

# Production Structure of Agriculture in Huai'an City

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**Abstract** According to the data in 1990–2009 *Huai'an Statistical Yearbook* and *Jiangsu Statistical Yearbook*, production structure of agriculture in Huai'an City is analyzed. Result shows that economic efficiency of planting industry is significantly lower than that of other industry types of agriculture; and the production structure of agriculture in Huai'an City is unbalanced and needs further optimization. The reasons for the imbalance in industrial structure are various, such as the relatively low quality of agricultural employees, the backward marketing of planting, and the lack of standardization management. Finally, corresponding suggestions are put forward, including developing education, conducting vocational training, improving the human capital stock of Huai'an City, cultivating the leading enterprises for agricultural product processing, and realizing the scale agglomeration effect of agricultural production in planting industry.

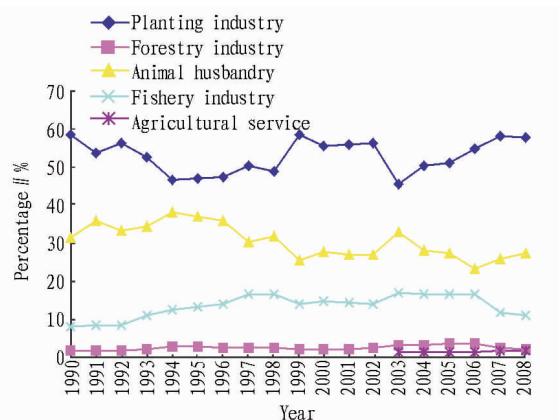
**Key words** Huai'an City, Agriculture, Production structure, China

Huai'an City is located in the economically developed province, and belongs to the less developed area in developed province. Huai'an City, a big city in agriculture, is industrially backward. It is one of the main producing areas of agriculture in Jiangsu Province, and agriculture plays an important role in the GDP of Huai'an area. In the year 2009, total output value of agriculture is 17 097 million yuan, accounting for 15.24% of the total output value of Huai'an City. The agricultural employees account for 27.05% of the employees in the whole city<sup>[1]</sup>. Economic development in rural areas is slow and agricultural development is also relatively slow. Under this situation, this paper analyzes the structures of industry output values of planting, forestry, animal husbandry, fishery, and agriculture service in Huai'an City. Main reasons causing the imbalance of internal output values are discussed. And relevant countermeasures are put forward in order to provide references for the decision making of agricultural production efficiency in Huai'an City.

## 1 Analysis on the internal output value structure of agriculture in Huai'an City

Agriculture is a complex system of ecology—economy—technology. Principle of system theory points out that all systems are a unity of structure and function; system function is determined by system structure. Agricultural production structure refers to the sectors of agricultural production, the composition of various sectors, and their proportional relations in a region or a country (or the rational allocation of production factors). Rational structure of agriculture and the overall and coordinated development of planting, forestry, fishery, animal husbandry, and sideline production reflect the economic vitality of rural areas. Therefore, a reasonable and orderly structure of

agricultural production must be established in Huai'an City in order to set up high-quality, efficient and sustainable agricultural brands. According to the data in 1990–2009 *Huai'an Statistical Yearbook* and *Jiangsu Statistical Yearbook*, Fig. 1 illustrates the proportion structure of first-level agricultural output value in Huai'an City from the year 1990 to 2008<sup>[1–2]</sup>.



**Fig. 1** Proportion structure of first-level agricultural output value in Huai'an City from the year 1990 to 2008

Fig. 1 indicates that since the year 1978, structure adjustment of agricultural production has been carried out in Huai'an City, which leads to the steady development of agricultural production, the continuous improvement of agricultural mechanization level, the steady increase in the proportion of agricultural services, and the rational development of overall production structure. Since the 1990s, proportion of animal husbandry in agricultural output value has gradually decreased, while those of forestry and fishery have increased. Planting industry still plays a major role in the rural economy of Huai'an City, which shows great fluctuation due to the impacts of various factors. However, after the year 2003, proportion of planting industry rises smoothly. In the year 2009, employees in agriculture, forestry, animal husbandry and fishery reach 939.4 thousand, among which, 809.2 thousand people are engaged in planting industry, accounting for 86.14%. Output value of farming, for-

