Present Situation, Problems and Countermeasures of Land Transfer in the Process of Agricultural Industrialization in the Qinling-Daba Mountains (Shiyan)

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Abstract In order to study the current situation of land transfer in the process of agricultural industrialization in the Qinling-Daba Mountains (Shiyan), 27 villages of 14 townships (towns) of six counties (cities) were visited and investigated through questionnaires, and the current situation and characteristics of land transfer among large professional households (large grain producers), family farms, agricultural enterprises and cooperatives in the process of agricultural industrialization were analyzed and summarized. The main issues affecting land transfer were summarized, such as big difference of inflow and outflow will, single way of land transfer, high cost of planting, weak agricultural infrastructure, a lack of production and operation technology, insufficient funds and short land transfer period, and imperfect social security system. Meanwhile, some countermeasures were proposed, such as improving land transfer system, precise subsidy policy and social security mechanism of Shiyan City, guiding long-term and normalized land transfer, strengthening training of professional skills and improving the quality of human resources, actively promoting the "three-township project", and attracting the investment in land transfer projects.

Key words Land transfer, Agricultural industrialization, Shiyan City

1 Introduction  
The implementation of the strategy for rural revitalization and the goal of realizing "prosperous industries, ecological livability, rural civilization, effective governance and affluent life", which were proposed by the 19th National Congress of the Communist Party of China¹, have opened up a new journey to accelerate the modernization of agriculture and rural areas in China. Rural land transfer is the basis and prerequisite for promoting agricultural scale, intensive and industrialization, and realizing agricultural modernization. Reasonable land transfer can promote proper concentration of land, facilitate land scale and industrialization, improve the overall competition level of agriculture, liberate rural labor force, and achieve the overall development of rural economy²-³. In this study, through a visit to the relevant departments of the city and counties to consult data, 115 grain-growing households, eight large professional households, three cooperatives and one agricultural enterprise in 27 villages of 14 townships (towns) of 6 counties (cities) were investigated to obtain the firsthand data. The present situation of land transfer mode and scale in Shiyan, constraining factors in the development, and economic and social benefits were analyzed, and the future of land transfer model in the Qinling-Daba Mountains (Shiyan) was explored. Meanwhile, countermeasures to promote its sustained and healthy development were proposed to offer decision-makers with suggestions and provide reference for the sustainable development of agricultural economy in the city, comprehensive construction of a moderately prosperous society, and realization of agricultural modernization.

2 Current situation of land transfer  
2.1 Scale and characteristics of the transfer According to statistics, the area of transferred land in Shiyan City increased from 38 840 to 52 867 ha during 2014 – 2017. The overall trend was rising, but the year-on-year growth rate of the area in each year from 2015 to 2017 was 25.9%, 5.8% and 2.19% respectively, showing a downward trend. Moreover, the growth rates in 2016 and 2017 were very low, all less than 8%. The number of industrialized organizations increased from 2 668 to 7 376, rising by 2.76 times, and the growth was fast (Table 1). In 2017, the number of large professional households was the largest, up to 4 376. It increased by 309.3% from 2014 to 2017, and its growth was the fastest among the four business models. The number of agricultural cooperatives was the second largest, reaching 2 103. The number increased by 67.6% from 2014 to 2017. The number of family farms ranked third, up to 706, and its growth rate also exceeded 300%. The growth rate and number of agricultural enterprises were the lowest (which was checked once every two years).

From 2014 to 2017, the numbers of agricultural cooperatives, family farms, leading agricultural enterprises and large professional households (large grain producers) increased. In 2016, among the scale business entities in Yunyang District, large professional
households (large grain producers) occupied an absolute dominant position, and the number was over 3,000, while the area of transferred land reached 6,033.33 ha. The quantities of agricultural cooperatives and agricultural enterprises were relatively small, only more than 40, and the area of transferred land was about 992.67 ha. Family farms were the least in quantity and the area of transferred land, and the proportions of the number and area were relatively low compared with large professional households. During 2015–2016, among the scale business entities in Danjiangkou City, the number of agricultural cooperatives was the largest, up to 509 in 2016, and the area of transferred land reached 904.4 ha. The number of large professional households (large grain producers) was the second largest, and the growth was the fastest. In 2015, the number was up to 175, and the area of transferred land was 1,102.33 ha. In 2016, the quantity and the area increased by 104% and 67% respectively. The growth of family farms in number was fast, and the number increased by 34% from 2015 to 2016, while the area of transferred land rose by 66%. The number of agricultural enterprises was small, only 33 in 2016, and the area of transferred land was 898.33 ha (Table 2).

