

Huang Zihe

Shijiazhuang Foreign Language School

Shijiazhuang, Hebei

China, Factor 6: Sustainable Agriculture

Research on Building Family Farming and Developing Green Urban Agriculture

—— An Investigation based on the Zimuyuan Family Farm in Shijiazhuang

Abstract: Building the family farm and guiding moderate scale operation are regarded as efficient ways to develop modern urban agriculture. Taking the Zimuyuan family farm in Shijiazhuang as an example investigation, the status and role of family farm in the development of urban agriculture are discussed in this paper. Considering both family farm itself and the government, this study takes attempts to put forward some countermeasures and suggestions in order to actively cultivate family farm and develop green urban agriculture.

Key words: Urban Agriculture; Family Farm; Green Agriculture; Government Support

Along with urbanization and economic development, urban agriculture has gradually developed and become a modern agricultural mode which relies on the city and serves the city conversely. As a new type of agricultural management that has been especially focused on the cultivation recently in China, family farming has become an important carrier for the intensive, large-scale and modern management of agricultural production. Building family farms and guiding moderate scale operations are regarded as efficient ways to develop modern urban agriculture. This paper takes the Zimuyuan Family Farm in Shijiazhuang as a case to investigate the basic status and the role of a family farm in urban agricultural development.

I. Practical Basis of Building Family Farm and Developing Green Urban Agriculture

1.1 The Development of Urban Agriculture in China

Urban agriculture refers to the agriculture which is located in the urban gap and its extension zone and closely relies on and serves the city. The urban agriculture, integrating production, leisure and entertainment, demonstration education, and ecological security, can be regarded as a diversified sustainable agricultural industry. The development of urban agriculture may help to provide urban residents with fresh, sanitary and safe agricultural products to meet their consumption needs; provide places and opportunities for citizens to communicate and contact with agriculture; increase employment opportunities and incomes of agricultural workers; reduce pollution and

protect the ecological environment. Therefore, the development of urban agriculture is conducive to improve people's quality of life, regulate the balance between human and nature, and achieve the sustainable urban development.

In September 2012, the General Office of the Ministry of Agriculture issued the Opinions on Accelerating the Development of Urban Modern Agriculture (OADUMA). The OADUMA makes a requirement to all provinces and municipalities to issue targeted and efficient policies and measures to promote the coordinated and sustainable development of urban agriculture. As the provincial capital of Hebei Province, the local government in Shijiazhuang has studied and formulated the Guidelines for the Development of Modern Urban Agriculture in Shijiazhuang with a goal of achieving orderly and rapid development of urban agriculture. However, at the same time there are still limitations such as relatively small scope, simple form, and lack of obvious and special local characteristics.

1.2 The Development of Family Farms in China

Originated in Europe and the United States, family farming is considered as a quite common agricultural management model. Meanwhile, family farming in the United States has become a paradigm of intensive, large-scale and mechanized farming. Due to different land ownership and the basic national condition of the large number of population and scarce land with poor quality, it is impossible to replicate the development model of American family farming in China. Therefore family farming in China is considered as a new-type of agricultural management subject. This takes family members as the main labor force, emphasizes on agricultural scale, intensive and commercialized production and operation, and takes agricultural income as the main income source of the family. There are three main types of family farming: planting, breeding and combination which including the formers. Therefore being an important way to achieve urban-rural integration and development. The development of family farming is not only beneficial to the realization of moderate scale operation of agriculture and the improvement of labor productivity, but also increase farmers' income and improve of local agricultural competitiveness.

The concept of "family farming" made its debut in the Document NO.1 of the Central Government in 2013. From then on, as a new type of agricultural management subject, family farming has been mentioned many times in several government documents on agricultural development which highlights the significance of the development of family farming. In 2014, the local government in Shijiazhuang issued the Notice on Accelerating the Development of Family

Farming, which clearly defined family farming and proposed policies and measures to support the development. Save for the certain achievement of the development of family farming, problems such as low level of modernization, economic inefficiency and financing difficulties still exist.

1.3 The Practical Basis of Building Family Farm and Developing Green Urban Agriculture

In terms of geographical distribution, urban agriculture is centered on the urban area and extends outward. It can be divided into suburban agricultural circle, middle suburban agricultural circle and suburban agricultural circle. This paper mainly explores the development of urban agriculture in suburban agricultural circle, that is, urban fringe area. With the acceleration of urbanization process, people's income level and living standard are improving constantly. Nevertheless at the same time, people living in cities are also facing problems such as environmental pollution, traffic congestion, life tension, increased psychological pressure and so on. In a word, people are full of urgent needs for improving the quality of life. The development of urban agriculture in urban fringe should serve the urban citizens and meet the needs of people for higher quality of life. Therefore, urban agriculture in this region should aim to develop green agriculture in order to coordinate agricultural production and environmental protection, to promote agricultural development and increase farmers' income, protect the environment and ensure the safe and pollution-free agricultural products. In addition to providing healthy and green agricultural products for people, urban agriculture in urban fringe areas should take advantage of the proximity of urban central areas. In doing so, make full use of the perfect urban infrastructure conditions of the metropolises to develop modern urban agriculture, and play a variety of functions such as leisure and entertainment, demonstration education, ecological security and so on. Making the urban agricultural areas become the place for citizens to enjoy leisure and relax, to realize the harmonious coexistence between man and nature and promote the sustainable development of cities.

