents, as long as they wanted to engage in agricultural production, they can participate in the enrollment. In the trainee selection stage, the comprehensive quality of candidates, especially their cultural level and professional background, is the main measurement indicator.

Company F proposed assessment requirements for vocational farmers following the standards of corporate employees and treated them accordingly. Trainees were given a six-month probationary period after joining the training, during which they would eat and live in the base and enjoy a salary of RMB 6,000/month. During this period, the base would provide farmers with complete training in agricultural production, including farming techniques, drone use techniques, farm machinery driving techniques, agricultural product sales and agricultural business management. Each trainee could contract 400-600 mu of land on the base for agricultural production. All production activities on the contracted land were carried out by the trainees themselves, and the training teachers could give corresponding suggestions in due course. In addition, the training teachers were usually veteran trainees who provided guidance to the trainees on the farmland during the day and taught specific theoretical knowledge and techniques at night. After the trial period, the trainees could choose to continue managing the contracted land as employees of the company and receive a fixed monthly salary. Alternatively, they could sign an agreement with the

company as a partner and share the proceeds. The specific method of cooperation was that enterprises provided the farmers with free land and took advantage of the enterprise to provide the farmers with low-priced seeds and fertilizers. After deducting all costs, the profits were distributed 1:1. Currently, most of the trainees at the base choose to work with the enterprise, believing that it will be freer and more profitable under careful management. A small number of trainees choose to become employees, believing that income will be relatively stable.

It is important to note that Company F has specific requirements for trainees' planting varieties, but not for pesticides and fertilizers. This practice caught my attention because it is directly related to the real purpose of the training conducted by the company. On the surface, the training is conducted to train the company's staff in farm management to ensure the yield and quality of wheat, which is the raw material for flour. However, as a well-known flour company, the annual production of the demonstration base of 30,000 mu (about 635 kg/mu) is only enough for the company's daily wheat consumption (2,000 tonnes). Therefore, Company F does not depend on the wheat production of the demonstration base and naturally does not need to train specialized personnel for it to ensure production. At the same time, it does not care about the income from wheat sales. So, what is the purpose of new farm management personnel training?

As a veteran trainee, employee Mr. Wang mentioned his current job. Four years ago, Mr. Wang resigned from his job as a real estate salesman in a first-tier city to return home. He planned to work in agriculture and was able to join the training program. After finishing his studies, Mr. Wang chose to stay in the company and was responsible for work related to the operation of the

training program. Now he has become the manager of the program. He introduced that the company now has five wheat demonstration bases nationwide, each with a corresponding training program in operation. They have trained more than 100 vocational farmers in a few years. No matter what choice these farmers make after the training, they can be called "white collars" in the local area. Their farming methods and choice of varieties have profoundly influenced other farmers in their area and have served as a good example. A large number of farmers, led by these "white collar" farmers, have already chosen to sow the wheat varieties specified by the company and sell their produce to the company at a price slightly higher than the market. "We do in a demonstration base, and the main thing is to be a model for local farmers." Mr. Wang said.

The quality of flour and noodles is directly influenced by the quality of the wheat, among which noodles are particularly favored over strong gluten wheat. Therefore, if a noodle company wants to maintain its current scale or even expand its production, the most important thing is to ensure the stable source and quality of raw materials. Therefore, the fundamental aim of training of new farmland management personnel carried out by Company F is to radiate the surrounding farmers through the training of vocational farmers and turn them into stable suppliers of raw materials needed for the company's production. In this sense, just through the operation of the training program, the company has acquired the means of production necessary for the development of industrial capital, and the imitative behavior of farmers towards "white collar" farmers has enabled the company to reap the benefits of a large amount of "unpaid laborers labor". At the same time, Company F has also set up a testing process for the purchase of primary agricultural products. The quality of the wheat not only determines the success of the transaction but also the

final price of the transaction. It can imagine that both the white-collar farmers and the free employees in the agricultural factories will handle all aspects of production in strict accordance with the factory requirements in order to increase their income.

In contrast to joint training, independent training carried out by leading companies can better reflect the aims and ambitions of capitalist agricultural factories. In a large factory system, not only small farmers but also large specialized households inevitably become "employees" for the enterprise. The only thing is that these employees can continuously deliver the high-quality agricultural primary products needed for production without consuming any employment cost of the enterprise.

The established image of an agricultural factory refers to an agricultural enterprise that uses modern agricultural equipment and agricultural technology for production and management. As a result, attention is often focused on the degree of modernization and automation of the factory, and few people pay attention to the production relations under the agricultural factory system. In the case of company F, it can be seen that employment relationships have been created in the agricultural factory, which are no different from those in urban industries. Although there are various forms of employment relationships, in general terms, there are two main paths: direct and indirect. The direct path is through the recruitment of rural workers by the agricultural companies, while the indirect path is to get more small farmers into the production process through training and skilled personnel demonstration.

The transformation process of training connotation by leading companies has realized the replacement of identity farmers by vocational farmers, and the definition of farmer roles has thus been reinterpreted. On the one hand, the source of trainees has nothing to do with farmers in the traditional sense, and it is no longer important whether or not they have rural household registration. Actually, it breaks through the identity of farmers, making it a profession that anyone can engage in. On the other hand, from the employment point of view, whether the trainees choose to become employees of enterprises or large specialized households, their labor process is already subject to the leading enterprises. Some farmers need to meet the requirements of enterprises from the selection of agricultural materials to production standards in order to sell their agricultural products to the leading enterprises with higher purchase prices. In order to improve the quality and yield of their crops, some farmers have to give priority to companies in selling their produce in order to obtain high-quality varieties that only companies have the right to patent or distribute. In this sense, farmers are no longer absolute independent small producers. Compared with the social role of "farmers", it is more appropriate to call them employees of enterprises.

As a typical example of the transformation of the agricultural industry chain, the model of Company F can attract small farmers to serve it to the maximum extent. But there is no formal employment relationship between them, so let's call this model a pan-industrial system for the time being. Under this system, large-scale farming, which has always been possible only through land circulation, is no longer the only option. Land circulation has transformed from a basic condition for a large-scale operation to a sample medium that only serves as a model for neighboring farmers. In other words, enterprises only need to transfer a certain area of land,

cultivate technical experts, instill cultivation concepts and variety requirements into trainees, supplemented by efficient production situations of the demonstration fields, so that they can drive other farmers to follow the enterprise's wishes in agricultural production. Small, semi-proletarian producers may thus be transformed into semi-proletarian, unpaid agricultural labor employees, saving the enterprises' cost and ensuring the quantity and quality of raw materials necessary to maintain production.

Although F's training model is still in its infancy and has not been promoted nationwide by leading agribusinesses, we can still see a certain future trend in it and the imagination and vision of enterprises on farmers and agricultural production hidden behind the training system.

5.3 Public Welfare Training of Social Organisations and Ecological Farmers

At present, in addition to the training provided by the government and for-profit enterprises, some social organizations also provide training for farmers based on their own vision. This section will introduce the training conducted by social organizations based on the teaching experience of Mr. Wu, a training teacher.

Mr. Wu is a farmer with 30 years of farming experience and nearly 20 years of training experience, who combines indigenous and foreign experience. As mentioned in Chapter 4, Section 2 of this thesis, in the Chinese context, "indigenous" often means folk and local, while foreign means

professional and modern. For Mr. Wu, more than 30 years of hands-on farming experience has given him rich local practical experience and an accurate understanding of the local natural environment and climate conditions, and his studies in agricultural colleges and his work experience on state-owned farms have also given him the corresponding theoretical knowledge in agricultural science. In 2001, with the restructuring of the state-owned farms and the infiltration of industrial agricultural inputs into the agricultural production process, Mr. Wu gave up his "iron rice bowl" in the system in order to put his idea into practice and chose to return home for farming and began his exploration of ecological agriculture. After years of practice and study, Mr. Wu gained a wealth of experience in ecological agriculture and was noticed by public interest social organizations with similar ideas, and then they invited him to conduct training on ecological agriculture for farmers.

