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# The Realization Path of Japan's Agricultural Modernization and Its Precious Experience for China

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**Abstract** In Japan, the per capita arable land area is small, the natural resources are short, and agricultural production has the typical characteristics of the peasant economy. Even if there are many unfavorable conditions, the level of agricultural modernization of Japan has exceeded that of many developed countries. We conduct comparative analysis on the development characteristics of China's agriculture and Japan's agriculture, and summarize the realization path of Japan's agricultural modernization. Based on the reality of China, we can draw on the following experience from Japan: establishing and improving the agricultural legislation for agriculture; improving the rural cooperative economic organizations; deepening the reform of the agricultural land property right system; increasing the government's direct funds input of into agriculture; improving the agricultural technology extension system.

**Key words** Japan, Agricultural modernization, Realization path, Peasant economy

## 1 Introduction

Agriculture is the core component of issues concerning agriculture, countryside and farmers, and the focus of attention of the party, government and community. The level of agricultural development affects farmers' income increase, the harmony and stability of rural areas, and China's urbanization process. Currently, in most parts of China, the traditional agriculture is evolving into modern agriculture, that is to say, China's agriculture is in the process of modernization. Modernization of agriculture refers to the process of transformation from traditional agriculture to modern agriculture. In this process, the agriculture always adopts modern science and technology, the means of production, forms of organization and the management methods of the modern economy, whose main goal is to improve comprehensive agricultural production capacity, narrow the worker-peasant gap and the gap between urban and rural areas, and create a good ecological environment, in order to achieve the sustainable development of agriculture.

The modernization of agriculture is the primary task of the new socialist countryside construction, and also an important foundation for China's new rural construction in the new era. Japan and China are very similar in terms of level of per capita arable land, and mode of agricultural operation<sup>[1]</sup>. After World War II, Japan's agriculture has developed by leaps and bounds, with high level of modernization; its experience can provide a reference for China's agricultural development.

## 2 Comparison of agricultural modernization conditions between China and Japan

Japan's land area is small, with great population density

and small per capita arable land area, thus the agricultural development is faced with many obstacles and limitations. However, in more than two decades after the war, Japan's agriculture developed by leaps and bounds, with high level of modernization; there are a number of agricultural indicators ahead of those of other developed countries. There are similarities in the agricultural resource endowment and operating system between China and Japan, but in terms of agricultural infrastructure construction and agricultural operation level, there are significant differences.

**2.1 Land property rights and circulation** Since the Meiji Restoration, Japan has experienced two land reforms. The first began from 1873, and this land reform abolished the feudal lords land ownership, forming the relationship between landlord and tenant. The second land reform occurred in 1947, and this reform limited the amount of land possessed by farmers. The government forcibly purchased the total rented land owned by the landlords who were not at villages and part of rented land owned by the landlords who were at villages<sup>[2]</sup>, then transferred it to the farmers with farming conditions. It provided that the ceiling of land rent must not exceed one fourth of the annual harvest volume<sup>[3]</sup>. Agricultural land reform has made rural economic, social and political relations undergo great changes, paving the way for the modernization of agriculture.

*Land Management Law* in China provides that agricultural land is collectively owned, and the collective owners can rent or transfer land use rights with payment in accordance with the law within a certain period; due to special circumstances, when there is a need to requisition all one's own arable land, it must also be approved by the state departments. The relevant provisions indicate that the farmers only occupy the land use rights, and the play of right to use must be within the policy framework.

**2.2 Agricultural operation system** Japan and China's agricultural management system is both the typical "peasant econ-

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omy", based on the household operation. Japan does not take the large-scale centralized operation mode of land, but adopt the mode of traditional tenancy system for operation according to the specific national conditions. Thus the agricultural production mode based on household operation and dispersed land occupation takes shape in Japan.

The contract responsibility system was a practice in China, first adopted in agriculture in 1981 and later extended to other sectors of the economy, by which local managers are held responsible for the profits and losses of an enterprise. This system partially supplanted the egalitarian distribution method, whereby the state assumed all profits and losses. In traditional Maoist organization of the rural economy and that of other collectivised programs, farmers are given a quota of goods to produce. They receive compensation for meeting the quota. Going beyond the quota rarely produced a sizeable economic reward. In the early 1980s peasants were given drastically reduced quotas. What food they grew beyond the quota was sold in the free market at unregulated prices. This system became an instant success, quickly causing one of the largest increases in standard-of-living for such a large number of people in such a short time. This system maintained quotas, and thus the element of socialist societies termed in China the "iron rice-bowl" (in which the state ensured food and employment). The secret experiment proved very successful. In 1979 similar experiments began in Sichuan and Anhui provinces, both seeing dramatic increases in agricultural productivity. Deng Xiaoping openly praised these experiments in 1980, and the system has been adopted nationwide since 1981.