At the present stage in our country, the development of green urban agriculture in urban fringe based on family farms has its practical basis. First of all, agricultural production activities are dispersive and frequent, which makes it difficult to monitor and measure its labor process, and leads to low production efficiency easily. As a special community of interests, beyond the economy, family contains social ties, including kinship, emotion, marriage, and ethics etc. It is easier to form common goals and behavior consistently. In the agricultural production process, workers have greater initiative, enthusiasm and flexibility without the need of accurate labor measurement and supervision. Therefore, family farming is an efficient form of organization, and also an absolutely

dominant form of operation in agricultural production in the world. Secondly, family farming has moderate economies of scale. At present, with inefficacy of resource allocation the ultra-small operation of a single household in China is not conducive to the specialization, standardization and scientificization of agricultural production. Therefore it is difficult to achieve a scale effect, needless to say realizing agricultural modernization. Family farming is a moderately scaled and intensive mode of production and management methods, which vails to improve labor productivity, increase farmers' income, and achieve urban-rural integration. Thirdly, family farming is a miniature model of urban agriculture. The development concepts, methods, contents and technologies of all aspects of urban agriculture can be seen in mature family farms. Meanwhile, family farming has the characteristics of an easy start, relatively simple operation and quick effect, which are easy to popularize and promote.

II. The Case of Family Farming Implementing Green Urban Agriculture - A Survey of the Zimuyuan Family Farm in Shijiazhuang

Taking the Zimuyuan family farm as an example, this paper endeavors to make an in-depth observation on the farm, using interviews with farmers and a questionnaire survey to the farms' customer groups.

2.1 The Overview of the Zimuyuan Family Farm

The Zimuyuan family farm is located in the edge of the city and has convenient transportation. The farm covers an area of roughly 8.3 acres and has 6 staff members who are mostly family members, relatives or fellow villagers. The farm combines planting and breeding, with about 3,000 farmed chickens and roughly 1 acre of vegetables. The products are mainly eggs, supplemented by vegetables. Customers can pick eggs and vegetables on their own, or they can choose to deliver products from the farm to their home, with free delivery for those living within the second ring of the city, twice a week. In addition, the farm also contracted a mountain area in the mountainous area of Xingtang County, Shijiazhuang City, and stocked black pigs and sheep on the mountain with the aim of providing fresh and healthy pork and mutton for the customers.

2.2 The Practice of Developing Green Agriculture on the Zimuyuan Family Farm

In production, the Zimuyuan family farm adheres to the way of green agriculture, to ensure the safe and pollution-free products.

The farm has planted green seedlings and the chickens are scattered in the woods. According to the area of forest land, the scale of breeding is limited to ensure that the chicken has sufficient

activity space, so that the free-range chicken has strong immunity and less incidence. In the breeding of chickens, the staff members pay attention to the prevention of common diseases of chickens. When some common diseases occur, the use of traditional Chinese medicines such as dried tangerine peel, ephedra, wormwood, licorice, and radix is effective for symptomatic treatment. In the rearing of chickens, the farm purchased corn and other raw materials to make feed, then crushed the egg skin, animal bones and other materials into the feed, without adding any hormones or antibiotics. The farm also planted alfalfa grass, a high-quality feed that is rich in vitamins, proteins and other essential nutrients for the human body, which is known as the “King of Herbage”. Besides the alfalfa grass, the staff also feeds chickens with vegetable leaves, weeds, etc., so that the eggs produced by the chickens are nutritious and tasty. The pigs and sheep farmed in Xingtang County are bred for at least 10 months, under the green and original breeding way. On the one hand in vegetable cultivation, the farm uses chicken manure as fertilizer without chemical fertilizer. On the other hand, in the planting, pesticides are not used, insect pests are reduced by mixing some vegetable varieties, and artificial insecticides are used. Meanwhile no pesticides are used, and the pests are reduced by the mixing of some vegetable varieties or adopting the artificial deworming method. Therefore in this way the vegetables are green and pollution-free and they taste good, which adheres to the development of green agriculture. The ecological environment of the farm is gradually improving as well. These rare organisms, weasels, hedgehogs, and sparrows are increasingly found on farms, and the damaged ecological chain is being restored.