According to Mr. Wu, small farmers are the main target group of social organizations, and their training, while more technical, is very different from the government's training for skill-oriented vocational farmers. Among them, the biggest difference is that the government focuses on technical operations, while the social organizations' training pays more attention to conceptual change. In this sense, the educational significance of social organization training in terms of ideology far exceeds that of technological advancement itself, which is similar to the peasant education provided during the Mao era. Both of them focus on the promotion of the spirit of solidarity and mutual assistance, as well as the production rights and interests and life dignity of the actual workers. Taking eco-agricultural training as an example, Mr. Wu never talks about specific methods of operation but focuses on cultivating farmers' psychological identification with

eco-agriculture. "This is the education part, to make farmers understand why they operate this way, not how they operate; many farmers only know the methods, but do not know the reasons behind them(Mr. Wu)." At the same time, the social organization's farmer training will also educate on courtesy, gratitude and mutual help, prompting organization and cooperation among smallholder farmers. "We pay special attention to communication and interaction with trainees both in and out of class, engage with all the trainees and also encourage interaction among them." In summary, it is through the analysis of the relationship between man and nature, as well as the relationship between man and man that the farmers' concept of production and life is transformed.

On the level of man and nature, Mr. Wu will focus on explaining the dialectical relationship between soil, climate and crops. He is very fond of explaining to farmers the laws behind farming through agricultural proverbs. "For example, 'springtime like winter' means that the climate in spring is as cold as winter. At this time, you need to sow late and water less according to the temperature conditions. But farmers cannot adjust themselves and plant as early as in previous years, which will rot the seeds." Agricultural proverbs are a summary of the production practices of farmers over thousands of years, and using them as the main teaching content actually implies a great deal of affirmation of experiential knowledge. In Wu's view, different water, soil and climate conditions mean different agricultural production methods. Therefore, before the training, he will go to the training location a few days in advance and talk to local farmers to understand the local natural environment and agricultural production conditions, so that he can provide trainees with localized training content and solve practical problems in agricultural production. At the same time, Wu will also explain the relationship between soil quality and pests and plant diseases,

"When plants got sick, just like humans, we can't only treat the symptoms, but rather to find the real lesions." In Wu's view, unhealthy soil is the root cause of serious pests and diseases, and he also criticizes people's dependence on pesticides, "Just as someone who gets sick is because he doesn't live according to the laws that people should, we can't root out the problem of pests and diseases without improving the soil environment." It can be seen that in Mr. Wu's idea, the health of the soil is fundamental to successful farming, while compliance with the climate is the condition for successful farming. Both are indispensable.

In addition to purely agricultural training, the social organizations that Mr. Wu has come into contact with also sort out and guide the relationships between people in rural society. The guidance is mainly directed towards cooperation between small farmers. "In the past, farmers were short of production materials, so they would borrow from each other, and there was more interaction between borrowing and returning. But now they are all in their family, there is no communal life, which leads to less interaction and less friendship." Mr. Wu believes that the lack of interaction and communication will lead farmers to close their doors and take care of themselves. However, farmers who work alone will be in an extremely inferior position in the face of natural disasters and the rapidly changing market environment. "Individual farmers need to be organized, and so does individual land. Through centralized learning, we can provide more opportunities for farmers to interact with each other in the classroom, cultivate more friendships among trainees, and encourage them to organize."

The organizations mentioned by Mr. Wu mainly refer to the economic cooperation of farmers. At

the beginning of the reform and opening, with the implementation of the household responsibility system, a large number of specialised households have emerged. Furthermore, some specialized cooperatives have arisen in rural areas where the consumer economy is evolving rapidly but those organizations are fairly loosely structured and mainly provide technical services (Fu, 2013). Wang Jingxin (2005:181) divided the new rural cooperative organizations into four groups: rural community cooperative (农村社区合作经济组织); farmer specialized cooperative economic organization (农村专业合作经济组织); professional association; economic union. Among them, the first group of these is the continuation of the People's Commune. The second group has the largest number, referring to a kind of cooperative economic organization established by farmers who specialise in producing similar products or adopting the same technology to increase the market competitiveness and income of members. This is also the main orientation of some social organizations in their training. It can be said that farmer specialized cooperative economic organizations appear to solve the contradiction between peasants and large markets (Lu & Lv, 2008). In order to encourage solidarity and cooperation among small farmers, Mr. Wu focuses on three aspects of content selection: life culture, sustainable life, and sustainable production, which not only answer trainees' production problems but also communicate their spiritual confusion.

However, the reality is always harsh. Social organizations have tried to transform the concept of farmer life and production through various means such as experiential education and spiritual exchange, but the results have been unsatisfactory. From the farmers' perspective, the cooperative organization should make part of the processing and sales income, rather than allowing it to flow into the hands of agribusiness, that is, members should manage the production and sales system on

their merit (Huang, 2010). This is the reason why some social organizations promote cooperation in their training. However, in today's small-farmer economy, which has long belonged to agricultural capitalism, even if these small farmers can abandon their inherent small-farmer consciousness and achieve a comprehensive association from production to marketing, they are still at a disadvantage in the collision with large households. There are two main reasons for this: firstly, it is always a small proportion of the rural population that participates in training, and even fewer farmers have actually changed their ideas. As a result, not all small farmers in the village can join together effectively, and the contradiction between clans and neighbours has not been fully solved. Only a few households can truly achieve cooperation and mutual assistance. Secondly, Even in farmer specialized cooperative economic organizations, with the deepening of farmers' differentiation, ordinary members are under the control of large shareholders. Having a voice in the operation process and distribution plan is challenging (Yuan, 2013). That is to say, under the realistic situation of farmer differentiation, no matter how many functions this spontaneous cooperative economic organization covers, unless we seek to alter the relationship of production, we cannot solve the fact that peasants are increasingly marginalised and proletarian.

Chapter 6: “New Farmers”, State and Market in the New Era of Socialism with Chinese Characteristics

This chapter is to analyze and summarize the types of farmer training that emerged in Chapters 4 and 5, as well as the shaping directions of “new farmers”, and explore the role of the state and

market in them. The reason for a separate chapter is that there are many different types of farmer training during the land transfer period, and the vision of training varies among different providers, so it will be clearer and more explicit to present it separately.

On the surface, according to the different training suppliers, farmer training in the era of land transfer could be divided into government-led training for new vocational farmers, joint enterprise and government-led training for vocational farmers, enterprise-led training for farm management personnel, and villager training led by the government or social organizations. Interestingly, under the guidance of different suppliers, farmer training can not only be used as a "chain-building tool" to shape and transform the agricultural industry chain but also as a technical medium to improve the agricultural production techniques of all villagers. What's more, it can be a window to change the concept of farmers' production and life and promote the spirit of mutual help and cooperation. Even though they are both "chain-building tools", the government and enterprises have very different shaping directions for "new farmers" in the industrial chain. This indicates the important role of main training providers in the direction of training. Therefore, the essence of analyzing the visions of the government, enterprises and social organizations in training is to respond to the question of for whom training serves and the role orientation of "new farmers". Also, this chapter will analyze the providers, respectively, based on the classification of training purposes.

6.1 Government and Enterprises in Farmer Training as a Chain-building Tool

As mentioned earlier, three main types of farmer training are used as chain-building tools. The first is government-led training for new vocational farmers, the second is joint government-enterprise training for vocational farmers, and the third is training for farm management personnel led by leading agricultural enterprises. The joint training is essentially an intermediate form, which is the result of interweaving and compromising training demands of the government and enterprises, and cannot clearly and completely show their true vision in shaping “new farmers”. This section, therefore, discusses the first and third types of training in detail.

As we can see from the previous article, during the reform and opening period, the state and the market had very similar visions of shaping “new farmers”. Influenced by economic determinism, the government's shaping of “new farmers” always focuses on two aspects: one is catering to the needs of industrial capital accumulation, and the other is supporting the elites in rural society. It can be said that they are completely in line with the development demands of industrial enterprises and agricultural enterprises in the market economy. However, in the era of land transfer, with the growing prominence of the "three rural issues" and the development and growth of leading agricultural enterprises, are their training purposes, understanding of “new farmers” and understanding of modern agriculture still the same? If not, what are the differences?

