

Original Research Article

Thoughts and countermeasures of establishing national modern agricultural demonstration zone——Take Shijiazhuang City, Hebei Province as an example

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ABSTRACT

The modern agricultural demonstration area is of far-reaching significance to promote the development of modern agriculture. According to the current situation of agricultural industry development in Shijiazhuang, this paper analyzes the development conditions of establishing a national modern agricultural demonstration zone, puts forward the basic ideas, development orientation, and development countermeasures of building a national modern agricultural demonstration zone, and analyzes the guarantee measures for its development in order to build Shijiazhuang into a national modern agricultural demonstration zone.

Keywords: Hebei Province; Shijiazhuang; modern agricultural demonstration area

1. Introduction

Since the reform and development, China's economy has developed rapidly, and the agricultural development has also made remarkable achievements. At this stage, China's agriculture is in an important transition period, and the development of modern agriculture is imperative. Located in the North China Plain, the Shijiazhuang area of Hebei Province is an important agricultural production area in China. The local government has always attached great importance to the development of modern agriculture. It has successively issued normative documents such as the development plan of modern urban agriculture in Shijiazhuang, the development plan of grain core reserve in Shijiazhuang, the implementation opinions of Shijiazhuang on accelerating the development of the milk powder industry in the whole city, and the implementation opinions on accelerating the construction of a strong city with a fruit industry. It is proposed to vigorously develop modern agriculture.

Vigorously promote the process of agricultural industrialization, expand and strengthen the leading industries according to the characteristics of different regions, promote the development of characteristic agriculture according to local conditions, vigorously promote the construction of the Shijiazhuang national modern agriculture demonstration zone, and comprehensively improve the comprehensive agricultural

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production capacity and modernization level of Shijiazhuang^[1,2]. Based on this SWOT evaluation model, the author analyzes the existing problems and shortcomings of modern agriculture in this area and puts forward countermeasures and suggestions.

2. SWOT analysis of modern agricultural development conditions in Shijiazhuang

2.1. Advantages of developing modern agriculture in Shijiazhuang—Strengths

2.1.1. Advanced means of production and equipment, diversified business entities and innovative working mechanisms

In 2014, the total grain output in Shijiazhuang reached 4.5 million tons, realizing the “Eleventh consecutive harvest”. The output of vegetables, meat, eggs, milk, and dried and fresh fruits was 12.69 million tons, 3.04 million tons, and 2.4 million tons, respectively, and more than 50% of the characteristic agricultural products were exported. The effective irrigation area in the region is 507,900 hm², the water-saving irrigation area is 20,700 hm², and the effective utilization coefficient of irrigation water is 0.68. The city’s high-standard farmland is 398,700 hm², the total power of agricultural machinery is 19.97 million KW, and the comprehensive mechanization level is 82%. Statistics show that at present, there are 341 family farms, more than 14,000 farmers’ cooperatives, and more than 800,000 farmers participating in agricultural industrialization, accounting for more than 50% of the total, basically covering all fields and main links of agricultural production. Through formulating and releasing a series of policy documents, such as agricultural development plans and industrial development opinions, we have continuously innovated the grain production guarantee mechanism, agricultural support and protection mechanism, agricultural input growth mechanism, and long-term mechanism for increasing farmers’ income, which has promoted the steady development of agriculture.

2.1.2. With strong scientific research strength, the transformation of agricultural scientific and technological achievements has been continuously improved

Shijiazhuang has gathered more than 140 scientific research institutes, including the agricultural resources research center of the institute of genetics and developmental biology of the Chinese Academy of Sciences, the Hebei Academy of Agricultural and Forestry Sciences, the Shijiazhuang Academy of Agricultural and Forestry Sciences, the Hebei University of Science and Technology, and Hebei Normal University. Meanwhile, the Shijiazhuang municipal government and the Chinese Academy of Agricultural Sciences signed a strategic cooperation agreement. In recent years, Shijiazhuang Academy of Agriculture and Forestry Sciences alone has made 156 new achievements in agricultural science and technology and nine national awards. In 2013, the contribution rate of agricultural scientific and technological progress reached 61%.