2.3 The Diversified Management

2.3.1 Private vegetable garden

In order to attract and serve customers better, the farm is implementing diversified management through private vegetable garden. The farm implements membership system, that is to say through paying 800 yuan per year, the customer can become a member and receive 2.5 kg eggs per month and a piece of 10 square meters of land, as a “private vegetable garden”, which can be planted according to customers’ own preferences. The farm will provide a flattened land, a convenient source of water, fertilizers made by chicken manure and some vegetable seeds. If the customer has no knowledge of farming, a technical guidance provided by the technicians can be chosen. Besides, the vegetable garden can also be managed to the farm at a certain cost. The farm will grow for the customers according to their needs. At present, it has more than 200 members, and more than 100 of them have planted “private vegetable gardens”. Members’ feelings about planting

private vegetable gardens are shown in the figure below. It can be seen The “private vegetable garden” provides customers with the opportunity to get in touch with nature, personally participate in the farming activities, enjoy the pleasure of agricultural labor and experience the joy of harvest. The “private vegetable garden” makes the farm more attractive to customers and provides a more stable customer base for the farm.

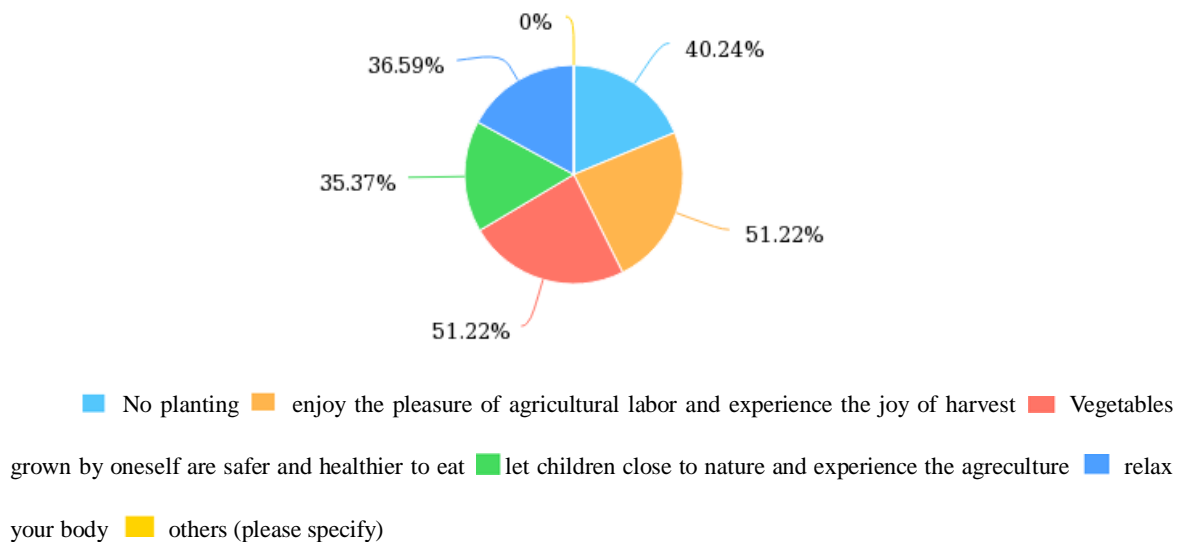


Figure 1. The feeling of members planting “private vegetable garden”

2.3.2 Agricultural Experience.

Nowadays people in the city, especially young people and children living in large cities with reinforced concrete since childhood, lack of opportunities to contact with agriculture. The farm provides customers with the opportunity to experience agriculture. Customers can go to the woods to pick up eggs and feed chickens. They can also grow and pick vegetables or other crops such as corn, peanuts, sweet potatoes and so on. Some small animals such as rabbits and goats and some birds are fed in the farms as well, which provides more opportunities for children to get close to them. Experiencing the agriculture can help the locals to achieve the goal of popularizing agricultural knowledge, carrying out agricultural education and inheriting agricultural traditions.

2.3.3 Entertainment.

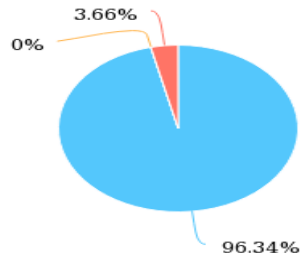
There are numerous citizens who want to have a place to relax and have fun on weekends. Therefore, the farms are equipped with iron pots and firewood which give customers an opportunity to use traditional methods to make “big pot dishes”, pastry cakes, make dumplings which can allow people to enjoy the delicious taste of traditional farmhouse meals. It also provides fresh and green

agricultural raw materials for customers to process their own delicacies. Moreover, some simple recreational facilities can be seen in the farm, such as swings, trampolines and sand pools etc., which provide children with an ideal place to frolic and play. The the ground for playing table tennis and badminton is also constructed by the farm. With the aim of meeting the young people's needs of nightlife, the farm sets up small stages, providing audio to let these youngsters perform programs or sing karaoke. Hence, customers can spend their weekends with their family and friends on the farm and have a happy and healthy leisure time.