estry, animal husbandry, and fishery is 31 463 million yuan; while output value of planting industry is 18 473 million yuan, accounting for 58.71%. This further indicates that employees in planting industry have lower per capita economic benefit than the average level. In an efficient economic system, economic benefit of each industry should be close to the average profit. However, during the agricultural development of Huai'an City, economic benefit of planting industry has always been significantly lower than that of other industry types. Therefore, internal output value structure of agriculture in Huai'an City is imbalanced and needs further optimization.

## 2 Cause analysis of the imbalanced industrial structure in Huai'an area

**2.1 Relatively low quality of agricultural employees** Schultz argued that ability difference of farmers is the most important when explaining the differences in growth and growth rate of agricultural production. Difference in the quality of material capital is very important; while difference in land is the most insignificant<sup>[3]</sup>. Few of the agricultural employees in Huai'an area have received higher professional education and training. Data show that agricultural population accounts for 73% of the total population in Huai'an area; and people with junior secondary education level and below account for 72%. Most of them have no skills with poor initiative to improve their quality. To a certain degree, they have the traditional conscious of planned economic system. Therefore, average profit of agricultural production is lower than that of industrial production. Within the agriculture, people engaged in forestry, fishery, animal husbandry and agricultural service with high school education accounts for 70% of the total agricultural population. During the investigation in Chuzhou District, household members engaged in planting are mainly the woman, the old and the child.

**2.2 Outmoded marketing of planting industry; lack of standard management** According to the random investigation on the planting household in Guanyinsi Town, 95% of the peasant households believe that the current marketing mode of agricultural products is taken peasant household as the sales subject. Peasant households sell the onions and peas, which are the leading industries of Guanyinsi Town, in the farmer's market. Educational level of farmers is generally low with outmoded concept, little information, and weak brand awareness. Moreover, they lack the systematic education system matched with the brand concept, and can not exert the brand effect due to poor management. It is well known that brand is formed by the organic integration of various factors. During the implementation of brand, the brand owner or implementer usually ignores the characteristics of the brand itself and the rational combination of brand factors under market economy, and simply thinks that brand creation is only the combination of regional name and product name. In developed countries, agricultural products are sold directly by the agricultural cooperatives or enterprise group. For instance, in California and Arizona of the United States, there are more than 65% fruit farmers joining in the orange cooperative. The grower and association become a

community of interests, both having strong sense of brand management.

## 3 Countermeasures

**3.1 Developing education; carrying out vocational training; improving the human capital stock** Education investment has become an important part of human capital investment. Income of education investment has actually exceeded the rate of return on investment in material capital. Education helps the farmers to seek more opportunities of non-agricultural employment, to use modern production factors, to increase the allocative efficiencies of existing agricultural resources and production factors, and to promote the continuous input of new production factors. Mincer J *et al.* carried out empirical study on the effects the accumulation of education and human capital on the labor market income and performance<sup>[4]</sup>. Result shows that education level has a positive correlation with the labor market income and performance, and its effect is long-term. Therefore, firstly, Huai'an City should establish a perfect agricultural education system including secondary and higher agricultural education and vocational training for farmers, pay attention to the vocational training of employees in planting industry, and ensure the stable source of funding for vocational training of farmers by formulating laws and legislations. Secondly, agricultural managers should have certain qualifications. And farmers should receive vocational training. Only after obtaining a certificate, can they enjoy state subsidies and preferential loans. A complete set of agricultural professional qualification certification system should be established in order to evaluate the agricultural production and management level of farmers.