It is undeniable that both the state and the market play an important role in the 'chain-building tools' style of farmer training, and also committed to replacing status farmers with vocational farmers to achieve the transformation of agricultural production mode. However, there are several differences in the form of farmer training between the two. Firstly, the regulations on the source of

students are different. New vocational farmer training requires that all trainees must be rural registered residents, i.e. identity farmers. The training of farm management personnel does not require the source of trainees, and urban registered households can also participate as trainees. Secondly, the training mode is different. The training for new vocational farmers is classified according to the class attributes of the trainees. It carries out training of new agricultural business entities for large specialized households with good economic base and large production scale and carries out training of professional skill-oriented and professional service-oriented farmers for poverty-stricken households. The training for farmland management personnel doesn't classify, and technical and management training is provided for all trainees. Thirdly, the training time is different. The training period for new vocational farmers is 7-15 days, which is shorter overall, while the training for farmland management personnel is 6-12 months, which is longer. Fourthly, the training objectives are different. The training of new vocational farmers aims to shape the two ends of the chain: agricultural factory owners (family farmers) and agricultural employees (small farmers). The training of farmland management personnel, on the other hand, only trains the middle management of the industrial chain, "white collar" farmers mentioned above. Finally, there is a difference in status before and after training. After training as a new type of professional farmer, trainees are still engaged in agricultural production as independent producers, just as they were before training. After the training of farmland management personnel, trainees may become employees employed by companies to manage their farmland, or they may become partners of companies in agricultural production.

From a technical point of view, the differences mentioned above may only reflect differences in

training models. However, when combined with the social consequences of both, it can be concluded that these differences show the understanding and vision of modern farmers and modern agriculture between the government and enterprises, as well as between the state and the market. In fact, the training of new vocational farmers continues the overall idea of the reform and opening period, namely that agricultural production should serve economic development. It is just that the key service area is not urban industrial capital this time but in the countryside. The No. 1 document of the Central Government issued at the beginning of 2023 places crucial importance on ensuring food security and consolidating the achievement of poverty eradication. "Strengthening the endogenous development momentum of areas and people who have got rid of poverty" has also become the main way to increase farmers' income, which has been separately proposed. As for the processing and circulation industry of agricultural products, the document proposes to "Support family farms, family cooperatives and micro, small and medium-sized enterprises, etc. to develop primary processing of agricultural products at origin and guides agricultural products processing enterprises to pay more attention to the production areas." It can be seen that the government is trying to guide the development of local rural enterprises, with the ultimate aim of establishing an endogenous industrial chain in the countryside that integrates primary, secondary and tertiary industries. In this chain, the owners of the enterprises consist of large specialized households and family farmers, while the agricultural employees come from small farmers. The three classifications in the training of new vocational farmers are the means of achieving these aims. Thus, even though the training of new vocational farmers accelerates the differentiation of farmers, solidifies the original classes of rural society, and attempts to promote the accumulation of capital of agricultural industrialization by transforming small farmers into agricultural labor

employees in situ, it is always accompanied by the placement of farmers in employment in the government's presuppositions.

In contrast, the training provided by leading agricultural enterprises is in fact a form of employee training, which is not intended to solve the problems of the three farmers, but to help the enterprises obtain a steady supply of primary agricultural products, that is, the raw materials needed for light industrial production. Compared with the training carried out by the government, enterprise training not only does not involve the placement of farmers in employment but also aims to guide the surrounding farmers to produce and sell agricultural products according to the requirements of enterprises, through the shaping of white-collar farmers, so as to meet the needs of enterprises to expand reproduction. As a result, both large and small farmers are employed as "employees" of enterprises without the status of regular employees. In this sense, leading agribusinesses define the "new farmers" in the same way that industrial capital once did: unpaid workers capable of standardized production, and as consumers of agricultural materials and producers of primary agricultural products. Unlike the government, agribusinesses are only concerned with the improvement and development of their own industrial chains. As foreign capital, they may even take advantage to beat off the local rural enterprises in competition. In that case, the government's vision of future agriculture is in great conflict with that of the enterprises.

However, path conflicts do not necessarily mean route conflicts. Whether it is government training or corporate training, the inherent driver is still the market economy. New vocational farmer training, which appears to take into account people's livelihoods, still relies on the market for

resource allocation. To enhance the economic benefits of agriculture, capitalist family farmers can obtain more technical, political and economic resources through training platforms. In this sense, market effects drive the differentiation of rural society through state policy and are highly likely to create a class of capitalist factory owners and a class of agricultural labor employees in the future rural society. Under the above development logic, when rural endogenous private enterprises develop, their attitude towards labor employees is determined by the interests of the enterprise. Factory owners will not hesitate to lay off employees whenever enterprises need it, just like Cooperative D. With the emergence and development of robots in the agricultural field, the survival space of small farmers will only be further squeezed.

One has to worry about how farmers can make a living when they lose their land, lose their status as agricultural employees and become urban migrants without insurance and resources, and when the urban capitalist economy is unable to provide them with basic living security.

Concerns about the future of small farmers and the pursuit of social justice have prompted some scholars, government officials and social welfare organizations to look beyond the circle of economic determinism and find another possibility.

6.2 Pulling Out of the Market Economy—Government and Social Welfare Organisations Under the Attempts of Various Types of Training

Different from the mainstream training approach, some local governments, while encouraging

collective economic development, uniformly allocate training resources, so that both farmers and smallholders can receive the same technical improvement training. Some social welfare organizations, on the other hand, pass on the concept of cooperation and mutual assistance to the trainees in the hope that the change in concept will influence the way of life and production of farmers, which in turn will affect on the structure and production relations of rural society.

These farmer trainings, which go beyond the logic of the market economy and are guided by the concept of fairness and mutual assistance, reflect the understanding and vision of some local governments and public interest organizations on “new farmers” and modern agriculture. Through the details of farmer training, it can be inferred that for some local governments that promote a collective economy, the “new farmers” include at least three aspects: firstly, they focus on agricultural production, secondly, they have a high level of agricultural technology, and thirdly, they have a certain level of management skills. The modernity of agriculture is reflected in the reconstruction of production relations, with a focus on narrowing the gap between rich and poor and increasing equity in resource allocation. In other words, in the eyes of these departments, modern agriculture should serve the vast majority of farmers, especially small and poor farmers. Similarly, for social welfare organizations, modern agriculture in their eyes should be harmonious and sustainable for humans and land, and serve small farmers. And “new farmers” are laborers who can understand the laws of farming and the relationship between humans and land and can replace individual labor with a solidarity approach to production and life. It can be said that both government and social welfare organizations have a sympathetic attitude towards small farmers and also try to improve their living conditions through the transformation of small production.

However, as mentioned above, both government and social welfare organizations have limitations in terms of the transformation of small-scale production and the shaping method of “new farmers”. In the context of severe social differentiation in rural society, some collective economy-led farmer training has to focus on the upgrading of skills rather than on the transformation of production systems, which has limited effect in curbing the social differentiation. As for the social organization training, the change of their ideas can only be implemented through cooperative economic organizations. Without a strong political driving force, the association of a small number of people based purely on economic interests is not universal and sustainable and therefore does not help farmers to transform themselves from self-being to self-activity.

In order to clearly explain the essence of the above limitations, farmer education in the Mao era needs to be mentioned again. The second chapter of this thesis mentioned that Red China radically politicized the production and life of farmers in order to realize the transformation of farmers from in itself to for itself. Farmer education played a crucial role in it. On the one hand, the Party Committee took the lead in carrying out three-combination education (cultural education, production education and political education) to inculcate in farmers a socialist ideology in line with the interests of the proletariat; on the other hand, through the bottom-up mass movement, farmersfarmerswere able to reshape their understanding of socialist ideology in practice, so as to achieve the integration of ideology into production and life. With the combined effect of these two aspects, a new socialist culture that could express the will of the proletariat was born from within the countryside, the boundaries between policy and grassroots society were broken, and the effects

of the state were reflected in the productive activities of farmers. Therefore, if we want to transform the farmers' socialist ideology and build a socialist culture that served the majority of farmers in rural areas, two factors are necessary. The first is the powerful political driving force responsible for instilling ideology into rural society; the second is the organized mass movement. In contrast, what missing in the current peasant training guided by collective economy and social welfare organizations are these two important cores. In other words, some training provided by the collective economy lacks the collective organization and mobilization of the villagers, while the training provided by social welfare organizations focuses too much on the economic association of farmers and lacks a strong political driving force.