2.4 Problems Encountered in Farm Development

The main problems encountered in the development of this farm are high investment and low profit. In the four years since the establishment of the farm, about 1.4 million yuan has been invested, including land rent, purchase of chicken seedlings, water, electricity, roads and other farm infrastructure construction, and alongside the fees of building houses, purchasing of agricultural equipment and distribution vehicles. Although the farm already has a relatively fixed number of customers, it is still in a loss state.

The main reasons for the low profit of the farm are as followed: on the one hand, the current price of agricultural product is relatively low. Although the price of farm products is higher than that of ordinary products sold on the market, the price is still lower, considering the production costs and quality of products. Taking the price of eggs as an example, the eggs will be sold at six yuan per kilogram, which is almost three times the price of the ordinary eggs. However, as far as people's consumption concept and level are concerned, raising prices may lead to a loss of customers. On the other hand, the size of the customers is limited. Enlarging the customer scale may expand the production scale, reduces costs and increases profits, but the market of green agricultural products is mixed, and the quality is not guaranteed, resulting in a low trust in green products among the consumers. The farm held some propaganda activities, but the results were very minimal. According to the questionnaire survey, as shown in the following figure, the current customers of the farm mainly rely on the personal word-of-mouth of the customers to accumulate, and the customer scale grows slowly.



■ Introduce through relatives, friends, etc. ■ media coverage ■ discovered by accident

figure 2. How did you know about the Zimuyuan family farm?

2.5 The Evaluation of Practicing Green Urban Agriculture in Zimuyuan Family Farm

The author conducted questionnaire surveys, with the aim of understanding the public's willingness to consume green agricultural products and know and accept the family farm. The survey results show that the citizens have a strong willingness to consume green agricultural products and like to buy green products produced by a family farm. This indicates that the green products of family farming have a broad market demand, and the development of Zimuyuan family farm adapts to market demand.

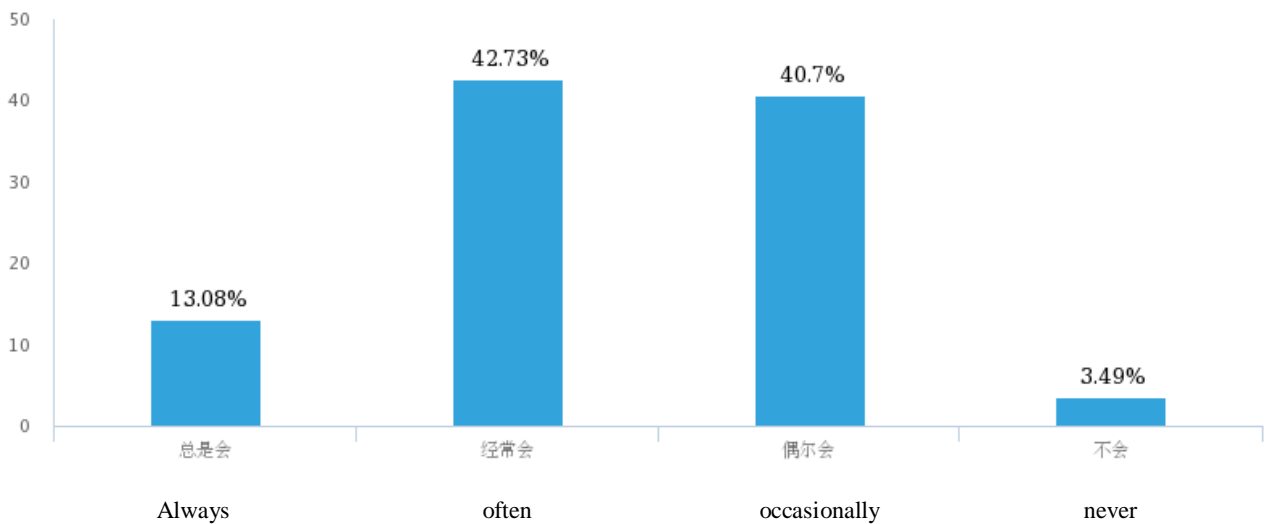


Figure 3. Will you give a priority to green agricultural products in your daily purchases?