**3.2 Further cultivating the agricultural product processing leading enterprises in planting industry; realizing the scale agglomeration effect of agricultural production enterprises in planting industry**

**3.2.1 Integrating superior resources; cultivating a number of enterprise groups.** Planting area of rice in Huai'an area is 113.3 thousand hectares. Annual rice output is about 920 thousand tons and there are about 120 rice processing enterprises. Resource utilization is low and the phenomenon of competition for raw materials usually occurs. Although grain and oil processing association is established, its ability of resource integration is poor. Enterprise reorganization and technological transformation in Huai'an have achieved no notable results. Therefore, government should guide and promote the integration of superior resources in small and medium enterprises in rice processing, gradually phase out the enterprises with poor equipment and products quality, encourage enterprises with good operation to enlarge production scale, intensify technological renovation, and cultivate a number of leading enterprises.

**3.2.2 Improving the operating mechanism of leading enterprises; strengthening the base construction; increasing the enterprise competitiveness.** Processing of agricultural products requires specialized varieties and stable and professional raw material base to ensure the quality of processed products.

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### 3.2 Evaluation of Citrus Cooperative Organization in China

Based on the data arrangement and filed investigation in Yichang City, Hubei Province, China, evaluation results of in-

dustrialization, modernization and marketization of citrus industry in China and South Africa are obtained (Table 5).

**Table 5 Comparison of the evaluation results of industrialization, modernization and marketization of citrus industries between China and South Africa**

Country	Scale of labor force	Scale of commodity base	Market share	Marketization rate	Commodity rate	Land productivity	Standardized rate
South Africa	Medium	About 45	36	About 45.0	About 65	About 9	35
China	Low	37	27	27.5	20	About 7	20

Note: Indices of industrialization, modernization and marketization are obtained by the relevant scholars according to their investigation results of Yichang City, Hubei Province, China.

According to the definition standard of the development stage of Citrus Cooperative Organization, the development status of cooperative organization are summarized, as well as the indices of industrialization, modernization and marketization of citrus industries in both China and South Africa. Generally speaking, Citrus Cooperative Organization in China is still at the primary stage with weak economic strength, small production scale, poor ability to take risks, low rate of encouraged farmers, and limited market share. On the one hand, this situation is caused by the low industrialization, modernization and marketization of citrus industry, which hinders the development of Citrus Cooperative Organization in China to a certain degree. On the other hand, some indices of industrialization, modernization and marketization of citrus industry in China are close to those of South Africa; but the development stage of Citrus Cooperative Organization in China lags behind that in South Africa. Moreover, Citrus Cooperative Organization in China is now facing with the problems of the low organization level, poor regulation, and low contribution rate of science and technology, which used to bewilder the Citrus Cooperative Organization in South Africa<sup>[3]</sup>.

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Government should take the establishment of production base as the breakthrough point of enhancing the competitiveness of leading enterprises, so and to help enterprises to establish bases. On the one hand, government should introduce directional input, service and purchase, establish a relatively reasonable mechanism for the distribution of benefits, help leading enterprises to treat the relationship with peasant households, actively develop the modes of company + peasant household, company + base + peasant household, and other industrial management mode integrating trade, industry and agriculture, form a development relationship body between peasant household and enterprise with economic interest as a link, help leading enterprises to increase the income of farmers, and make farmers offer high-quality raw materials for enterprises<sup>[5]</sup>. For instance, Sino-Japanese joint venture of Tianyi Food Co., Ltd. in Huai'an area once were unable to complete the export contracts, because few of the farmers broke the contract and sold agricultural products to other parties without permission. On the other hand, government should en-

## 4 Conclusion

Citrus Cooperative Organization in China has many similar characteristics with that in South Africa in both development stage and mode. Thus, development road of Citrus Cooperative Organization in South Africa is an important reference for China. According to the development stage of Citrus Cooperative Organization in China, cooperative economic organization mode suitable for China is discussed. From the aspects of the industrialization, modernization and marketization levels, corresponding policy ideas are put forward for the definition of development stage of Citrus Cooperative Organization, which provides references for the relevant policy formulation.

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courage enterprises to invest in bases through the forms of subsidies and so on, improve infrastructures and production conditions in bases, promote the structural adjustment and technical training, and strengthen the production management of base and the quality control of products.

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