2.1.3. Leading industries have obvious advantages and characteristic industries continue to develop

Focusing on the leading industries such as grain, vegetable, animal husbandry, forest, and fruit, Shijiazhuang determines the characteristic industries by comprehensively considering factors such as geographical conditions, development basis, comparative advantages, and development potential, and strives to build a batch of distinctive “green, organic, ecological, and circular” industrial park cluster. On the other hand, according to the idea of one-stop production, study, and research, the combination of planting, breeding, and processing, the integration of trade, industry, and agriculture, and the linkage development of three industries, pay attention to industrial supporting facilities, reasonably arrange planting, breeding, processing, marketing, and related service industries, and strive to explore the basic path of “expanding agriculture with a

modern industrial concept, invigorating agriculture with a modern circulation mode, strengthening agriculture with modern financial means, and refining agriculture with a modern ecological concept”.

2.1.4. Agriculture has achieved rapid development and the industrial layout has been basically completed

The overall development strategy of “the East and the West” has been defined around the “overall development strategy of the East and the West”. Planting industry: The “grain stabilization” in the East focuses on the construction of high-standard grain high-yield creation demonstration films, and 100 grain high-yield creation films of 10,000 mu have been built, radiating and driving the stable grain yield and income of the whole city. “Increasing vegetables” in Central China focuses on creating standard vegetable gardens and developing modern leisure agriculture. There are 14 provincial and ministerial-standardized vegetable gardens. The “excellent fruit” in the West focuses on the development of efficient ecological agriculture in mountainous areas, and has built a number of industrial bases such as jujube, walnut, and pomegranate, which are centralized, continuous, large-scale development, and comprehensive support. Animal husbandry: The East is a standardized and large-scale modern animal husbandry development area. The central part is the development zone of the animal husbandry-related industries of feed and veterinary medicine. The west is an ecological animal husbandry development zone.

2.2. Disadvantages of developing modern agriculture in Shijiazhuang—Weaknesses

2.2.1. Insufficient investment in agriculture

In recent years, the main body of agricultural investment in Shijiazhuang has undergone great changes and adjustments, and the sources of agricultural funds are obviously diversified, but there is still some disharmony in the current situation of rural agricultural investment. The main reason is that there is disharmony between the financial investment in agriculture and the long-term and overall investment guarantee of agricultural capital construction required by agricultural development. Although Shijiazhuang has strengthened its efforts to benefit and strengthen agriculture, it is closely related to the whole city’s agriculture.

Compared with the strong support required for the development of the agricultural industry, some contents still need to be improved, such as the improvement of the agricultural ecological environment, agricultural scientific and technological innovation and agricultural technology extension systems, technical quality and safety standards of agricultural products, inspection and testing systems, and other basic and public facilities.

2.2.2. Water resources are scarce, and the direction of agricultural development needs to be further adjusted

Shijiazhuang is one of the areas with serious water shortages in the world, with a per capita water resource of 244 m³, which is an extremely poor water area (International Standard). The area is dominated by groundwater supplies. In recent years, the average water consumption is 3.36 billion m³/A, and the average groundwater supply is 2.853 billion m³/A, accounting for 85% of the total water supply, of which the groundwater exploitation in the plain area is 2.546 billion m³. The serious overexploitation of groundwater leads to the continuous reduction of groundwater storage resources, the continuous decline of groundwater level, the continuous thickening of the aeration zone, the reduction of atmospheric precipitation recharge capacity, and the significant decline of groundwater bearing capacity, resulting in potential hidden dangers to water resource security. To develop modern agriculture in Shijiazhuang, we must increase investment in water-saving facilities and encourage modern agriculture to develop in the direction of water-saving agriculture.

2.2.3. The main body of new agricultural management needs to be expanded, and the degree of farmers' organization needs to be improved

At present, new agricultural business entities (such as family farms) in Shijiazhuang are developing rapidly, but the total number is only 341, which is less than the development level of modern agriculture in Shijiazhuang. At present, agricultural production in this area is still managed by farmers in a decentralized manner, mainly by “one family” small-scale farmers, which makes it difficult to meet the challenges of agricultural marketization, nationalization, and increasingly fierce international competition.

2.3. Opportunities for the development of modern agriculture in Shijiazhuang

2.3.1. “Three rural” policy

The Third Plenary Session of the 18th CPC Central Committee comprehensively deepened rural reform and broke through the institutional obstacles that have restricted agricultural and rural development for a long time. The central “No. 1 document” has focused on “agriculture, rural areas, and farmers” for 11 consecutive years, placing the “agriculture, rural areas, and farmers” issue at the strategic height of the top priority. Shijiazhuang's 13th five-year plan clearly defines the guiding ideology, tasks, objectives, and promotion measures for the development of modern agriculture and vigorously promotes the development process of modern agriculture.