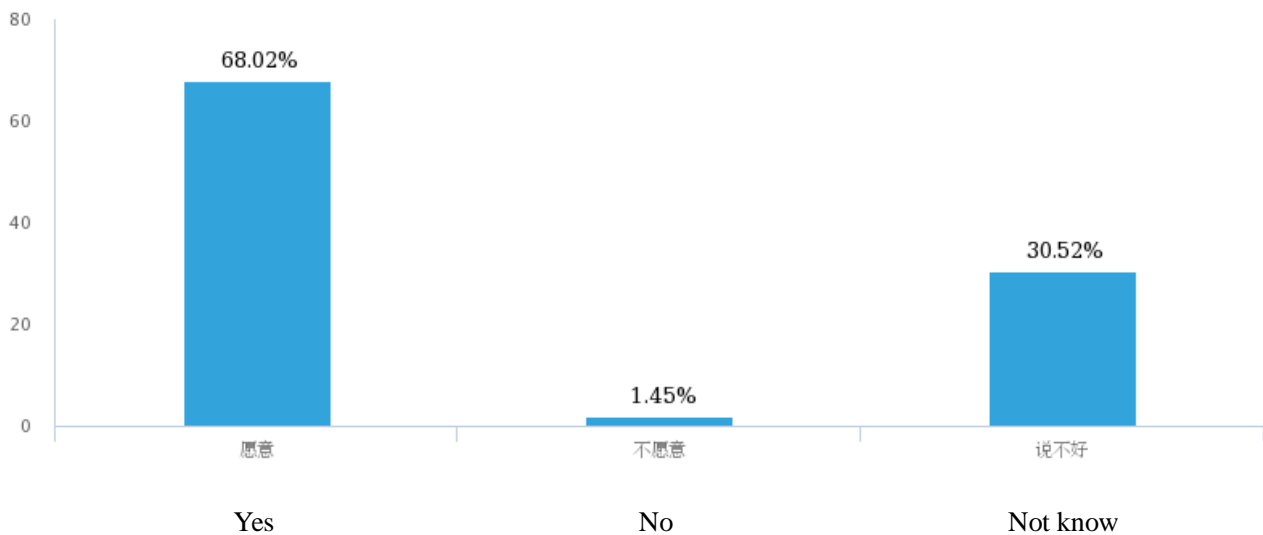


Figure 4. If a family farm is providing green produces, would you like to buy it?

Zimuyuan family farm pays attention to product quality, adheres to the way of green agricultural development and provides healthy and safe green food for the public.

Opportunities to get close to nature, experience farming, and gain a deeper understanding of agriculture are provided by the Zimuyuan family farm which is located in the suburbs and has convenient transportation. Obviously, it has become a place for citizens to enjoy leisure and relax, to relieve the pressure of people's life. Therefore, meeting the needs of people for a higher quality of life. The development of green agriculture can also create beautiful ecological landscapes, maintain ecological balance, achieves harmony between people and nature, and promotes sustainable urban development.

3. Countermeasures to Actively Cultivate Family Farms and Develop Green Urban Agriculture.

Family farming is an important carrier for the development of green urban agriculture. Therefore, various measures should be taken to actively cultivate family farms.

3.1 Family farms strengthen their own construction

According to the results of the questionnaire survey, members of Zimuyuan family farm generally recognize the quality of products and services of the family farm. It is also hoped that the farm could be better in the following aspects, as shown in Figure 5. Hence, family farms should strengthen their own construction and win the recognition of customers with better products and services.

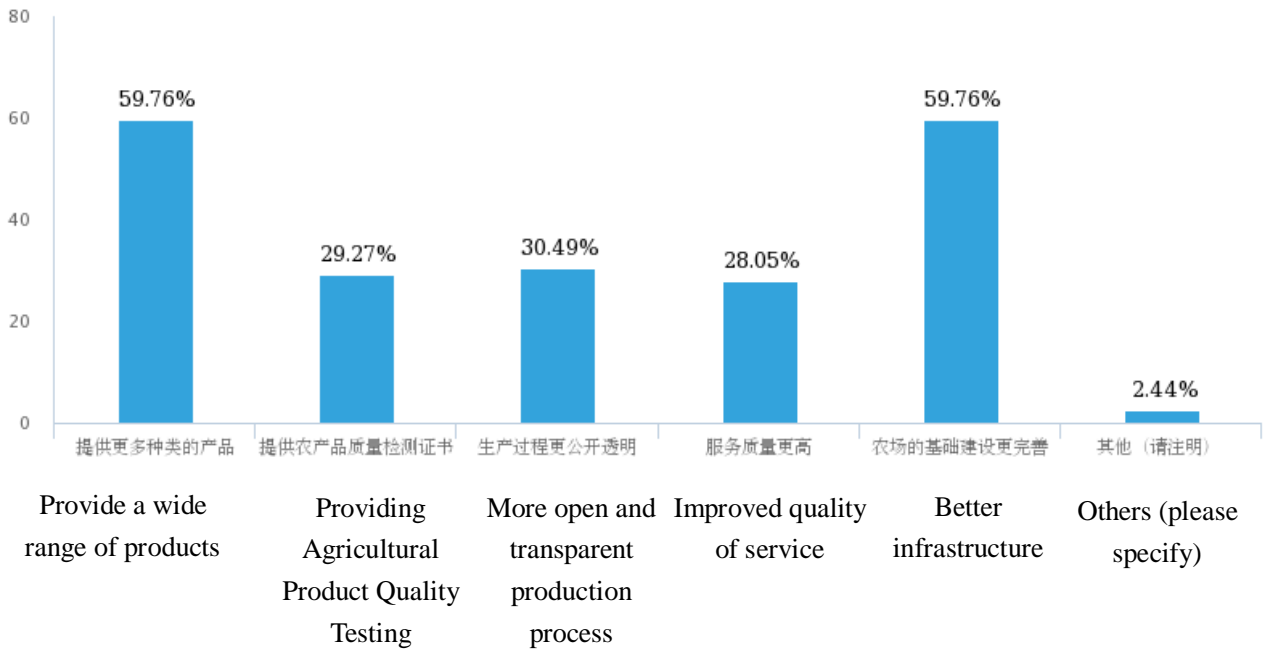


Figure 5. Where do you want the farm to be better?