At the same time, in addition to the two points mentioned above, farmer training today still lacks a fundamental premise, namely the collective production system of the people's communes. Before the peasant education movement of the Mao era, the people's commune system of "three levels of ownership, team-based" had already been established. The system of collective labor and uniform distribution not only created conditions for regular rural education activities but also provided the soil for the survival of the collective spirit of unity and mutual assistance. When the relations of production changed from private ownership to public ownership, the "old culture" such as smallholder consciousness and exploitation consciousness in rural society became the urgent factors to be solved and the decisive factors hindering the further development of the economic foundation. Otherwise, all educational activities aimed at the old culture in the production relations of private ownership could only be limited improvements, not complete revolutions. This was the fundamental reason why the two types of peasant training, through technical upgrading or

conceptual change, could not achieve the transformation of production relations.

Chapter 7: Discussion and Conclusion: Farmers, Country and Community from the Perspective of Ideological Change and Technopolitics

By reviewing the shaping methods of “new farmers” in different historical periods, we have been able to sort out and analyze the characteristics of “new farmers”, as well as the understanding and outlook of different training providers on modern agriculture. In chapter 7, I will comment on the transformative effects of ideological transformation and scientific and technological extension on production relations in turn. At the same time, it focuses on the analysis of the status and function of "collective", the community where farmers live and produce, in different historical periods. On this basis, the historical role of farmers is summarized.

7.1 The Interaction between Ideology and Production Relations from the Chinese Context

According to the previous section, there were different types of peasant education/training during the Mao era, the reform and opening period and the land transfer era. The different types of education and training reflected different directions of ideological transformation. During the Mao era, the construction of a collectivist spirit and socialist culture was regarded as the main direction for shaping farmers ideology; for the reform and opening period, the main direction was to

improve farmers' psychological state and to enhance their psychological identification with social stratification, urban migrant work and agricultural resources purchase; By the time of land transfer, more attention was paid to the cultivation of vocational farmers' consciousness and enhancing large specialized households' sense of industrial integration and small farmers' identification with agribusiness. On this basis, this section will focus on the impact of ideological transformation on rural production relations and social order, which is presented at a theoretical level as an examination of the interaction between the superstructure and the economic base. In order to fully understand the mechanism of its role, this section will, in the course of the analysis, deconstruct the direction of ideological shaping, the relations of production and the typical production system, and then analyze the corresponding relationships between the various factors.

7.1.1 Ideological Transformation and Changes in Production Relations in the Mao Era

In general, in the Mao era, the counterparts to the spirit of collectivism and the construction of socialist culture were the relations of production based on public ownership and the production system of collective production, centralized labor, centralized management and unified distribution under the system of people's communes. In order to explain the corresponding relationship, we need to review the related descriptions of production relations and land systems in the preceding part.

The first section of Chapter 2 of this thesis details the first phase of the interaction between

ideological transformation and changes in production relations during the Mao era through the beginning and end of the cultural transformation movement. In summary, the internal connections between the two are as follows.

The Agrarian Revolution completely abolished the feudal land ownership system and redistributed land to the poor farmers and farm laborers. At this time, the land system in rural China was based on private ownership of land by small farmers. Judging from the economic basis, the feudal relations of production should have been dissolved and capitalist relations of production were about to be established. However, the reality was that the continuous ideological control of the feudal landlords over the poor farmers and farm laborers made it possible to restore the feudal relations of production. If this backward relation of production was to be completely eradicated and the thorough emancipation of the poor farmers and farm laborers was to be realized, it was necessary to help them get rid of ideological control and rebuild their cultural confidence. Thus the cultural transformation movement began, with rural amateur education as the main form and the reconstruction of identity confidence as the main goal. With the elimination of a large number of illiterates, the landlords and gentry's monopoly of knowledge was broken, and the breaking of the intellectual monopoly of the landlords and gentry, the farmers turned over ideologically, and only then were the feudal relations of production really destroyed.

Throughout the first phase of interaction, the abolition of the old land system did not mean that the new relations of production had replaced the old ones. The landlords, gentry and other old-fashioned elites could make a comeback relying on their monopoly of knowledge and culture,

and the feudal ethical order of rural society to re-accumulate economic and political capital through cultural capital. At this point, the key to establishing new relations of production was to break the channel of transformation of cultural capital into economic and political capital. To achieve this goal, Red China adopted two methods: a literacy campaign to equip poor farmers and farm laborers with cultural knowledge equally; and political education to help the farmers clarify the status and role of agricultural production and farmers so that they could rebuild their self-confidence and escape the control of feudal ideology. After losing their political and economic soil, feudal production relations also lost their cultural soil in the ideological revolution, which completely eliminated the possibility of its 'restoration'. The ideological focus of Red China then shifted to the establishment of new relations of production.

The second stage of interaction began with the cooperative movement. In the second section of Chapter 2, the intrinsic link between ideology and production relations is as follows:

With the establishment of small farmer ownership, the decentralized small-scale mode of production led to a new round of farmer differentiation. There were two results of the continued differentiation: first, some middle farmers and rich farmers became the "new landlords" of rural society by buying the land sold by the poor farmers, and the land tenancy relations were formed again; second, some middle farmers and rich farmers expanded their production by buying the land sold by the poor farmers, and became the "bourgeoisie" of rural society. In the process of capital accumulation, employment relations gradually emerged. However, whatever the outcome, it was the interests of the vast majority of the poor farmers that were directly harmed, which was

absolutely unacceptable for Red China. The most fundamental way to eliminate differentiation and exploitation was to transform the small-scale production method into collective mass production through mutual aid and cooperation. In line with the development of centralization labor, the privatized means of production, including land, were gradually collected together and shared by farmers. With the gradual evolution of mutual aid groups, primary cooperatives, advanced cooperatives and people's communes, private land was taken into the collective and small peasant ownership was transformed into collective ownership. At this point, the economic basis on which the differentiation was based disappeared.

However, the common ownership of the means of production by all farmers under collective ownership did not mean the establishment of socialist relations of production in a realistic sense. On the one hand, capitalist ideologies such as individualism, developmentalism and hierarchical thought were still attached to rural society, and these factors also provided the ideological conditions for the emergence of capitalism. On the other hand, farmers still existed in rural society in the form of laborers, while the working class, which was the ruling class in socialism, was not established. Then, to establish and stabilize the relations of production, it was necessary to combat capitalist culture and promote socialist culture through ideological revolution. At the same time, inculcating proletarian ideology in the peasantry helped them to leap from "in itself class" to "for itself class". Thus, in the second stage, the Cultural Revolution, with capitalism, individualism and liberalism as the main targets of criticism, and the promotion of the collectivist spirit and the awakening of class consciousness as the main content, began.

If the cooperative movement provided the economic ground for the emergence of socialist relations of production in rural areas, the advent of the Cultural Revolution curbed the breeding of capitalist ideas and consolidated the achievements of the cooperative movement. At the same time, the main task of the cultural revolution was to build a socialist culture in rural areas that met the interests of the majority of the poor farmers and farm laborers, so that it could be effectively linked to the productive life of farmers and to shape the working class in mass movements to achieve the final formation of socialist relations of production.

The process of ideological transformation during the Maoist era and its social consequences proved the dialectical relationship between ideology and relations of production, superstructure and economic base stated in the over-determination and On Contradictions. Although national policies had a certain coercive effect on the formation of new ownership systems, the basis for their stable development lied in the relations of production. At the same time, the formation and stabilization of the relations of production were the result of the combined effects of ownership and ideology that matched them. In fact, the system of ownership was only a reflection of the relations of production, and the birth of a new institutional system of ownership was not the same as the establishment of new relations of production. When the ideology of the majority of people still stayed at the old stage, it could be a great obstacle to the development of new relations of production and even became a decisive factor leading to their failure. In short, the establishment of relations of production and economic foundations was a very complex process, not absolutely based on a single indicator such as economic conditions or science and technology as an absolute premise, and the role of ideology in this should rightly be taken seriously.

