CULTIVATION OF NEW PROFESSIONAL FARMERS: AN EXPERIENCE INTRODUCTION TO RURAL HUMAN RESOURCE MANAGEMENT IN CHINA

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Purpose. The purpose of this study is to summarize the experience of China’s rural human resource management through the introduction of the training process of new professional farmers in China, and to provide some experience and reference for developing countries to carry out farmer training and optimize the structure of human resources.

Results. The study results show that new professional farmer training is an essential experience in China’s rural human resource management. The Chinese government attaches great importance to the whole process of training new professional farmers. In the process of cultivating new-type professional farmers, China has carried out the cultivation work from four aspects, namely, determining the best cultivation target, selecting the appropriate investment entity, constructing a reasonable cultivation model and formulating preferential support policies. It has achieved remarkable results in improving the quality of rural human resources and optimizing the structure of rural human resources.

Scientific novelty. There is a lot of literature describing the experience of human resource management in rural China. Still, few scholars pay attention to the training process and model of new professional farmers, so the innovation of this study is the novelty of the selected topic.

Practical value. This research is of great significance for improving the skill level of rural human
resources, increasing farmers’ income, consolidating the basic status of agriculture, and promoting rural economic development. In addition, it also has certain literature value for enriching the theory of rural human capital investment.

**Key words:** new professional farmers, human resource, agricultural education, China, experience, training.

**Introduction.** New professional farmers are modern agricultural practitioners who take agriculture as their occupation, have specific professional skills, and derive their income mainly from agriculture. They mainly include production and management professional farmers, professional and skilled vocational farmers, social service professional farmers. Production and management professional farmers refer to agricultural laborers who take agriculture as their occupation, possess specific resources, have certain professional skills, have particular capital investment ability, and derive their income mainly from agriculture, mainly large professional households, family farm owners, and farmers’ cooperative leaders. Professional and skilled professional farmers refer to agricultural laborers with specific professional skills who stably engage in agricultural labor operations in new production and operation entities such as farmer cooperatives, family farms, large professional households, and farming enterprises and use them as the primary source of income. Mainly agrarian workers, agricultural employees, etc. Social service professional farmers refer to agricultural social service personnel who are directly engaged in pre-production, production, and post-production services in social service organizations or individuals, and this is the primary source of income, with corresponding service capacity, mainly rural information personnel, agricultural machinery service personnel, plant protection personnel, animal epidemic prevention personnel and other agricultural social service personnel [1]. New professional farmers are different from traditional farmers, and their differences are mainly reflected in four aspects (Table 1).

| Indicators          | New professional farmers | Traditional farmers |
|---------------------|--------------------------|---------------------|
| Social status       | high                     | low                 |
| Income              | high                     | low                 |
| Comprehensive quality | high                     | low                 |
| Professional        | strong                   | weak                |

*Source:* developed by the authors.

In 2012, the Ministry of Agriculture of China launched a nationwide pilot project to cultivate new professional farmers. After ten years of cultivation, China’s new professional farmers have taken shape and played an active role in promoting agricultural modernization and realizing rural revitalization. Although different countries have different national conditions and paths of agrarian modernization, all countries generally promote the process of agricultural modernization by nurturing professional farmers. As the most developed country in the world, the U.S. has agrarian colleges and experiment stations in each state, and agricultural vocational
education and various agricultural short-term training courses have their respective functions, which have produced a large number of excellent practical agricultural talents for the U.S.; Switzerland has a high degree of agrarian modernization despite its inherent lack of conditions in agricultural development, which is primarily due to its developed vocational education for farmers [2].

**Review of literature.** Foreign research on farmer cultivation started earlier and has achieved rich research results. Foreign scholars agree that to prosper the agricultural economy and ensure food security and quality, it is necessary to cultivate a specific scale of high-quality new professional farmers [3]. Noor et al. studied farmer training from an impact perspective and concluded that innovative cultivation content could improve farmers’ literacy and increase income [4]. It is based on the rich research results from abroad that some Chinese scholars have begun to focus their research on the introduction of foreign cultivation experience [5; 6; 7; 8].

The cultivation of Chinese farmers has gone through three stages: education for farmers [9; 10], cultivation of new types of farmers [11; 12], and cultivation of new professional farmers[13; 14]. Chinese scholars have studied the cultivation of farmers in different periods. Tao studied that farmers’ labor productivity is positively related to farmers’ literacy, so education can improve the quality of rural labor and promote higher income [15]. From the perspective of the innovative training system, Dong proposed that new farmer cultivation should adhere to the direction of running vocational education and skill training together, based on the school system, with entrepreneurship training as the focus, strengthening teaching management and improving the quality of new farmer cultivation [16]. Ding et al. argue that new professional farmer cultivation needs to consider the adaptive efficiency of the institutional structure, and because the government-led administrative system’s lag in controlling market demand leads to the inability of new professional farmer cultivation to meet the development needs of current farmers, the institutional design that synergism government mechanisms with market mechanisms should be followed [17].