In theory, the smallholder system can not bear the brunt of market turmoil and is not conducive to the adoption of modern management and modern technology, which is incompatible with the requirements of agricultural modernization. But after World War II, it was this operating system that made Japan develop rapidly and achieve agricultural modernization<sup>[4,7]</sup>.

**2.3 Agricultural technology extension system** The agricultural scientific research work in Japan is mainly managed and guided by the Japanese Agriculture, Forestry and Fisheries Technical Meeting. The Japanese Agriculture, Forestry and Fisheries Technical Meeting, and its affiliated Affairs Bureau, are responsible for the formulation of basic scientific research planning, research and development of agriculture, and coordination and management of policy and cause. At the same time, they are responsible for the liaison and coordination between agricultural administrative departments and research institutions<sup>[5]</sup>.

The path of agricultural science and technology popularization; experiment researchers-specialized technicians-promoters-farmers. The grass-roots institutions of agricultural technology extension exercise the liaison and adjustment of popularization, guide the popularization affairs for Agricultural Improvement and Popularization Center (Institute of Agricultural Improvement and Popularization).

China's agricultural technology innovation and promotion is usually led by universities, research institutes and government.

The public-welfare agricultural technology extension service system, constituted by the national, provincial, municipal (prefectural), county and township technology promotion stations, is the main body of the Chinese agricultural technology extension, and also an important channel for the conversion of agricultural scientific and technological achievements.

The government-led popularization and promotion launching model, selects the key technological achievements for promotion through establishing unified projects; organizes the practical technical training; sets up demonstration bases to attract farmers to visit and study; establishes science and technology service entity for promotion; strengthens technical services to promote new products, new pesticides and other agricultural production materials.

**2.4 Agricultural protection policy** In 1961, Japan enacted the *Basic Law of Agriculture*<sup>[6]</sup>, which was a sign of the Japanese industrial surplus beginning to return to agriculture, and agricultural protection entered a new phase. In order to promote balanced development of industry and agriculture, the Japanese government has taken a series of agricultural protection measures: reducing the agricultural tax; increasing investment in agriculture; carrying out agricultural land reform; providing agricultural credit funds; promoting cooperative and combined development of agriculture. In addition, during this period, the Japanese government continued to promote the construction of irrigation facility and water conservancy, advancement and promotion of agricultural technology.

After the founding of the New China, China adopted some support measures and protection policies for agriculture, such as land reform, irrigation facility construction, promotion of agricultural technology, low-cost supply of production materials, and increase in agricultural credit. But the situation of stagnated agricultural development, weak foundation and backwardness was not fundamentally changed.

Since the mid-1980s, it has abolished the unified purchase system of agricultural products, adjusted the prices of agricultural products, loosened control over food operation, restored and developed urban and rural markets, encouraged collective and individual farmers to go into the circulation area, and established robust market system of agricultural products. Since the beginning of the 21st century, China has paid more attention to agricultural support and protection, abolished the agricultural tax, and increase input to agriculture and policy support for agriculture, so that the competitiveness of China's agriculture is constantly improved.

**2.5 Agricultural cooperation form and level** Farmers' associations are farmers' independent, self-reliant and autonomous economic organizations in Japan<sup>[8]</sup>. Farmers' associations provide services for farmers, and form the community of economic interests with farmers. Farmers' associations have agricultural instructors, who guide the farmers in production and management. Farmers' associations are responsible for tedious affairs, and the farmers can concentrate their energy to engage in agricultural production. More than 99% of farmers in Japan have joined farmers' associations. Farmers' associations in Ja-

pan provide all-around services for farmers, which have effectively solved the production and living problems that single family can not solve, overcome the limitation of small-scale household operation, and greatly improved the operating efficiency of agriculture<sup>[8-9]</sup>.

China's agricultural cooperative economic organizations originated from the cooperation movement in the 1950s, experiencing the mutual aid group of agricultural production, primary cooperatives of agricultural production, and finally the advanced cooperatives of agricultural production. With the popularity and promotion of the household contract responsibility system, the function of the cooperative organizations gradually fades out, and they exist in name only in certain areas. With the increasingly fierce market competition of agricultural products, the farmers are forced to improve the degree of organization, and join together to participate in fiercer market competition of agricultural products at home and abroad.

### 3 The realization path of Japan's agricultural modernization

Totally different from European and American countries, in Japan, the peasant economy has an absolute advantage in rural areas, which is related to the natural and social conditions in Japan. Japan's agricultural modernization is the modernization built based on the peasant economy. Japan's basic conditions determine the path to agricultural modernization, and it can not copy the road of agricultural modernization in European and American countries.

Japan chose the agricultural modernization development road of first improving the varieties and soil, followed by agricultural mechanization, that is, Japan's agricultural modernization began first from biotechnology, then mechanization. The specific path is: land improvement-chemicalization-varieties improvement-mechanization.