2.3.2. Coordinated development of Beijing, Tianjin, and Hebei

The outline of the 13th five year plan points out that we should adhere to complementary advantages, mutual benefit and win-win results, regional integration, adjust and optimize the economic structure and spatial structure, explore new models for optimizing the development of densely populated and economically intensive areas, build a world-class urban agglomeration with the capital as the core, and radiate and drive the development of the Bohai Sea surrounding Haiti and the hinterland of the north. As an important growth point for China's future development, Beijing, Tianjin, and Hebei have led the rapid development of China's economy in the 30 years of reform and opening up. The acceleration of the process of economic integration in Beijing, Tianjin, and Hebei has further deepened the regional industrial division of labor, injected new vitality into the development of modern agriculture in Shijiazhuang, and will provide more opportunities for the establishment of a national modern agricultural demonstration zone.

2.3.3. Prominent advantageous industries with an obvious driving effect

There are 255 key agricultural enterprises in Shijiazhuang, including Jun Lebao, Shuang Ge, Hua Mu, Yi Hai grain and oil, and Hei Ma flour industry, driving more than 200,000 farmers and 600,000 planters. There are 54 comprehensive agricultural parks integrating ecology, security, sightseeing, leisure, tourism, and other functions, such as zomei manor and Wisteria grape, with an annual reception of 1.25 million tourists.

2.4. Challenges of developing modern agriculture in Shijiazhuang—Threads

2.4.1. Technical challenges

The development of modern agriculture puts forward higher requirements for technology. Standardized production, facility cultivation, mechanized operation, scientific and cultural quality of workers, and other factors affect the development of modern agriculture. However, at present, modern agricultural science and technology in Shijiazhuang cannot fully meet the needs of modern agricultural development.

2.4.2. Natural disaster threat

In recent years, due to the influence of human activities, natural disasters have had an aggravating trend. The impact of natural disasters on modern agriculture is destructive, even destructive, causing direct and

indirect economic losses to agricultural producers and operators. The main agricultural natural disasters in Shijiazhuang include drought, flood, and hail. The development of modern agriculture needs to continuously improve the development level of facilities and enhance the ability to resist the risk of natural disasters.

2.4.3. Increased difficulty in exporting agricultural products

At present, the impact of the international financial crisis has not subsided, the growth rate of the world economy has slowed down, and the impact and negative impact on agricultural production and rural economic development have not been completely eliminated, making it more difficult to export agricultural products. The complex international economic situation has brought severe challenges to the export of agricultural products, and the competition in markets, resources, talents, technology, and standards will be more intense. At the same time, because the relevant legal system of China's integration with the international market is not perfect, it is more sensitive to the international situation and is vulnerable to greater negative impact. With the increasing international technical barriers to agricultural products, ensuring the quality and safety of agricultural products will be an important field of modern agricultural construction in Shijiazhuang.

2.4.4. Increase in agricultural production costs

In recent years, due to the rise of material costs, labor costs, and land costs, the average total cost per unit area of rice, wheat, and corn has been rising. At the same time, the cost composition of agricultural production has changed significantly. With the large number of agricultural workers going out and the substitution of machinery for labor, the proportion of labor costs in the total cost decreases. Modern production factors are more and more widely infiltrated into the field of agricultural production, and the share of agricultural external costs, such as materials and services, is increasing rapidly. The increasing phenomenon of land circulation has gradually increased the proportion of land costs. In the foreseeable future, China's agriculture will increasingly rely on the investment of petroleum, machinery, and chemical industrial products, and the cost of agricultural production will only continue to increase rather than decrease. The increase in cost has a certain negative impact on the market competitiveness of agricultural products. In order to deal with the possible market risks, the development of modern agriculture in Shijiazhuang needs to accelerate the transformation from quantity to quality and from decentralized production to industrialized management.

Through the analysis of the advantages, disadvantages, opportunities, and challenges of modern agricultural construction in Shijiazhuang, it is found that this area has the advantages and opportunities of developing modern agriculture, but there are also some deficiencies. Under the situation of both opportunities and challenges, Shijiazhuang should cherish opportunities, seize opportunities, make good use of opportunities, and strive to meet challenges in all aspects. Through the scientific layout of the main functional areas of the agricultural industry, we will develop efficient agriculture, ecological agriculture, circular agriculture, and safe agriculture. Give full play to the leading role of leading enterprises, guide enterprises to improve the scientific and technological content and added value of agricultural products, and promote the circular and sustainable development of modern agriculture.