3.1.1 Strengthening the Infrastructure Construction of the Farm

The improvement of infrastructure such as water, electricity and roads, and the improvement of service facilities such as parking lots and toilets provides a better experience for the public.

3.1.2 Providing More Kinds of Products

At present, the products provided by the farm are relatively simple and limited, and the varieties of the farm should be enriched. Vegetable greenhouses can be established to make vegetable supply free from seasonal restrictions and increase vegetable varieties. It is possible to develop a picking and sightseeing business such as cherries and strawberries and to seek the help of professional agricultural science and technology talents to introduce new varieties and improve the technological content of products.

3.1.3 Making the Production Process More Open and Transparent

A full monitoring system can be established, so customers can keep abreast of the farm's production process through a computer or mobile phone network. Open and transparent production processes are more conducive to building customer trust and winning more customers for the farm.

3.1.4 Providing Certificates for Quality Inspection of Agricultural Products

The farm must establish customer trust in the product. It should not only rely on the customer's intuitive experience and feelings, but also actively apply for the quality inspection of the authoritative department to enhance the customer's trust in green products.

3.1.5 Strengthen Publicity

The current customers of the farm rely mainly on the personal word-of-mouth of the customers to accumulate so the customer scale grows slowly. The survey among farm members shows that the current customer group of farms is mainly middle-aged and elderly women. This group is the main buyer of family agricultural products they pay more attention to the quality of products, and also have time to fully experience family farms. Advocacy can be enhanced for this group.

3.1.6 Widening Sales

Questionnaire survey shows that if green agricultural products are purchased, the preferred place to buy is the large supermarket. Therefore, after obtaining the certificate of quality inspection of agricultural products, family farms should strive for products to enter large supermarkets, to expand the market of products, properly expand the scale of farms and obtain more profits.

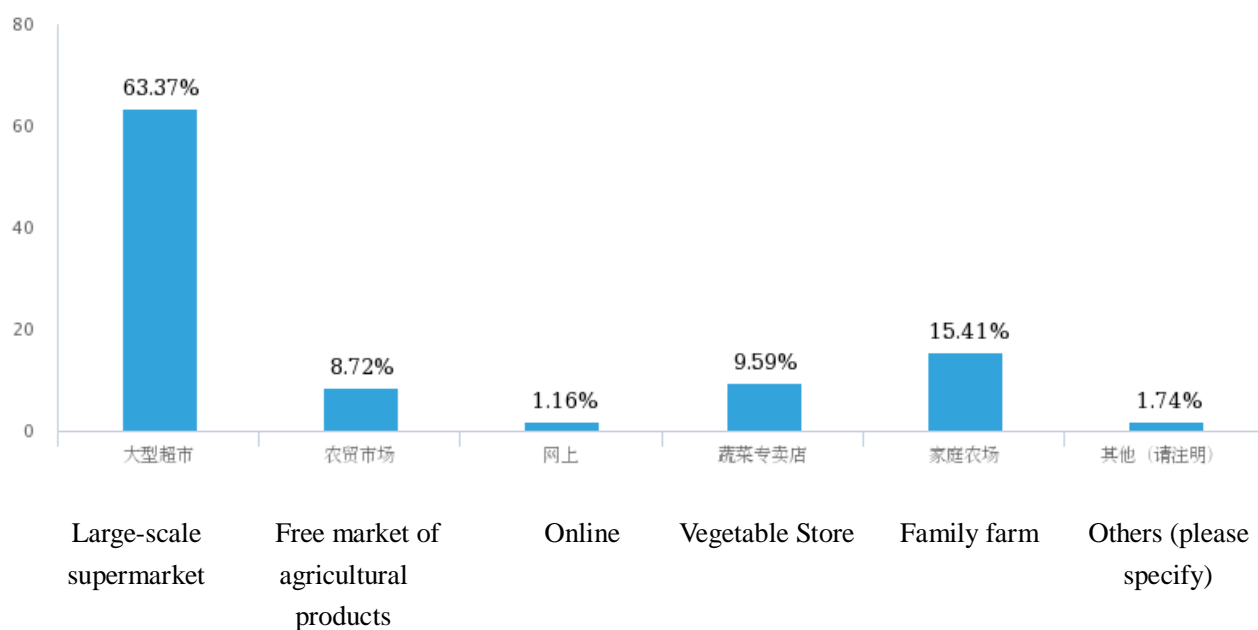


Figure 6. Where would you prefer to buy green agricultural products, when you need some?