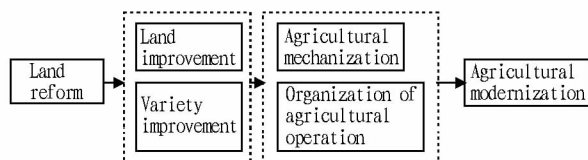


Fig. 1 The realization path of Japan's agricultural modernization

### 4 The experience of Japan's agricultural modernization

**4.1 Establishing and improving the agricultural legislation for agriculture** China's agriculture is a weak industry, in face of challenges after accession to the WTO, so there is an urgent need for a sound system of laws and regulations to put agricultural development in the track of institutionalization and legalization. Therefore, we must conscientiously implement *Agricultural Law*, *Rural Land Contract Law*, and other state laws and regulations.

It is necessary to promulgate *Agricultural Investment Law*,

*Agricultural Insurance Law*, *Farmers' Professional Cooperative Organization Act*, *Agricultural Disaster Compensation Act*, *Farmers' Rights Protection Act*, and other laws and regulations as soon as possible; timely research and formulate the preferential tax policies for the processing of agricultural products, laws and regulations for encouraging export of agricultural products. Using legislation to guide agriculture can ensure the implementation of various agricultural policies.

**4.2 Improving the rural cooperative economic organizations** Compared with Japan, the scale of farmers' operation in China is small and it is decentralized, which needs to be organized to withstand market risk. Therefore, it is necessary to vigorously establish agricultural operation organizations. Then these agricultural operation entities can establish rural cooperative economic organizations, and these organizations can be united transversely to establish a national organization. We should focus on resolving the following four problems: the legal norms on nature, status, internal governance structure; system-based and network-based building; government financial support institution building; training of various specialized personnel.

**4.3 Deepening the reform of the agricultural land property right system** In terms of the farmland operation mode, China can learn from Japan's experience, expanding most farmers' operation scale to the minimum operation scale standards of efficiently using the modern factors of production, and establishing entrepreneurial family farms. The direction of reform is to make the collective ownership nature of existing arable land unchanged, innovate upon the transfer mode of ownership and realization mode of interests, and allow inheritance, sublease, entrusted operation, etc.

**4.4 Increasing the government's direct funds input of into agriculture** The proportion of China's financial investment in agriculture shows a decreasing trend. In the period 1953 – 1980, the proportion of national investment in agricultural infrastructure construction to national investment in infrastructure construction always remained at about 10%; after 1996, it maintained at 3% to 4%<sup>[10-11]</sup>, and inadequate investment in agriculture led to disrepair of infrastructure and decline in the ability of agriculture to withstand natural disasters.

Thus the central government must invest adequate financial resources to ensure the development of agriculture; the financial departments at all levels should increase capital investment in agriculture in accordance with the requirements of the *Agricultural Law of the People's Republic of China*, to strengthen agricultural infrastructure construction, improve agricultural production conditions, and enhance the development impetus of China's agriculture. In terms of capital investment, it should be mainly focused on supporting the agricultural infrastructure construction, providing funds guarantee for the agricultural support system of large and medium-sized flood control irrigation facilities, water and soil conservation project and shelter project, to achieve agricultural development and sustainable development. In less developed areas, it is necessary to adopt the

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ter of the leading enterprises produce scale effect.

At the same time, we must strengthen technological innovation. Technology is the core competitiveness of enterprises. Only after having advantages in technology, can we occupy the market. So it is necessary to increase input to scientific research to continuously develop and research new products; strengthen the cooperation with scientific research institutions, colleges and universities; allow and encourage the scientific and technical personnel to become shareholder in the enterprises with their own research results and patents; increase investment in science and technology, pay attention to the introduction and cultivation of talents; increase research funding, carry out the experiment, demonstration, and promotion of new species and new technology in the key areas, to increase yield and value added of products; solve the problems of low processing conversion rate of livestock products, single structure of livestock products, insufficient development and low utilization rate of business production capacity, to promote the rapid development of processing industry cluster of livestock products.

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way of offering labor in place of relief subsidies to increase labor input to the construction of agricultural infrastructure.

## 4.5 Improving the agricultural technology extension system

In the case of inadequate technology input to agriculture and ineffective promotion of science and technology in China at present, we should draw on the experience of Japan.

Firstly, we must build new agricultural research system, and improve the level of scientific research; increase sufficient investment in agricultural research, and deepen the reform of agricultural research and technology promotion system, so that the investment in agricultural research can be concentrated in the units and individuals with research capacity.

Secondly, it is necessary to strengthen the training of agricultural researchers; promote the agricultural research personnel to survey and research new problems in production practice, participate in international academic activities to improve the technological level. Agricultural colleges and universities should adapt to the needs of the development of socialist market economy and modern technology, and further adjust the major structure, to create talents for national and local agricultural research institutions, provide a guarantee for the realization of agricultural modernization.

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