3. Thoughts and countermeasures for establishing national modern agricultural demonstration zone in Shijiazhuang

3.1. Basic ideas

According to the requirements of the Ministry of Agriculture for the construction of a national modern agriculture demonstration zone, guided by the scientific outlook on development and in accordance with the idea of "serving cities and prospering rural areas, improving agriculture, enriching farmers, optimizing ecology, and expanding functions," here are the basic principles of planning guidance, policy guidance, market

operation, and highlighting characteristics, supported by modern science and technology, and in accordance with urban-rural integration, characteristic agriculture, and green agriculture. The development orientation of dryland agriculture and modern urban agriculture is to guide agriculture with modern development concepts, improve agriculture with modern industrial systems, promote agriculture with modern management forms, transform agriculture with modern science and technology, arm agriculture with modern equipment, vigorously adjust and optimize agricultural structures, constantly expand scale, improve quality, strengthen markets, strengthen leaders, provide excellent service, and cultivate brands, Make every effort to improve the comprehensive agricultural production capacity and the market competitiveness of products, and build Shijiazhuang into a national modern agricultural demonstration area with farmers' organization, production standardization, base scale, product branding, management industrialization, and equipment modernization.

3.2. Development orientation

3.2.1. National grain and agricultural and sideline products production base

Guided by meeting the needs of big cities such as Beijing and Tianjin and aiming at safety, high quality, efficiency, and green, vigorously develop industries such as high-quality grain, characteristic vegetables, green breeding, and economic forest and fruit, and steadily improve the quality of agricultural products on the premise of ensuring output. Facing the domestic medium- and high-end market and the international market, build a batch of high-quality agricultural product bases, plan to build the agricultural product logistics distribution center in North China, and build an important agricultural product production, supply, and logistics base in North China.

3.2.2. National modern agricultural science and technology equipment R&D exhibition center

Build a modern agricultural technology and equipment R&D exhibition and application platform; research, display, and promote scientific and technological achievements in the fields of improved varieties, intelligent equipment, agricultural product processing, and food safety testing; highlight the innovation and application of agricultural science and technology; give full play to the demonstration and promotion function of the demonstration area in agricultural science and technology; and contribute to the continuous improvement of agricultural labor productivity, resource utilization, and input-output rate.

3.2.3. National modern agricultural financial innovation zone

Solve the financing problems of farmers and agriculture related enterprises by expanding the scope of rural asset collateral, establishing rural property right mortgage financing risk compensation funds, and establishing rural property right trading centers. Encourage financial institutions and various agricultural business entities to carry out various attempts and actively and steadily promote the reform and innovation of agricultural finance.

3.2.4. Modern agricultural demonstration base in northern ecological cities

Facing the two metropolises of Beijing and Tianjin, improve the level of science, technology, and management, and increase the construction of infrastructure.

Setup, innovate the agricultural development model, develop urban agriculture, create a circular economy, and demonstrate and drive the development of modern agriculture in the surrounding areas.

3.2.5. The headquarters base of agricultural enterprises in North China is close to Shijiazhuang

Beijing's location advantages attract leading agricultural enterprises to establish headquarters in Shijiazhuang and build a modern agricultural enterprise headquarters base with convenient transportation, thoughtful service, low cost, rich resources, beautiful environment and efficient operation.

3.3. Development countermeasures

3.3.1. Construction of modern agricultural facilities and equipment systems

1) Implement high standard farmland construction. In accordance with the requirements of overall planning, division of labor and cooperation, centralized investment, and continuous promotion, we will focus on strengthening the construction of farmland drainage and irrigation, land remediation, soil improvement, tractor roads, and farmland forest networks. Combined with the “fertile soil project” and soil organic matter improvement project being implemented in the city, promote soil testing, formula fertilization, and straw returning technology, effectively improve soil fertility and improve the quality of cultivated land. 2) Strengthen the construction of farmland and water conservancy. In accordance with the general requirements of “focusing on irrigation area renovation in mountainous areas and farmland water conservation in plain areas,” strengthen the construction of backbone projects focusing on water-saving irrigation, take measures such as water diversion and source supplement and comprehensive water conservation, highlight water-saving irrigation in well irrigation areas, speed up the continuous construction of supporting facilities in irrigation areas, the upgrading and transformation of farmland motor wells, the transformation of water-saving technology and the improvement of supporting facilities of the final canal system, and increase the effective irrigation area. 3) Improvement of field roads. Field roads and production roads shall be arranged according to the principle of “saving land, convenient transportation and reasonable layout.” Field roads connect villages and villages, villages and fields, for the transportation of agricultural machinery, agricultural materials, and agricultural products. The field operation is connected to the field road to meet the needs of field operation. Establish a field road network suitable for agricultural machinery farming and extend it in all directions. 4) We will accelerate agricultural mechanization. To adapt to the geomorphic characteristics of Shijiazhuang area, which is mainly plain, the development of agricultural mechanization focuses on the modern equipment structure with high power, high performance, low fuel consumption, high efficiency, environmental protection, compound multi-functional support and suitable regional economy. 5) Accelerate the construction of agricultural informatization technology. We will establish and improve the leadership and coordination mechanism and target responsibility system for rural informatization, and implement specific work in the improvement of agricultural information services, the construction of rural information infrastructure network, the construction of rural comprehensive information service system, the development and utilization of agricultural information resources, and the integration of agricultural industry information technology.