Among the two regions, the area of transferred land in Yunyang District was the largest, up to 7,051.33 ha in 2016, and the quantity of employees exceeded 3,000. In Danjiangkou City, the area of transferred land was 4,297.93 ha, and the quantity of employees was more than 500 in 2016. It is seen that the land transfer in Yunyang District was better, and the number of employees was large. In Danjiangkou City, the area of transferred land was large, and the degree of mechanization was high, so less employees could achieve scale operation (Table 2).

### Table 1 Land transfer of the four business models

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of agricultural cooperatives</th>
<th>Number of family farms</th>
<th>Number of agricultural enterprises</th>
<th>Number of large professional households</th>
<th>Number of industrialized organizations</th>
<th>Total area of transferred land/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1,255</td>
<td>175</td>
<td>169</td>
<td>1,069</td>
<td>2,668</td>
<td>38,840</td>
</tr>
<tr>
<td>2015</td>
<td>1,534</td>
<td>355</td>
<td>169</td>
<td>2,084</td>
<td>4,142</td>
<td>48,893</td>
</tr>
<tr>
<td>2016</td>
<td>1,794</td>
<td>527</td>
<td>191</td>
<td>3,363</td>
<td>5,875</td>
<td>51,733</td>
</tr>
<tr>
<td>2017</td>
<td>2,103</td>
<td>706</td>
<td>191</td>
<td>4,376</td>
<td>7,376</td>
<td>52,867</td>
</tr>
</tbody>
</table>

### Table 2 Comparison of land transfer in different regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Year</th>
<th>Number of agricultural cooperatives</th>
<th>Number of family farms</th>
<th>Number of agricultural enterprises</th>
<th>Number of large professional households</th>
<th>Number of industrialized organizations</th>
<th>Total area of transferred land/ha</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yunyang</td>
<td>2015</td>
<td>20</td>
<td>433.33</td>
<td>5</td>
<td>20</td>
<td>373.33</td>
<td>2,758</td>
<td>5,780.00</td>
</tr>
<tr>
<td>District</td>
<td>2016</td>
<td>22</td>
<td>550.67</td>
<td>7</td>
<td>22</td>
<td>442.00</td>
<td>3,208</td>
<td>6,033.33</td>
</tr>
<tr>
<td>Danjiangkou</td>
<td>2015</td>
<td>419</td>
<td>782.13</td>
<td>85</td>
<td>29</td>
<td>850.67</td>
<td>175</td>
<td>1,102.33</td>
</tr>
<tr>
<td>City</td>
<td>2016</td>
<td>509</td>
<td>904.40</td>
<td>114</td>
<td>33</td>
<td>898.33</td>
<td>358</td>
<td>1,834.00</td>
</tr>
</tbody>
</table>

### 2.2 Main transfer forms and crop selection

The land of large professional households (large grain producers) is their own contracted land, short-term leased land of neighboring farmers or the abandoned land by relatives, neighbors or friends, and they mainly produce food crops. Family farms, agricultural cooperatives and agricultural enterprises all acquire land management right through land transfer. The scope of production management is diversified, involving industries such as grain, oil, cash crops, nursery stock cultivation, livestock and poultry breeding and leisure tourism.

### 2.3 Cost and benefit

There is a big difference between the six counties or cities in the cost of land transfer. It is 9,000 – 10,500 yuan/ha in Danjiangkou City, 4,500 – 7,500 yuan/ha in Yunyang District, 4,500 – 6,000 yuan/ha in Yunxi County, and 3,750 – 6,000 yuan/ha in Fangxian County, Zhushan County and Zhuxi County respectively. The cost of land transfer in the three northern counties is higher than that of the three southern counties, which is consistent with the level of economic development in different regions.

