

On the Ideas and Principles of Innovation System Construction in the Modern Agricultural Science and Technology and Angelica Sinensis Extension in Gansu Province

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Abstract: Modern agricultural science and technology has played an important role in directly promoting the development of agriculture. However, at present, the construction of agricultural science and technology innovation system in Gansu Province is still facing many challenges, such as the agricultural technology promotion of Angelica sinensis is still restricted by the present agricultural system. Therefore, in view of the modern agricultural science and technology, the construction of innovation system should be attached great importance. Promoting the development of agricultural science and technology in Gansu Province not only needs a logic thinking, but also some principles.

1. Introduction

The development of agricultural science and technology promotes the upgrading and improvement of agricultural industry. At present, there is a certain gap between the level of modern agricultural science and technology in Gansu Province and the developed areas in China. From the promotion of Angelica planting technology, we can see that there are still many problems in various field need to be solved. In view of the construction of agricultural innovation system, Gansu should form thinking systems based on its characteristics of agricultural development and enhance the innovation ability according to some certain principles in order to promote the development of modern agriculture.

2. The Problems in the Construction of Modern Agricultural Science and Technology Innovation System in Gansu Province

2.1 Lag Reform in Agricultural Innovation System

The State issued the “Guiding Opinions on Strengthening the Construction of Agricultural Technology Extension System” aims to promote the development of modern agricultural science and technology, and made a comprehensive deployment of the agricultural science and technology innovation system. In order to implement the guiding opinions, Gansu Province has formulated the implementation measures for strengthening the construction of modern agricultural technology extension system, and established the leading group for the construction of agricultural technology extension system, formulated the reform plan of agricultural technology extension system, and defined the reform direction of agricultural technology system. However, due to various reasons, the reform of agricultural technology extension system in many basic level areas may have some difficulties to ensure the implementation. There are still 232 different appropriation departments in county and township level agricultural technology extension institutions, 56 of which are self-supporting departments, and there is a big gap with the full appropriation advocated by the guidance. Many counties and townships have the current situation of insufficient funds for agricultural technology extension. Although many new techniques have been used in the cultivation of angelica, due to the lag reform, the promotion of new technology still has some difficulties.

2.2 The Influence of Agricultural Technology Extension Talents

At present, Gansu's agricultural technology promotion is affected by the lack of talents, mainly reflected in the unreasonable talent structure. Most of the agricultural technology promotion are general talents and lack of leading talents; most of them are single subject talents and lack of compound talents; most of them are traditional subject talents and lack of emerging subject talents. In addition, the average age of agricultural extension personnel is elder, lack of training and re education opportunities, lack of modern agricultural knowledge, and aging personal knowledge structure. According to statistics, only 35.7% of the county and township level agricultural technology promotion personnel have bachelor degree or above. Agricultural technology extension agencies lack of autonomy in the employment, and are forced to install many government agencies' shunted personnel. The proportion of professional and technical personnel in the organization is relatively low. According to the survey, the proportion of non professional and technical personnel at county and township levels is 45% and 56%, and the professional quality of agricultural technology promotion team is overall low.

2.3 The Restriction of Agricultural Technology Extension System

At present, the disjunction of the agricultural technology promotion department in Gansu and agricultural research institutions and agricultural universities. Agricultural technology promotion, scientific research and education are classified into different management departments, which operate independently and influenced by this division. The agricultural technology innovation system has been at a low level of repetitive construction for a long time. Agricultural scientific and technological achievements are not combined with the reality of agricultural development in Gansu Province. In addition, there is no supporting evaluation mechanism for agricultural technology promotion. There is no incentive mechanism for agricultural technology extension staff. Technology promotion lacks the sense of responsibility to serve agriculture. Agricultural technology promotion and industrial development lack of interest distribution mechanism. Agricultural Technology Extension institutions lack initiative in agricultural technology extension.

2.4 The Influence of Agricultural Technology Extension Mode

Modern agriculture needs a new mode of production. But in Gansu Province, affected by the way of agricultural technology promotion, the effect of promotion is not good. The Agricultural Technology Extension institutions in basic areas are not clear about what kind of technology is most needed in agricultural development. They lack of understanding of agricultural products and have single and backward extension methods, which leads to the farmers are difficult to accept the products. Though after training, the farmers is still have problems to apply the technology to the production practice. For example, Chinese angelica is affected by high planting density. The farmers may not master the things they learned from the technical training. They still focus on the short-term benefits and the improvement of the total output. The unreasonable and increasing planting density, lighting and ventilating conditions aggravate the nitrogen load. Therefore, the quality of the *Angelica sinensis* is affected, which leads to a low price. In order to ensure the output of some farmers, there are excessive use of chemical fertilizer and pesticide, which leads to excessive pesticide residues in Angelica. All this affects its sale.