3.2 The Government Strengthens Support for Family Farms

Although the government has introduced support policies for family farms, it lacks practical and effective implementation of practices and does not serve the needs of family farm development. Therefore, measures should be taken to strengthen the construction of family farms from the following aspects.

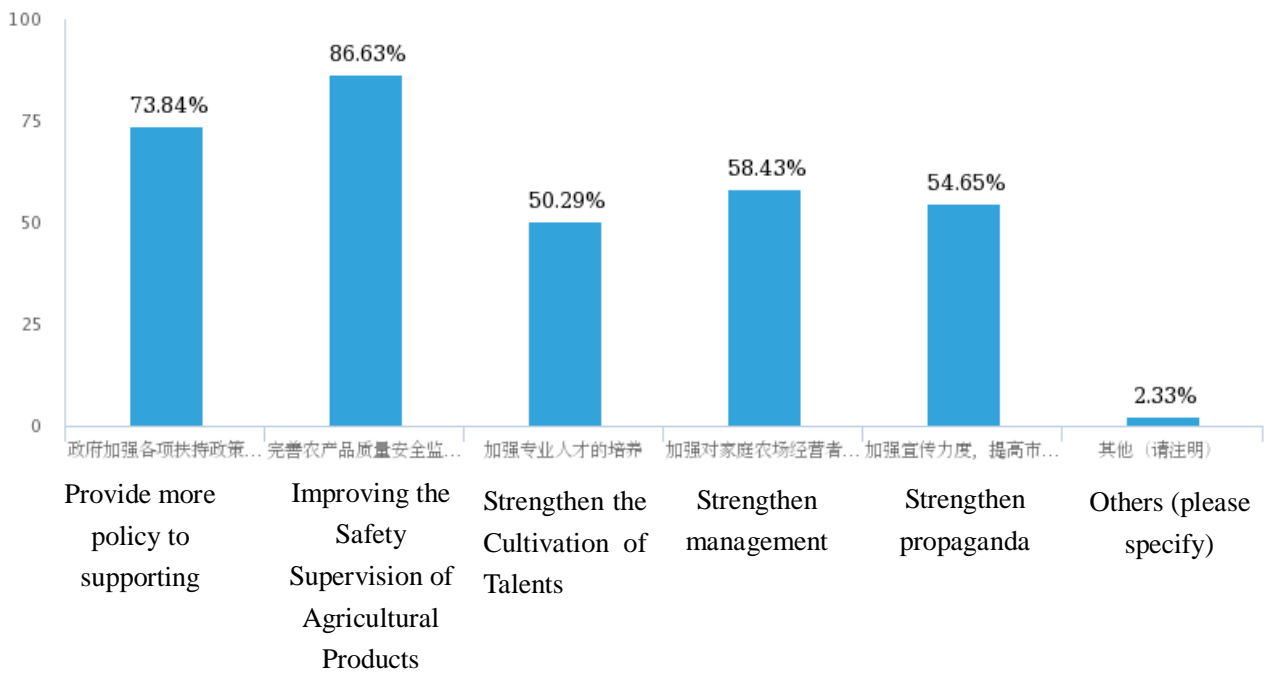


Figure 7. How to promote the development of family farms better, from your perspective?

3.2.1 Strengthen Financial Support for Family Farms

Family farms often face greater financial pressures in their development. For example, Zimuyuan family farm has invested more and more money but cannot achieve profitability. It is hoped that the government can arrange special funds to support family farms, such as project subsidies and quota awards. The appropriate tax benefits should be provided to family farms. The preferential treatment is important to family farms in terms of commercial loans, such as lowering loan interest rates etc.

3.2.2 Strengthen the Cultivation of Talents

Modern agriculture puts higher demands on the quality of employees, while the overall quality of employees is not high. Therefore, the government should strengthen the cultivation of talents, such as guiding agricultural research institutes, colleges and other professional scientific and technological personnel units to connect with family farms and guide production and operation. It is significant to strengthen the training of agricultural talents in higher education institutions and encourage university graduates to participate in the construction of family farms. Meanwhile it is also indispensable to increase the training of family farm operators and improve their production skills and management level.

3.2.3 Improve the Quality and Safety Supervision System of Agricultural Products

The quality of green agricultural products on the market is currently mixed which leads to distrust. Therefore, we should establish a sound agricultural product quality and safety testing

system, strengthen the construction of green agricultural product certification platform, increase law enforcement, impose penalties on those whose products are not qualified, establish public trust, and provide a good environment for the development of green agricultural products.

3.2.4 Strengthen Publicity to Increase Public Recognition of Family Farms

According to the questionnaire survey, people generally do not know enough about family farms.