At the same time, it should be added that socialist relations of production couldn't be formed without a strong political party capable of sowing the "seeds" among the masses. This was what Lenin called the "vanguard". In the Chinese context, this referred to the Chinese Communist Party of the Maoist era. The role of the CCP in this context was threefold: first, the role of jurisprudence, which made the new production relations and the matching system and policies have legitimacy; second, the role of organization, which indicated the direction of efforts in advanced relations of production, concentrated the scattered means of production and organized the scattered masses through centralized labor. It was the basis for the formation of socialist relations of production; and third, the role of ideological transformation, which was a crucial but often overlooked role for the vanguard. The essence of socialist relations of production lied in the dominant position of the working class in the production process, so it was only when the self-being workers had been transformed into a self-activity working class, could the socialist relations of production based on the dominance of the working class finally be formed. Through peasant education, the Chinese Communist Party of the Maoist era enabled the masses to acquire an ideology adapted to advanced relations of production through top-down indoctrination and encouraged the bottom-up mass movements to make proletarian culture take root in rural society. In this sense, the vanguard played an important and indispensable role as a medium in the construction of socialist relations of production. In other words, the masses' access to advanced ideas depended on the inculcation and propaganda of the vanguard, and the formation of the working class depended on the organization and guidance of the vanguard. When the above-mentioned functions of the vanguard transformed, the construction of socialist relations of production would also encounter difficulties.

7.1.2 Ideological Transformation and Changes in Production Relations in the Period of Reform and Opening

In fact, the role of the superstructure is not usually independent, but rather based on changes in the economic base as the premise and fulcrum. The ideological revolutions of the Mao era were all accompanied by changes in the economic system, and the changes in peasant ideology after the reform and opening period also occurred after the reform of the political and economic system. This section will focus on the process of interaction between ideology and production relations during the reform and opening period.

During the period of reform and opening, the counterpart to individualism and the cultural construction of the market economy was the production relationship based on private ownership of the means of production, and the production system of wage labor, smallholder management and distribution according to capital. According to the previous section, in the early days of the reform and opening period (the 1980s), after a brief period of production contracted to households, the countryside entered the phase of work contracted to households. Household-based contract system emphasized the separation of land ownership and the right to use. In other words, although rural land nominally belonged to the collective, the collective did not have the right to plan and distribute the land, nor to carry out business accounting operations on the land. At this point, from the point of view of ownership, rural land was still collectively owned, but its core had undergone

two important changes.

Firstly, it was the change in property rights resulting from the change in agricultural management mode and distribution mode. After the division of land into households, rural land was handed over to peasant families for management and operation. The output of the land, i.e. the agricultural products, was at the disposal of peasant families. Apart from the ownership of land, the collective no longer had several other management rights over the land, such as the right to use, control, yield and dispose of it. The change in property relations had also led to new characteristics of rural land ownership, manifesting as private ownership by small farmers under the shell of collective public ownership.

Secondly, it was the change in production relations caused by the change in the production system. Before the separation of powers, collective ownership was a production system that combined the collective ownership of the means of production with the collective labor of the workers. In simple terms, the collective was responsible for the use of means of production, the organization of the production process, and the distribution of production results. Collective work and the distribution labor according to work were the main features of this period. The collective system of ownership implemented the production system that combined the collective ownership of means of production and individual labor. Individual farmers were responsible for everything from the use of means of production, to the organization of the production process and the distribution of production results. Individual labor and distribution were the main features according to the results of individual labor. This meant that the implementation of the household contracted system

had not only changed the distribution mode of agricultural products but had also changed the combination form of laborers and means of labor without changing the land ownership, i.e. the change of production mode.

"As the mode of production changes, they change all the economic relations which are nothing but the necessary relations of this particular mode of production." (Marx,1846). Generally speaking, the essence of the change of production mode is the change of the practical activity of man. From the Maoist era to the reform and opening period, the forms of organization and application of economic factors, such as means of production, had changed from mutual aid and cooperation and unified centralization to individual labor and decentralized operation. Changes in practice, including human production, exchange, distribution and consumption, eventually led to the change in the relationship between people and people, and between people and things, i.e. the change in the relations of production. In this sense, under the condition of constant productivity, it is entirely possible to realize the transformation of laborers' practical activities through changes in the system of production, thus changing the relations of production.

The change in the relations of production marked a change in the process of production, exchange and distribution of the means of subsistence and production, i.e. the change Marx referred to as the "social relations of ownership". Regarding ownership and social relations, Marx once expressed in *The Poverty of Philosophy*. "In each historical epoch, ownership developed in various ways and under entirely different social relations. To define bourgeois ownership was therefore nothing more than to describe the whole social relations produced by the bourgeoisie." In other words, any

form of ownership was only the manifestation of the sum of total social relations of production, and when the relations of production changed, the connotations of ownership changed with them.

Under the change of property rights and production relations, even if the collective still retained the ownership of the land, the collective ownership system had undergone essential changes compared to the Mao era. In other words, even if rural land was still titled as 'collective ownership', after the division of land into households, it would only reflect production relations based on private ownership. In this sense, to judge the relations of production solely based on ownership was to fall into the misconception of reversing cause and effect.

So at this point, had mature capitalist relations of production taken shape in the countryside? On the face of it, the relations between farmers at this time were not unity, cooperation and equality, but rather decentralized, isolated and self-interested compared to collective labor. However, it would be inappropriate to define them as capitalist relations of production. The reason was that the first signs of farmer differentiation were emerging, but they had not yet become a mainstream reality on a national scale. At the same time, employment relations had not yet replaced individual family labor as the dominant relationship in agricultural production. Of course, with the occurrence of internal competition among farmers, the degree of differentiation would gradually deepen, employment relationships would be widely formed, and smallholder farming would eventually be transformed into capitalized large-scale operations. However, the inherent characteristics of Chinese practice prevented this process from taking place smoothly.

After 1949, nearly 30 years of socialist ideological shaping led farmers to show concern and

resistance in the face of the polarization between the rich and the poor. At the same time, they had always retained their expectations of the collective economy. According to a compilation of data from the National Rural Socio-Economic Survey, in 1990, 79.4% of the surveyed farmers believed that the emergence of large employers had led to a widening of the gap between the rich and the poor, 35% believed that large employers had made the social environment worse, and 37.9% were unwilling to work for large employers (37.4% were willing). The main reason why farmers were willing to become large employers was not "high economic income", but "for the sake of the prosperity of the villagers", while the reason why they were not willing to become large employers was "they were not willing to engage in exploitation." The main reason for not becoming a large employer was "not to be exploited". At the same time, 46.9% of farmers believed that collective and joint-family businesses were the best way to engage in industries and side businesses in rural areas, while only 8.2% of farmers favored the labor private enterprises which employed farmers. In the farmers' perception, it was still necessary to establish village collective economic organizations, and village collectives should unify to provide farmers with high-quality seeds, fertilizers and pesticides, organize technical training, and carry out crop pest control.

Thus, at the beginning of the reform and opening period, although relations of production based on private ownership had developed, the role of ordinary producers and skilled elites in the organization of social labor had not yet shown a dominating or dominated state, nor had the change from distribution according to labor to distribution according to capital been completed in terms of the mode of distribution. In this sense, in rural society, capitalist relations of production

had not really taken shape. At this point, the farmers' customary collectivist spirit and their opposition to exploitation and privatization became the greatest resistance to the further development of the rural market economy.

Faced with the ideological legacy of socialism, the ideological transformation of the peasantry once again became an important part of the construction of relations of production at this time. However, contrary to the Maoist era, this time the ideological transformation took depoliticization as its main objective. In this process, economic development replaced class struggle as the main route to realizing agricultural modernization, and technical training replaced political learning as the main context of peasant education. The influence of "politics" gradually faded away. With the constant invasion of commercialization and industrial capital to rural society, the "migrant workers" emerged, and a "new farmers" group with the dual identity of small producers and employees was born. "New farmers" were not only able to accept the employment relationship but even treated agricultural production as an auxiliary form to obtain the means of subsistence. At the same time, capitalist relations of production were rapidly developing in the rural areas and the term 'family farmer' began to appear frequently in the press and academic studies.

The role of ideology in the reshaping of relations of production continues to this day, as evidenced by the shaping of agricultural workers in the agricultural capitalist system by peasant training during the period of land transfer.