There is an obvious difference between various crops in economic benefit. The main crops planted in the transferred land of the 115 peasant households planting a large area of food crops include corn, wheat, rice, sweet potato and potato, of which the planting area of corn is the largest. In Yunxi County, the input of crops accounts for 50% of the output, and the benefits of sweet potato and potato are the best, reaching 1,200 yuan/ha. The benefit of rice is the second highest, up to 7,995 yuan/ha, while that of corn or wheat was low (about 6,000 yuan/ha). In Yunyang District, the input of crops accounts for 60% – 70% of the output, and government subsidies are few. The benefit of sweet potato is the highest (12,300 yuan/ha), followed by rice (9,885 yuan/ha), while that of corn or wheat is low (5,250 – 6,000 yuan/ha). In Danjiangkou City, the input of crops accounts for about 70% of the output, and the benefit of rice is 7,980 yuan/ha, and that of corn is 5,520 yuan/ha, while that of wheat is the lowest, only 4,710 yuan/ha.

The eight large professional households mainly plant corn and potato, and only one household plants rice. For each household, the loan is 12,000 yuan, and the expense of purchasing agricultural insurance is 2,000 – 3,500 yuan. The government provides 1,000 – 1,500 yuan to each household, and the cost of infrastructure construction is 10,000 yuan. Annual investment is about 70,000 yuan, and annual net income is more than 40,000 yuan. The area of transferred land by three cooperatives is large, and the maximum is...
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3 Problems

In this study, literature data and questionnaire survey methods were adopted. The questionnaire consists of two parts: the production and operation situation of new types of agricultural operation entities and the individual conditions of the operators. The former mainly includes the business scale, fund raising, market adaptation and product sales of the samples. The latter focuses on the individual characteristics of the operators, including gender, age, education, training experience, military service experience, non-agricultural work experience (workers, individual business, starting a business and serving as cadres).

3.1 The difference of inflow and outflow will be big 58% of the investigated 115 peasant households are reluctant to make land inflow, give more attention to crop farming, increase operation scale, and further grow into family farms or large professional households (large grain producers), but more than half of the peasant households are willing to transfer the contracted land. On the one hand, the surveyed objects have low levels of education and are not good at using modern management and technical means, so their ability to increase income is limited. 85% of the surveyed peasant households have only primary school and junior high school education, having low levels of education. Their planting funds are mainly self-collected. The annual average household income is 19,300 yuan. The planting area of food crops of most peasant households is 0.067–0.67 ha, accounting for 58.8%, and the proportion of peasant households with the planting area of 0.67–1.33 ha is 24.5%. The planting area of most peasant households is small, and the proportion of peasant households with the planting area of more than 1.33 ha is only 15.7%. On the other hand, some farmers have strong awareness of petty farmers. It does not matter if the contracted land is poor or becomes wasteland, but if there is a need for land transfer, they will raise the cost of land circulation, thereby affecting the scale and industrial development. Some farmers are jealous of others who become rich through centralized operation, want to collect the land that they have transferred, lack self-discipline, and even make illegal violations.

3.2 The way of land transfer is single The land of the investigated objects is transferred by leasing and subcontracting. The total area of transferred land of the 115 peasant households is 43.16 ha, of which most land is leased, and the area is up to 39.16 ha. The area of subcontracted land is 4 ha. The labor forces of a family work outside for a long time. The contracted land is subcontracted to relatives, neighbors or friends. There are few shares, cooperation, exchanges and transfers, and there is a lack of flexible transfer mechanism. Farmers’ sources of information are relatively obstructed. Since most peasant households do not understand whether there is an information platform for rural land transfer or do not pay attention to land transfer policies, the communication channels of information on land supply and demand are not smooth, which, to a certain extent, has led to a slow process of rural land transfer and has restricted the expansion of land transfer in scope and quantity.

3.3 The cost of land transfer and planting is high In the survey, the cost of transferring arable land is up to 7,350–10,500 yuan/ha. Moreover, the contract stipulates that the contracting households will no longer enjoy state agricultural subsidies. As a result, the farmers who contract land and actually participate in agricultural production suffer damages in the right of agricultural production subsidies. Moreover, the cost of planting crops in land rises, so their income will reduce, which affects the integration of rural land resources.