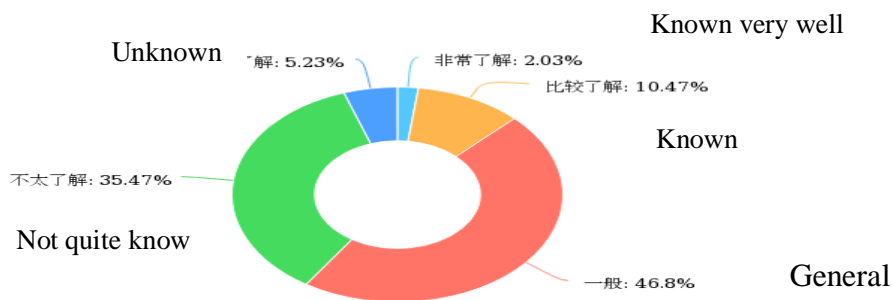


Figure 8. How much do you know about family farms?

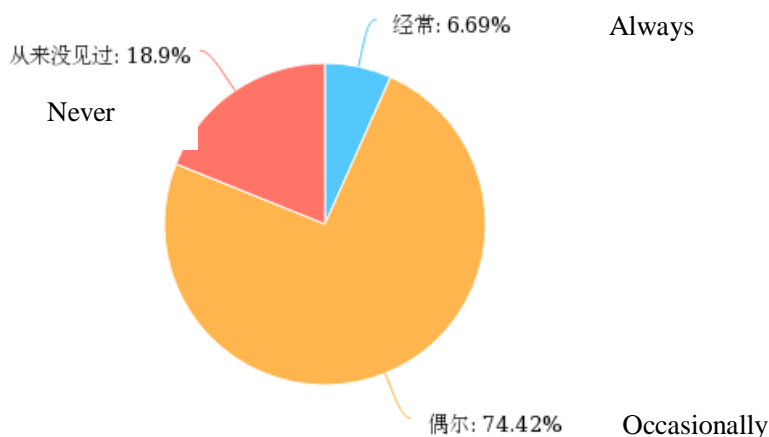


Figure 9. How often do you see reports about family farm in various media?

The government should make full use of media resources to strengthen the promotion of family farms through various forms such as television and internet, and increase relevant reports on family farms, improve public recognition of family farms and provide a good external environment for the development of family farms.

Conclusion

Although the Zimuyuan family farm is only one case, it provides a microcosm of universal reference for the development of green urban agriculture in the urban fringe area based on family farms. Under the conditions of decentralized management and intensive farming in China, building family farms and guiding moderate scale operations are conducive to improving economic

efficiency and promoting the recycling of resources to effectively promote the development of green agriculture. In this process, family farms need to strengthen their own construction and constantly improve their product quality and service level. It is also necessary for the government to strengthen the implementation of relevant support policies to provide a good development environment for the family farm.

Due to the limitation of time, energy and personal ability, there are still many shortcomings in this field survey and the writing of the thesis. However, through this field survey, growing up in the city, I have had the first “intimate contact” with the field of agriculture, and gained a lot of knowledge about family farms and urban agriculture. It is also a fruitful experience to have more experience in the application of social survey methods.

Acknowledgments

I am grateful to Shijiazhuang Foreign Language School for giving me this valuable opportunity. In particular I would like to thank Lv Jianheng, Wang Xianting, Li Bo and Rhianne for their meticulous guidance. I would also like to thank the staff from Zimuyuan family farm for their cooperation and also the citizens who filled out the questionnaire! Without their help, this thesis would not have been possible.

References

- [1] Construction of Urban Agricultural Leisure and Sightseeing Belt in Central Urban Area Shijiazhuang
http://www.sohu.com/a/71634606_362156,2016-4-26.
- [2] Shijiazhuang: Urban Agriculture Development and "Vegetable Basket" Project Construction
http://www.moa.gov.cn/ztlz/jlh/smjl/201404/t20140428_3887034.htm, 2014-4-28.
- [3] Study on the Countermeasures of Modern Urban Agriculture Development in Shijiazhuang City, Zhang Zekang, AUH, 2016.
- [4] Analysis on The Present Situation of Urban Agriculture in Shijiazhuang and the Countermeasures, Gao Zhiyou Jilin University , 2017.
- [5] Analysis on The Present Situation of Urban Agriculture Development in Shijiazhuang City, Sun Chunfeng and Hao Guiqin et al. Issue 2 of Hebei Agricultural Science.
- [6] Study on the Development of Modern Agriculture in Urban Suburbs, Wang Qi and Zhou Xin et al, Issue 12 of Rural Economy and Science-Technology.
- [7] Family Farms Get First Harvest of Urban Agricultural Development
http://jiuban.moa.gov.cn/fwllm/qgxxlb/gd/201402/t20140219_3790663.htm, 2014-02-20.