7.1.3 Ideological Transformation and Changes in Production Relations in the New Era

If we said that agricultural capitalism gradually emerged and developed during the thirty years of reform and opening period, then the following ten to twenty years(after 2010) were a period of consolidation and deepening. At this time, the counterpart to capitalist relations of production was the cultivation of vocational farmers' consciousness. The cultivation of vocational farmers' awareness can be divided into two directions: the cultivation of management awareness and industrial integration awareness for large specialized households, and the cultivation of a sense of agricultural enterprise identity and technical standards for small farmers.

Chapter 4 of this thesis details the development of training for new vocational farmers and also provides a brief overview of the land transfer situation at that time. In general, the interactive process between the changes in production relations and ideological transformation was as follows.

The occurrence of large scale land transfer marked a change in the way in which the means of agricultural production are used. More and more smallholders abandoned their traditional methods of production and existed as 'part-time farmers' in agricultural production and as 'short-term laborers' in the urban industrial field. In contrast, large vocational farmers, who had already accumulated a certain amount of capital, acquired the material means to expand their reproduction by contracting cheap land. From the point of view of production relations, one side of the agricultural capitalist production chain, the bourgeois large specialized households had emerged,

while the other side, the short-term, seasonal agricultural laborers, had gradually increased. In this sense, agricultural capitalist production relations had already taken shape. However, it was clear that the primary form of the agricultural bourgeoisie and agricultural laborers could not meet the needs of agricultural capital in expanding and reproducing. In the continuous promotion of commercialization and industrialization, a class of agricultural factory owners who were skilled in using capitalist ideology to manage workers needed to be constructed urgently. Correspondingly, a class of agricultural workers with a strong capacity for labor that could comply with the norms of the agricultural capitalist order also needed to emerge. From this point of view, the cultivation of a sense of management and industrial integration for large specialized households, and the cultivation of a sense of agricultural farm enterprise identity and technical standards for small farmers, were precisely needed to meet the needs of the further development of agricultural capitalism in this period.

As pointed out earlier, the training of new vocational farmers was carried out in four main areas: firstly, technical training courses for large specialized households were cut down and the proportion of management courses was increased; secondly, communication opportunities were provided for large specialized households with different production types to promote industrial integration in rural society; thirdly, technical training was provided for small farmers; fourthly, information on relevant agricultural enterprises was provided to small farmers to attract eligible small farmers to work in enterprises, and at the same time guide small farmers to provide agricultural enterprises with primary agricultural products that met the standards. In this sense, the proposal and shaping of 'vocational farmers' was, on the one hand, devoted to providing labor

conditions for the construction of agricultural factory systems, making large-scale agricultural industrialization possible. On the other hand, it was intended to gradually dispel the established perception of 'traditional farmers' through the embedding of the capitalist factory system, such as labor relations and the division of labor, into farmer ideology, to redefine the concept and connotation of 'farmers'.

In the process of transforming identity farmers into vocational farmers, the binding relationship between land and farmers that existed in people's minds after the agrarian revolution gradually weakened. In addition to traditional farmers, even urban workers could also become members of vocational farmers. This also meant that the focus of farmer training had shifted from upgrading technical agricultural production to producing 'agricultural workers'. At this point, the role of ideology was no longer confined to the reproduction of inherent production relations, but also to the intervention of production relations and the reshaping of the production order. It was conceivable that with the emergence of the factory owner class and worker class in the agricultural chain, the order and norms of agricultural capitalist factories would eventually take shape in rural society.

Overall, the comparison of the interaction process between changes in production relations and ideology transformation from the Mao era to the present showed that, although the paths chosen in the Mao and post-Mao eras were very different, neither had ignored the role of ideology. In the transformation and reconstruction of the economic base, whether in the Maoist or post-Maoist eras, state politics had taken the initiative to eliminate the influence of the old ideology and try to shape

a new ideology to adapt to the new political and economic environment. In this process, the ideological transformation was not passively determined by the economic base, as economic determinism stated, but rather an active change. And this active change became an important part of the reshaping of new relations of production.

7.2 Technopolitics: Embedding of National Will in Grassroots Rural Society

So far, although this article has been trying to present the impact of the ideological "transformation from old to new" on the economic base, there is still a question that needs to be addressed: how did the will of the state be implemented in rural society, connect with the daily production of the farmers, and finally complete the ideological transformation of farmers?

While most people imagined ideological transformation in a way that was limited to cultural education, Chinese practice broke away from this conventional path and focused on agricultural technology, which was closely linked to the production and life of farmers. Chapters 2, 3 and 4 of this thesis have already detailed the impact of changes in the technology promotion system on rural society, and also illustrated the role of technopolitics on ideological change in the field of science and technology through case studies such as the "scientific farming movement". However, the inherent connection between the two perspectives of this thesis: the mechanism of ideology and the social meaning of skill formation, still needs to be further summarized. In order to clearly clarify the connection between the two, this section will return to the connotation of technopolitics

and, while demonstrating the political nature of technology, analyze the role and function of the technological revolution in the process of ideological transformation in Chinese practice as a whole.

7.2.1 The Secret of Technology: The Other Side of Social Change

In general, scholars have two attitudes towards new technologies. The first group claims that new technologies have greatly increased agricultural production, not only alleviating the pressure of “eating” caused by population growth but also liberating farmers from agricultural labour and investing them in the industrial sector. They generally assume that new technologies and farmers are mutually beneficial, and farmers can learn them through training and apply them to action. They typically concentrate on the effect on crop yields of the latest technologies. For example, promoting high-yield varieties, applying chemical fertilisers, pesticides, and applying mechanisation have increased crop yields per unit area, and Indian wheat production has increased by 160% (Larue, 1997). The Indian government is developing agricultural technologies suitable for dryland production so that water resources are fully utilised and increase food production (Shah, 1998). Some scholars also claim that the application of modern varieties has modified the planting model, in which the use of herbicides, fertilisers, and pesticides have increased the labour input per unit area, and this demand for labour has prompted an increase in the income of farmers (Johl, 1975). It can be said that the above research portrays the relationship between new technologies and agriculture and farmers from a “pure” and “neutral” perspective, but ignores the

various effects of new technologies on different groups of farmers, and does not discuss the production relationship. It also overlooks the reality of rural differentiation. On the contrary, other scholars conclude that not only does the introduction of new technology under the framework of capitalism intensify rural division, but it also encourages the displacement of peasants. Peasants were replaced by machinery and lost their farmland. Some started to engage in non-agricultural activities and others were inevitably being turned into farm-workers.

New technology has become a way of combating poor farmers in rural India. Rich farmers embrace mechanised production and use their advantages to increase income in agricultural machinery and irrigation assets. Since technological innovation will only spread to small-scale communities and will be occupied with expertise and resources by rich farmers, poor farmers will become even poorer. At the same time, as new technology adds benefits to the overall agricultural production, the ruling class becomes more inclined to combine with the rich farmers (landlords) to occupy more land by purchasing from the poor farmers or even force them to sell the land to the rich farmers, and further promote mechanisation and modernisation to a greater extent. This led directly to peasant bankruptcy, separating them from the means of production and becoming landless citizens. Since the 1960s, under the influence of new technology, the distribution of land to rich farmers (ranchers) has been significantly distorted, while the total amount of agricultural land has dropped by 15 million, and the proportion of proletarian farm workers has risen from 17% to 31% (Byres, 1981).

In Malaysia, before adopting new technology, rural elites had to ensure an adequate supply of

labour to safeguard production, forcing them to strengthen their ties with peasants, and this relation gave poor farmers a certain right to speak. However, the introduction of combine harvesters in the production cycle has reduced the demand for labour. Labour intensive farming has begun shifting to mechanisation. The capitalists no longer rely on the labour of the peasants and no longer accept poor farmers' participation in politics. Mechanisation has led to changes in agricultural production relations, and rural displacement has had to invest in non-agricultural activities in exchange for peasants' survival opportunities (Hart, Turton & White, 1989). Farmers may, however, be divided into two groups, one being educated, skilled and rich and the other being relatively poor in production and living materials. High-tech farming affects these two groups of farmers differently. For the former, the derivation of new technology from a new division of labour helps them to be freed from active labour, serve as managers, and become more affluent. For the latter, if farming is no longer a way of life, some may eventually give up their hoes and ploughs, migrate to cities and become workers (Marglin, 1996).