3.4 Agricultural infrastructure is weak In some rural areas of Shiyan City, the investment in infrastructure construction is insufficient, and water conservancy and electric power facilities are not matched, so production conditions cannot be fundamentally improved. In Shiyan City, effective irrigation area is 36.6 ha, accounting for about 17% of arable land area. The area of land that suffers from drought and waterlogging but has crop harvests is 34 ha, accounting for about 16.5% of arable land area. Pumping drainage and irrigation area is 2.9 ha, accounting for about 1.4% of arable land area. Although the irrigation facilities in the areas where the surveyed farmers were located have been improved, the ability of agriculture to resist natural disasters has also declined significantly when seasonal drought and floods appear, thereby affecting crop production. Farmers contracting land are reluctant to increase investment in the improvement of farmland infrastructure and other projects related to long-term development, which has also exacerbated the deterioration of current farmland infrastructure.

3.5 There is a lack of production and operation technology, insufficient funds and short land transfer period Limited by factors such as technology and funds, there are significant problems such as difficulties in purchasing new agricultural machinery and low benefit of land output due to the incomplete grasp of modern production and operation technology and insufficient funds, and stable production capacity can not be obtained for long-term production and operation. It is difficult for agricultural leading enterprises to play their strong leading role in operation, and they can only transfer and contract land for a short time, which also limits the further development of large-scale operation.

3.6 The social security system is imperfect The agricultural insurance system is imperfect, and the types of insurance are insufficient. The coverage and the loss ratio are relatively low. Both
the government and individuals have input, but the problem can not be solved, which is also an important aspect of restricting land transfer. The development of agriculture is faced with multiple risks, in particular natural and market risks. In recent years, natural disasters have occurred frequently. At the same time, the price of food has been unstable. There is no corresponding channel for the production and sale of food, so that the interests of farmers are not guaranteed.

4 Countermeasures and suggestions

4.1 Deepening the reform of rural collective property right system It is necessary to improve methods for the separation of land ownership, contracting rights and operation rights in rural areas, and establish and improve the transfer and management mechanism of rural land contractual management rights. In accordance with the characteristics of mountainous areas in Shiyan City, the relevant detailed rules on land transfer should be issued within the scope of national policies. Farmers should be encouraged to transfer land in the contracting period by means of leasing, buying a share, subcontracting and auction. The farmland that has not been filled for more than three years can be temporarily reclaimed and transferred by the village collectively. In addition, it is necessary to actively carry out various forms of scale management and encourage farmers to conduct land transfer.

4.2 Formulating "precise" subsidy policies According to the characteristics of small, uncontiguous and poorly-developed mountainous areas, the municipal government can formulate "precise" subsidy policies suitable for large professional households (large grain producers), family farms, cooperatives and leading agricultural enterprises. Financial resources to formulate reasonable subsidy rules (especially in circulation area appropriate lower). Counties (cities) formulate reasonable subsidy details (the area of transferred land reduces especially) in conjunction with financial resources. At the same time, the contractors are encouraged to carry out farmland infrastructure construction on the transferred land, further improve farmland structure and site conditions, enhance the nature of production factors of land, and increase the output rate of rural land in China. Finance, land, agriculture, water conservancy and other departments cooperate with each other, integrate funds for agriculture, and implement the comprehensive development of agricultural farmland to create conditions for land transfer and scale operation.  

4.3 Strengthening the construction of social security system The right determination of rural land has been completed. A complete social security system will increase the willingness of farmers in land outflow. At the same time, it can arouse the willingness of farmers in land inflow to make them become big professional farmers or family farmers. Increasing the compensating coverage and types of social insurance can solve the worries of land transfer, increase the enthusiasm of farmers for long-term land transfer, and further accelerate land transfer in rural areas. It is necessary to strengthen the construction of land transfer service platforms, improve the registration of land transfer, strengthen the contractual management of land transfer, and ensure the rights and interests of land transfer parties. The subsidies for large professional households, cooperatives, family farms, and leading enterprises can be appropriately increased, and local companies should be used to establish production and marketing networks, village-level e-commerce platforms, and make sale channels unblocked to ensure the sustainability of land operation.

4.4 Guiding long-term and normalized rural land transfer It is necessary to encourage farmers and subcontractors to sign long-term transfer contracts, reduce and exempt corresponding tax, increase the government’s investment in funds, technology, personnel, etc., improve transfer support policies, and give the new subsidies for farmers to new business entities to create conditions for operators to conduct long-term investment and develop farmland infrastructure construction. It is required that both parties of land transfer use real objects or stable rent as transfer cost, and land revenues should be allotted rationally to make farmers change the concept of daring not to invest due to big risk.