The literature has tended to study new professional farmers from historical development but lacks a systematic review of their cultivation process. Cultivation of new professional farmers requires firstly identifying the cultivation targets, then specifying the investment subjects, and only on this basis can be education and training be carried out, in addition to creating a favorable policy environment for the cultivation of new professional farmers. Therefore, this study applies the literature and inductive methods to introduce China’s experience in cultivating new professional farmers from these four aspects.

**Materials and methods.** The purpose of this study is to summarize the experience of China’s rural human resource management through the introduction of the training process of new professional farmers in China, and to provide some experience and reference for developing countries to carry out farmer training and optimize the structure of human resources.
This study uses the literature method to sort out the training process of China’s new professional farmers and uses the induction method to summarize and analyze the experience accumulated in the training process of new professional farmers in China.

Results and discussion. Determining the Best Cultivation Object. In order to do an excellent job of cultivating new professional farmers, we need first to clarify which groups of people have more potential to be cultivated as professional farmers. Only when the cultivation targets are identified can the subsequent cultivation work be carried out efficiently. The selection of cultivation targets depends on their willingness to work, i.e., whether they are willing to engage in the occupation of new professional farmers, on the one hand, and their potential to work, on the other. According to human capital investment theory, people with higher learning abilities and younger age are more likely to receive education and training. In general, people with more formal education have more vital learning abilities, and they pay less effort cost in vocational training than those with lower education. Hence, people with more formal education are more inclined to invest in subsequent vocational training. In addition, new professional farmers must know the soil, climate, and the various aspects of sowing and harvesting. A person with long experience in agricultural production will have a higher learning ability in participating in agricultural education and training and may receive more vocational agrarian education and training. Therefore, large professional households, rural junior and senior high school graduates, and college and university graduates become the best targets for cultivating new professional farmers in China. Taking large professional households as an example, see Table 2: large professional households are more likely to participate in the cultivation of new professional farmers because they are better educated, younger, and more capable of learning than general agricultural practitioners, and they also have experience in agricultural production and management.

| Indicators            | Characteristics | Large professional farmers | General agricultural operators |
|-----------------------|-----------------|-----------------------------|-------------------------------|
| Age structure         |                 |                             |                               |
| < 35                  |                 | 21.1 %                      | 19.2 %                        |
| 36–54                 |                 | 58.3 %                      | 47.3 %                        |
| > 55                  |                 | 20.7 %                      | 33.6 %                        |
| Education structure   |                 |                             |                               |
| Never attended school |                 | 3.6 %                       | 6.4 %                         |
| Primary school        |                 | 30.6 %                      | 37.0 %                        |
| Junior high school    |                 | 55.4 %                      | 48.4 %                        |
| High school           |                 | 8.9 %                       | 7.1 %                         |
| College and above     |                 | 1.5 %                       | 1.2 %                         |

Source: China’s Third Agricultural Census Main Data Bulletin [18].

Selecting the right investment body. According to human capital investment theory, the central bodies of human capital investment include individuals, families,
enterprises, and governments. Cultivating new professional farmers as a human capital investment activity is still inseparable from these investment subjects. Psychology points out that the driving force that leads to behavior is demanded. Similarly, any investment subject will consider their investment needs before investing in human capital, and only when there is demand will it be possible to invest. From the perspective of individuals and households, the demand for investment in new professional farmer training is mainly based on comparing the expected return and cost of investment [19]. In China, the cost of receiving secondary vocational education is meager because the tuition fees for secondary vocational education have been reduced and waived, and for the various vocational short-term training organized by the state, the participants are generally not required to bear the training costs, and individuals mainly take part of the time costs, so farmers’ desire to invest in vocational training is still relatively strong. Enterprises are also important subjects of human capital development, but they always pursue profit maximization for the purpose, so for many agriculture-related enterprises, the primary way they carry out human capital development is master with the apprentice and on-the-job training, etc., and take fewer ways such as leaving training, but in recent years, with technological progress enterprises gradually realize the importance of talent, and in order to improve the marginal productivity of employees and increase enterprise income, enterprises invest more and more funds and opportunities in human capital. The return on investment is also an essential factor for the government to decide whether to cultivate new professional farmers. Still, of course, the primary consideration for the government to invest in the cultivation of new professional farmers is social benefits, not just economic benefits. To consolidate the essential position of agriculture, maintain the harmony and stability of rural areas, and narrow the gap between urban and rural areas, the Chinese government actively cultivates new professional farmers. In 2017 alone, China’s central government invested 1.5 billion Yuan in the cultivation of new professional farmers [20].