3. The Idea of Promotional System Construction for Agricultural Science and Technology

3.1 Emphasis on Agriculture Promotion Service

At present, the overall scientific and technological level of Agriculture in Gansu Province is not high and there is a big gap between local agriculture and modern agricultural production. Our goal is to realize a stable and healthy development for the local agriculture and improve the productivity. Therefore, it is necessary to pay more attention to the system construction of agricultural promotion. Gansu province should strengthen the support to the system construction of agricultural promotion, work out a scientific and reasonable measure to improve the quality and effect of promotion service

with the rich experience of local farmers. The local departments should put more emphasis on the agricultural promotion, reinforce technical publicity and ensure the effectiveness and efficiency of agricultural promotion. Farmers should also realize the importance of agricultural promotion and take the initiative to learn new agricultural knowledge and technologies and apply them to agricultural production.

3.2 Innovation of the Mode of Promotional Service

The service mode of agricultural promotion is directly related to outcome of the promotion. During the promotion, we should pay more attention to the innovation of service mode, in order to stimulate the enthusiasm and initiative of farmers and ensure the quality and outcome of agricultural promotion service. Agricultural promotion agencies should fully consider the present and actual situation of the local region, complete the service system and innovate the service mode of agricultural promotion. Besides, paying more attention to the use of existing resources in a reasonable way. For example, make the agricultural demonstration parks as driving force, vigorously promote modern agricultural technology; The local departments should improve the promotion system to mobilize farmers. For example, with the help of local advantages, the formation of farm garden can enrich the content of promotion services and improve the efficiency of agricultural promotion.

3.3 Guarantee of Manpower during the Promotion of Agricultural Technologies.

Sufficient human resources is necessary for Agricultural promotion. Personnel working for Agricultural promotion should not only have the political integrity, talent and rich knowledge, but also have professional knowledge and rich practice experience. Talents of variety in ability are welcomed and needed. Therefore, attention should be paid to improving the quality of agricultural promotion personnel, and cultivate high-level talents with comprehensive quality under the market orientation. In addition, “promotion” with “technology” can become a new “agricultural promotion” to improve the quality of “people”. Agricultural promotion should take the responsibility of cultivating farmers and innovation. Agricultural promotion agencies should take the full advantages of industry, technology and information, and provide technical guidance and farmer training services for agricultural production, and extend the service chain and realize the diversification of promotional contents. For example, we should help the countryside to manage the new technology of planting and processing angelica, reduce the cost with the help of technological progress, and realize harmless planting with the help of technology, and carry out deep-level processing to enhance the added value of angelica.

4. The Principle to Follow to Make Innovate in Agricultural Technology Promotion System

4.1 Actively Adapt to the Market Economy

The starting point of the system construction of agricultural promotion innovation is to improve the level of the local agricultural science and technology, increase the added value of agricultural products, and promote the sustainable development of agriculture. The establishment of a promotion system compatible with the market economy is favourable for the direct connection between agriculture and the market, ensuring the supply capacity and transformation capacity of agricultural science and technology, and meet the requirements for the industrialization development of agriculture and the improvement of comprehensive production capacity on some level.

4.2 Mutual Connection between Promotion Systems

Agricultural promotion needs to adopt a top-down approach. The construction of local promotion system should not only conform to national policies and regulations, but also take consideration of the reform direction to ensure the internal coordination of the system. The connection of innovation mechanism is reflected in the scientific research conditions and the talent team. The construction of scientific research can promote the development of innovation and ensure the efficiency of the

innovation system.

4.3 Adapting to the Local Ecological Conditions and the Level of Productivity

The construction of agricultural promotion system should be combined with the agricultural and ecological conditions and productive forces in Gansu province. The construction of a reasonable promotion system should be based on the rule of agricultural science and technology, combined with the characteristics of agricultural regions, making use of the existing agricultural technical resources, with the help of structural adjustment.

The construction of system should realize the joint function of condition constructional and mechanism innovation. On one hand, Gansu province should pay more attention to improving the conditions of agricultural scientific research. On the other hand, it should also strengthen the construction of professional talents, realize the direct connection between industrial development and scientific and technological innovation, and ensure the transformational outcome and supply capacity of agricultural technology.

5. Conclusion

The modernization of agriculture in Gansu province needs the help of modern agricultural science and technology. We can see from the promotion of angelica sinensis that there are still many adverse factors in the construction of modern agricultural science and technology innovation system, which makes it difficult for new agricultural technology to be effectively applied in agricultural production.

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