The above scholars had argued for the impact of new technologies on rural social differentiation. It could be argued that interpreting the social consequences of new technologies in terms of farmer differentiation had become the main entry point for technopolitics to reveal class forms and class dynamics in production relations. However, an examination of power and authority arrangements in the technological trend in the Chinese context revealed that the 'ambition' of new technology promotion had long gone beyond its impact on the degree of rural social differentiation, but directly shaped two opposing classes in rural society, and had evolved into a means of alienating smallholder labor over the past few decades.

Chapter 3 of this thesis details the process of shaping the rural technical elites through technical training. The government-led farmer training classify farmers according to their technical level, cultural levels and political status, and then tilted training resources towards a small number of farmers, directly contributing to the emergence of a large number of 'large specialized households'. Subsequently, under the guiding principle of "the rich first drive the rich later", a large amount of material and technical support was provided to large specialized households, encouraging them to transform into model households. These measures undoubtedly accelerated the emergence and development of internal competition among farmers. As the gap between the accumulation of skills and capital widened, employment relations re-emerged in rural society. Large employers composed of technical elites and short-term agricultural employees composed of ordinary farmers began to appear, labor and the first signs of two opposing classes in rural society were emerging. It could be argued that the shaping of the earliest technical elites in rural society benefited from the transformation from the mass education route to the elite training route.

The alienation of smallholders by new technologies was manifested in two ways. First, the commercialisation of technology has transformed smallholders from users of technology to consumers of technology, and ultimately led to the de-technologization of smallholders. The reason for this was that, after the 'socialisation' of the agricultural extension departments, smallholders no longer had access to training resources, and could only receive technical guidance when purchasing agricultural supplies. However, the technology at this point was not the traditional complete agricultural production technology, but 'technology fragments' attached to

industrial agricultural inputs and in line with the logic of industrial standardised production. In order to improve the efficiency of using agricultural materials, small farmers had to abandon their traditional farming experience and opted for the industrial agricultural "technology fragments" tied to agricultural materials, and thus became de-technologized "technology consumers". This was the first alienation of new technology on smallholders' production and labor since the founding of PRC.

The second clear alienation of new technologies on smallholder production occurred during the training of new vocational farmers. The promotion and monopoly of new technologies by agribusinesses led to the gradual transformation of smallholders into "supernumerary employees" of the enterprises, providing enterprises with production services. During this period, the government and enterprises provided technical training for two main purposes: to guide small farmers to work in agricultural factories, and to guide small farmers to provide enterprises with primary agricultural products that met their requirements. In order to obtain relatively high agricultural returns, small farmers were beginning to favor agricultural production in accordance with agribusiness standards. This also meant that agribusiness gradually realized control over the production process of smallholders. Whether it was the choice of agricultural materials before production, operations during production or even the distribution of agricultural products after production, all of which had to be carried out according to corporate standards. In this process, the promotion and application of new technologies had become a powerful means contributing to the alienation of smallholder labor.

The characteristics demonstrated by the transformation of technological innovation and application path in Chinese practice not only confirmed the occurrence of technopolitics, but also greatly expanded its connotations. In hierarchical societies, new technologies could serve to solidify classes and deepen hierarchical differences, while in the transitional period of the economic base, especially in the early stages of capital accumulation, they could be one of the key factors in the reshaping of hierarchies and the acceleration of capital accumulation. It was important to note, however, that the emergence of new technologies did not only bring about the polarisation of rural society. Indeed, the other side of Chinese practice, the mass scientific movement of the Mao era, suggested that new technologies could also be part of a social revolution to contribute to eliminating differences in class and physical and mental labor. The discussion and summary of this view will be focused on the next section.

7.2.2 Technology: The Entry Point of State Politics to Grassroots Rural Society

Since the ideological transformation of farmers was a product of the embedding of national will into rural society, how did it achieve continuous interaction with rural society and eventually evolve into an internal force for rural social changes?

As mentioned in the first section of Chapter 2, to implement the policy of "state monopoly of the purchase and marketing", Red China once adopted the way of integrating policies into farmers' production and life in its political education for farmers. In other words, the policy was explained

in a way that was consistent with the logic of farmer survival to help farmers understand the policy from their own experience, thus achieving the ultimate integration of state politics and peasant behavioral norms.

In the same way, in the process of ideological transformation, Red China still chose elements closely related to the productive life of farmers and used them as media to complete the embedding of the state's will into rural society. One of the most important mediums was the agricultural technology that always accompanied agricultural production. It could be argued that technical education, technological innovation and technology application had always been central elements of farmers' amateur education and mass scientific movement in the Mao era. This section will focus on a summary of the role of new technologies in the process of ideological transformation.

As the construction of a collectivist spirit and socialist culture was regarded as the shaping direction of peasant ideology during the Mao era, this meant that the main issues to be addressed in ideological transformation were centered on the hierarchical consciousness and small peasant consciousness that existed in rural society. One of the most direct effects of the Mao Era's promotion of new technologies was the elimination of hierarchical consciousness.

In the context of modern agriculture, The “local techniques” (土技术) and “local knowledge” (土知识) of farmers are despised and even regarded as superstition. This stems from Western culture tradition - deliberately raising episteme (学识) and cracking down techne (技艺) in ideology.

“Stable” episteme is considered as the only form of information, and the *techne* representing “experience” and “accidental” is abandoned. It provides a hotbed for establishing social order and hierarchy in society (Marglin, 1990). Correspondingly, Red China regarded the traditional production experience of farmers as an important part of the promotion of technology, believing that this knowledge system, which had been passed down from generation to generation, could be extremely beneficial to the development of productivity if combined with scientific research. By increasing the influence of empirical knowledge, broadening the connotation of 'new technology', and covering both experience and learning, the aim was to ensure that science and technology would no longer be monopolised by the intellectual elite, but would be accessible to farmers. This was tantamount to destroying an important condition for the breeding of social hierarchy, and naturally breaking the social basis on which hierarchical consciousness survived.

The second role of new technology promotion in the ideological transformation was that it effectively connected political revolution, cultural revolution and rural society. If political education and cultural education attempted to ideologically transform the farmers' individualism and small peasant consciousness, then technical education was an important link in which politics and culture could be quickly embedded in farmer's life and agricultural production.

First of all, in the traditional concept of farmers, the basis of their survival was agricultural production. And in the process of agricultural production, there were two most important elements: the basis of production, i.e. land and seeds; and the conditions of production, i.e. labor capacity. After acquiring cultivated land and free high-quality seeds, the improvement of technology level

would naturally be concerned farmers. At this point, the most feasible model was to use technology as a carrier to introduce relevant content of ideological transformation into the production and life of farmers. In other words, farmers' acceptance of new ideas farmers could only be based on meeting their own needs and solving their livelihood problems. Otherwise, they would repeat the mistake of the "rural construction movement without farmers moving". This was not to say, of course, that political and cultural education could not gain the acceptance of farmers by stating the pros and cons, but the process would be very long and not nearly as quick and convenient as using technology as a vehicle.

Secondly, Red China's technology promotion was based on the premise of respecting the traditional local agricultural experience. Compared with cultural education and political education, it could better reflect the connection between educational direction and local agricultural culture. When farmers came into contact with it, the "world" they face was not completely unfamiliar, but familiar and closely related to their own production. It was natural that they would quickly put aside their resistance and fear and tried to accept it.

In short, under certain conditions, new technologies could be part of the ideological transformation as well as a medium through which the will of the state could be rapidly embedded in rural society. In Red China, rather than causing differentiation in rural society, the new technologies became a social revolutionary force for the elimination of differentiation, depending on the nature of the creators and service objects of the new technologies. When the new technologies regarded a few technical elites as their creators and service objects, they would deepen social differentiation and

even directly shape the elite class of rural society; but when they regarded the general public as their creators and service objects, they became a weapon to eliminate social differentiation.

7.3 Communities and Farmers: Changes in Rural Grassroots Organisations

If the state uses technology as the carrier and politics as the direction to implement the ideological transformation of farmers and influences the relations of production in rural society under the aegis of technopolitics, then the concrete implementers of this are the rural grassroots organisations. However, the construction of rural grassroots organizations showed different characteristics at different times.