*Build a reasonable cultivation model.* Training for farmers requires not only classroom teaching but also distance education. Currently, China’s information technology level is in a stage of rapid development. The Internet, cloud computing, and big data have been deeply applied to various fields of social development and have played an essential role in multiple areas. In addition, in 2017, the Ministry of Agriculture of China released the “13th Five-Year Plan for the Development of New Professional Farmers”, in which the Chinese government set out the leading indicators for the development of new professional farmers (as shown in Table 3), one of which is the development of online education and training [21]. This indicates that online education and training has become the primary mode of cultivating new professional farmers in China and is bound to play a good role in supporting the development of modern agriculture and new rural construction in China.

The use of “big data” to implement online education and training has two significant advantages: on the one hand, it can realize the situation of multi-faceted
cooperation and resource sharing. At present, from the perspective of the fields involved in the cultivation of professional farmers, the central bodies for cultivating new professional farmers include government departments of agriculture, science and technology, education and social security, as well as social organizations such as enterprises and institutions and public welfare training institutions [22].

**Table 3**

Main indicators of the development of cultivation of new professional farmers in China

| Indicators                                           | 2015 year | 2020 year | Average annual growth | Indicator properties |
|------------------------------------------------------|-----------|-----------|-----------------------|----------------------|
| Number of new professional farmers                   | 12.72 million | 20.00 million | 1.46 million          | Anticipatory         |
| Percentage of high school and above education level   | 30 %      | ≥ 35 %    | 1 %                   | Anticipatory         |
| Number of modern young farmer training               | 13,000    | ≥63,000   | ≥ 10,000              | Constraint           |
| Number of rural practical talent leader training      | 67,000    | 167,000   | ≥ 20,000              | Constraint           |
| Number of farm machinery cooperative leaders training | 10,000    | ≥50,000   | 10,000                | Constraint           |
| Online education and training development            | Pilot development | Improve the online education platform, carry out online training courses no less than 30 % of the total training courses, and carry out online tracking services ≥ 6 % | Anticipatory |

*Source: China’s 13th Five-Year Plan for the Development of New Professional Farmers.*

In this system, the government plays a dominant role and enjoys the most comprehensive and high-quality data resources, while other social institutions cannot share these information data. In addition, various functional departments within the government have unclear authority and responsibility and hold a large amount of public data scattered, which cannot effectively realize the integration and sharing of information resources. The embedding of big data technology into the cultivation of emerging professional farmers is conducive to breaking through the information barrier between various functional departments within the government and between the government and other social subjects, thus realizing mutual collaboration among different subjects. On the other hand, it can better meet the demand for talents and make cultivation more efficient. Big data can analyze massive data such as farmers’ education level, age distribution, regional distribution, regional agricultural development characteristics, and the number of the working population, which enables in-depth discovery of the data’s inherent correlation and application value, better analysis of farmers’ personalized cultivation needs and the market’s supply and
demand for talents, and provides targeted cultivation programs for effective implementation of farmer cultivation.

Develop preferential support policies. In order to create a favorable policy environment for the cultivation of new professional farmers, the Chinese government has formulated a series of supporting policies. For example, it relies on modern agricultural, industrial technology systems to train high-end talents. In the 13th Five-Year Plan, the Ministry of Agriculture and Rural Development of China has set up 50 industrial technology research and development centers, 299 functional research laboratories, and 1252 comprehensive experimental stations, hired 50 chief scientists, 1,370 post scientists, and 1,252 station managers, and relied on the modern agricultural, industrial technology system to strengthen the training of high-end agrarian talents. China also vigorously implements new vocational farmer cultivation projects. Since 2014, China’s Ministry of Agriculture and Rural Affairs, together with the Ministry of Finance, has launched the new vocational farmer cultivation project. As of 2017, the central government has arranged a total of 5.09 billion yuan to support the cultivation of new professional farmers and trained more than 4 million people, providing strong talent support for high-quality agricultural development and transformation and upgrading [23]. In addition, the Chinese government has also formulated land transfer policies, agricultural subsidy policies, and continuing education support policies to support the cultivation of new professional farmers.

Conclusions. This research is of great significance for improving the skill level of rural human resources, increasing farmers’ income, consolidating the basic status of agriculture, and promoting rural economic development. In addition, it also has certain literature value for enriching the theory of rural human capital investment. There is a lot of literature describing the experience of human resource management in rural China. Still, few scholars pay attention to the training process and model of new professional farmers, so the innovation of this study is the novelty of the selected topic.

To sum up, new vocational farmer training is a new type of management approach explored by China in rural human resource management. On the one hand, this approach improves the skill level of rural human resources, widens the employment space of farmers, and optimizes the structure of human resources. On the other hand, it is significant for consolidating the essential position of agriculture, improving farmers’ income, and promoting rural economic development.

In addition, China has accumulated many rich experiences in training new professional farmers. For example, the Chinese government has paid great attention to the training process and has achieved outstanding results from the identification of training targets, the selection of investment subjects, the establishment of training models, and the formulation of supporting policies. These experiences can serve as a reference for farmers’ training in related countries. Of course, each country’s situation is different, and the experience accumulated by the Chinese government may not apply to all countries and needs to be considered appropriate.
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