4.5 Strengthening training of professional skills and improving the quality of rural human capital Research shows that the occupation of the head of a household correlates positively with the level of education and non-agricultural skills. On the one hand, strengthening training of professional skills and improving the quality of rural human resources can promote the conversion of peasants’ careers to non-agriculture and increase the willingness of farmers in land outflow. On the other hand, training rural farmers in agricultural skills can also improve the willingness of rural households in land inflow, which is conducive to the scale operation of land. At present, China has established a relatively complete system of laws and regulations for the transfer of rural land, but policy advocacy is not in place. Many farmers still do not understand the relevant legal knowledge about land transfer. Local governments and relevant departments should strengthen the publicizing of laws and regulations on rural land transfer to raise the cognition level of farmers.

4.6 Actively promoting the "three-township project" Focusing on the strategy of "renovating external ecology and internal humanity" and transforming development to create an ecologically strong city, it is needed to promote the "three-township project", give full play to the role of a city, and promote the modernization of agriculture and rural areas. Taking the structural reform of agricultural supply side as the main line, distinctive and highly efficient ecological modern agriculture should be actively cultivated and developed. By revitalizing resources, collective construction land can be transferred through the cooperation, buying a share, joint venture and conversion of land use rights, and collective construction land is encouraged to concentrate in towns and industrial parks. Investment is attracted in land transfer projects, and shareholding system is introduced into land system construction to establish a rural shareholding cooperation system with land as the main content to transform the land contracted by peasants from physical form to value form and change villagers to share holders, resources to capital and funds to share capital. As a result, farmers’ property income increases, and some farmers are willing to engage in secondary and tertiary industries after obtaining stock rights. Another

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tion is put into storage, it is required to carry out strict personnel identification, and properly handle the relationship between the convenience of resource utilization and the cost for putting into storage. When establishing the database, it is required to strictly comply with the relevant regulations of personnel management and make the database as scientific and standardized as possible. After the data is put into storage, it is necessary to strengthen the research on personnel management work data, analyze the existing problems in personnel management work, and provide guidance and recommendations for the development of research institutions.

4.4 Strengthening the safety construction With the development of agricultural scientific research institutions and the deepening reform of institutions, the current management mode of personnel work has also been decentralized to various secondary organizations from the previous relatively centralized management. Therefore, it is recommended to provide effective connection between two levels systems of research institutions, reflect the thought of "a game of chess", establish the personnel management information system network oriented towards secondary organizations, and establish a unified, complete, multi-level, intelligent, safe and confidential personnel management information network system. All secondary organizations should set up sub-libraries and multi-applications to prevent and avoid duplicate collections and repeated database construction, promote information sharing, and build, use, and make improvement according to the needs of the work. It is recommended to strengthen the system construction, establish a safety system, establish user rights according to business scope, set up data search and modification according to the powers, and ensure the safety of network systems and information using strict management and reliable technology.

4.5 Strengthening the team construction The personnel information is complex and staff attitude and quality of work play an important role. The ability and level of the managers are related to the success or failure of the personnel development strategy of the organization. The success of personnel management information construction is closely associated with the staff. The personnel departments of agricultural scientific research institutions should match the comrades with good political qualities and high technical skills to engage in personnel management work and build an excellent team of information talents with strong political stature, excellent technology, excellent service, and strong guarantees. It is expected to change from the one-way and experienced direction to the comprehensive and professional direction, to adapt to the demands of modern personnel management work.

In summary, agricultural research institutions should strengthen the training of personnel management personnel in information technology and related business knowledge, learn technical knowledge in file management, digital technology knowledge, and network technology knowledge, etc. Through training, it is recommended to continuously improve the political quality and professional level. In practice, it is recommended to summarize experience methods, grasp rules, improve business skills, make innovation in work ideas and methods, and increase the effectiveness of personnel management work.

References


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part of farmers can expand the scale of land management, realize the transformation of traditional suburban agriculture to modern agriculture, and build a group of urban pastoral complexes with reasonable layouts, distinctive features, complete chains, ecological environmental protection, and integration of functions.

References