Firstly, during the Mao era, the grassroots organization in rural areas was represented by the "three-level ownership, team-based" system of the people's commune. Under the people's communes, there were production brigades, and under the production brigades, there were production teams, which together formed the grassroots organization of the "integration government and economy". As could be seen from Chapter 2 of this article, at this stage, the people's commune was responsible for all production and educational activities in rural society. At this time, the functions of the rural collectives included but were not limited to: in economic functions, organizing and distributing collective production activities, planning, using and distributing agricultural means of production, such as land and seeds; in cultural functions, organizing amateur education for farmers, opening social amateur schools, implementing cultural

and sports activities for farmers, and testing and promoting new technologies; in political functions, guiding and organizing mass movements, preparing and building four-level agricultural science networks, establishing political night schools, etc.

By the time of reform and opening, especially after the dissolution of the people's communes in 1984, the rural grassroots organizations were represented by the township (town) governments, with administrative villages set up under them. The former economic functions of the grassroots organizations were abolished, and the political and cultural functions were weakened. At this time, the contraction of the functions of grass-roots organizations was manifested in the abolition of townships and the merging of villages into groups, i.e. merging administrative villages to streamline township institutions and reducing the number of grass-roots cadres to cut down government expenditure, which also directly led to the weakening of the capacity of grass-roots organizations. At the same time, the township governments were no longer responsible for organising the production activities of farmers and distributing free agricultural materials. Due to the lack of collective income, public health and education services such as hospitals and schools run by grassroots organizations also gradually faded away. At this time, the rural collectives were more focused on political functions, existing as institutions that conveyed and implemented the policies of the upper administrative authorities.

As a result, the functions of rural grassroots organizations changed dramatically in the course of national political transformation. And as the forms and connotations of grassroots organisations changed, the corresponding farmers had also undergone a shift from organization to atomization.

On the whole, rural grassroots organizations, as the basis of the national governance system, were greatly influenced by the direction of national modernization in terms of their functional composition, their functional performance and their choice of working mode. In this sense, it could be said that the nature of national politics determined the nature of grassroots organisations. The most important role of rural grassroots organisations was to establish communication between higher-level state organs and rural society, convey the will of the state, implement state policies, and serve as the entity that helped state politics to take effect on rural society. Therefore, the construction of rural grassroots organizations had also received much attention from scholars. They hoped to explore the reshaping and expansion of the functions and types of rural grassroots organizations from the perspectives of the improvement of governance capacity (Yan, Liang, 2019), the deconstruction of organizational capacity (Lin, Wang, 2019), and the improvement of grassroots democratic autonomy systems such as villager self-governance (Xu, Xu, 2005). However, these studies only provided suggestions for the construction of rural grassroots organizations from a top-down perspective, adhering to the thinking of "the whole was greater than the parts" and treating grassroots organizations as the executors of the will of the upper-level organizations, without paying attention to the other side of rural grassroots organizations, i.e. their subjective initiative.

Whether in the Mao era, the post-Mao era, or the present, the mark of the "self-will" of grassroots organizations can be found. For example, in the Mao era, under the same circumstance of socialist transformation, there was the "Dazhai People's Commune", which turned from extreme poverty into an advanced model, and the "Xiaogang Village", which had always relied on other brigades

for assistance. After the people's commune system collapsed in the reform and opening period, there were still small-scale administrative villages such as Nanjie Village, which insisted on a "people's commune system". Even today, surrounded by the market economy, there is still the Puhuan commune that return to the path of collective economy. That was to say, even in the Mao era, if grassroots organizations did not have the subjective will of collectivism and passed on and inculcated the relevant ideology to farmers, it would have been difficult to organize them, and socialist relations of production would have been difficult to construct.

Burawoy noted the occurrence of the ideological construction within the factory. He regarded the production process itself as an inseparable unity of economy, politics and ideology (Burawoy, 1985:25). In Braverman's theory, workers were passively engaged in production and suffered exploitation by the capitalists. But Burawoy paid attention to the subjectivity of workers, whose productive activities were not unconscious or entirely voluntary labor, but often accompanied by two political features. Firstly, the organization of work was influenced by the workers' own politics and ideology, and secondly, workers were influenced by specific political and ideological factors in the process of organization and labor(Burawoy, 1985: 33-38). And in the specific field of production, it was through the spreading of capitalist ideology that capitalist factories prompted internal competition, creating consent, compromise and obedience of workers. In other words, there was a clear set of 'political and ideological institutions' that controlled the relations of production in the factory along with the organizational mode of production. In Burawoy's opinion, the 'political and ideological institutions of production' that existed in factories were the superstructure of the production field.

Although Burawoy's theory of the polity of production was based on factory politics, it was possible to extend it to the agricultural field where there was also superstructure played a role in farmers and their production in the agricultural production process. In fact, in the specific field of agricultural production, the rural grassroots organizations undertook this task. This explained why there have been repeated attempts at paths that deviated from the fixed direction of national modernization. The 'self-awareness' of rural grassroots organisations was in fact a common choice of grassroots farmers and cadres. The practical experience of Xiaogang Village, Nanjie Village and Puhun Commune could provide insights that ideology could act on relations of production by influencing people's practical activities at the micro level. In the highly organised rural collectives/communities, there was always an invisible 'ideological institution' that influenced the choices of villages and farmers.

7.4 Conclusion

By examining the ways of shaping “new farmers” during the Mao era, the reform and opening period and the land transfer period, this article shows how China thought about and chose the paradigm of agricultural modernization in different periods, and discusses the social consequences of the process of shaping the “new farmers” from the perspectives of ideological transformation and technopolitics. During the Mao era, the farmer education movement was launched as a leveling project that aimed to construct peasant identity and to forge collective spirit. In contrast,

in the early reform era, farmer training programs gradually became depoliticized, prioritizing skill development and downplaying awareness raising among farmers. In the new era, as capitalist relations got intensified in the countryside, related programs concentrated on the training of professional farmers that served the purpose of class stratification. Training on large-scaled farmers focused on turning them into business-savvy entrepreneurs who could not only manage a factory-like farm but to acquire knowledge in marketing and sales. For peasants, however, they largely received training on supplying quality products to agribusinesses and even on becoming disciplined farm workers. In conclusion, studies show that the path of agricultural modernization in China has undergone a transformation from over-determination to economic determinism. In terms of the understanding of modern farmers, it has undergone a shift from a popular mass line to a specialized elite line. And the role of farmer education has undergone a shift from the social revolution to the means of technological upgrading.

Distinguishing from the unidirectional determining role of the economic base on the superstructure in economic determinism, this thesis focuses on the influence of the superstructure on the process of constructing the economic base, so that the articulation of the dialectical relationship between ideology and relations of production, and between the superstructure and the economic base in the over-determination can be corroborated. At the same time, it is found that "technical training" has been a powerful tool for the penetration of the state's will into the grassroots, providing a possibility for the transition from ideology to production practice. As an important means of shaping the "new farmers" in different paradigms of agricultural modernisation, the unequal distribution of power and authority in the technological trend has been

the starting point of the renewed polarisation of China's countryside, a force that predates even the class divisions resulting from intra-farmer competition.

The newly revised Vocational Education Law of 2022 links agricultural vocational training to rural revitalisation, requiring governments at all levels to increase investment in rural-oriented vocational education, and to appropriately allocate funds for rural science and technology development and technology promotion to rural vocational training. For China in the context of the rural revitalisation strategy, in addition to economic growth, the improvement of farmers' living and production standards has always been an important prerequisite for modernisation. However, while policy support for rural society can effectively promote the development of the agricultural economy, it is difficult to help small farmers escape from the predicament of being employed as cheap labour by enterprises. Throughout the history of peasant education in the Republic, both the "politicised" technical training and ideological education of the Maoist era and the "depoliticised politics" of technical training in the post-Mao era tell us that education and technology have never been neutral forces, and naturally cannot bring about a neutral society. They show that education and technology have never been neutral forces, and cannot bring about neutral social consequences. Since the inherent political attributes cannot be eliminated, the only thing people can do is to choose the path, that is, to choose the path of agricultural modernisation, and to choose the service targets and subjects of agricultural economic development and farmers' education. Although people often cannot see the future clearly, they can look back at history and find the path they want to take.

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