3.3.2. Construction of modern agricultural industry development system

Starting from the reality of natural resources and advantageous industries in Shijiazhuang, according to the overall layout plan of “one ring, two belts, and three areas,” implement regional layout and industrialized management, strengthen the agricultural characteristics of Shijiazhuang and improve the development level of agricultural industry. First, we will unswervingly adhere to the goal of stable grain development, focus on high-yield creation, support scientific and technological progress, focus on infrastructure construction, adhere to the combination of point, line and area, strive to improve the comprehensive grain production capacity, and accelerate the construction of a food security system with stable supply, sufficient reserves, strong regulation and efficient operation. Second, based on the unique resources and environmental advantages of Shijiazhuang, taking the market as the guidance, the steady growth of vegetable area as the premise, focusing on improving product quality and increasing benefits, and aiming at improving farmers’ income, make overall planning, do a good job in industrial layout, highlight characteristics, develop famous, special and excellent off-season vegetables and pollution-free, green and organic vegetables, and form the overall layout of “two centers, two belts and seven bases.” Third, focusing on the transformation of the development mode of animal husbandry, taking expansion, quality improvement, and efficiency as the main direction, in accordance with the

requirements of “one kind of five modernizations” (popularization of improved varieties, regional layout, large-scale breeding, standardized life meditation, scientific prevention and control and industrialized management), and according to the characteristics of regional resources, we will focus on the development of three major industries: Dairy cattle, pigs and laying hens, and actively develop new industries such as beef cattle, mutton sheep and poultry. Implement the coordinated development strategy between China and the East and the west, and determine the regional layout of three animal husbandry industries: the characteristic area of urban animal husbandry in the middle, the advantageous area of animal husbandry industry in the east and the ecological breeding area in the west. Fourth, focus on expanding the area of high-quality fruit forests in mountainous areas, accelerate the industrialization of advantageous forests and fruits, actively promote the modernization of walnuts and jujubes, strengthen and optimize the characteristic advantageous fruit industry, vigorously promote the food industry of snow pear in Zhao County and Ya Pear in Jin zhou, and create a green ecological barrier in Beijing, Tianjin, and Hebei.

3.3.3. Construction of modern agricultural science and technology innovation system

1) Build an innovation center and strengthen the function of innovation demonstration. Closely focusing on the requirements of modern agricultural development, we will strengthen the research of agricultural science and technology, encourage leading enterprises to jointly establish agricultural science and technology R&D centers with scientific research institutes and colleges and universities, and form a diversified scientific and technological innovation mechanism. Promote the transformation and demonstration of modern agricultural scientific and technological achievements, 2) establish and improve the agricultural scientific and technological extension system and promote the transformation of scientific and technological achievements. Based on the principle of integrating agricultural technology extension organizations and public welfare organizations, and taking the existing agricultural technology extension and public service organizations as the leading mechanism, we should establish a diversified agricultural technology extension mechanism, take the agricultural technology extension and public service as the basic mechanism, and take the agricultural technology extension organization and public service as the basis. We will implement a number of agricultural science and technology demonstration and guidance projects with the goal of developing modern agriculture, enhancing agricultural market competitiveness and improving sustainable development. 3) Improve the construction of modern agricultural information system and promote development through informatization technology. Transform agriculture with modern information technology to promote the rapid development of modern agriculture in Shijiazhuang. We will improve the agricultural information service system, develop and apply advanced electronic information technology to all links of agricultural production and operation, and actively develop and introduce various agricultural applications and information resource management software, such as agricultural expert consultation system, geographic information system, planting management system, artificial intelligence and automation technology system, agricultural enterprise management system and so on. Establish basic and comprehensive databases in the fields of scientific research, production, operation and management, technology promotion and environment, and support the construction of databases such as industrial practical technology, high and new technology and market dynamics. Promote the application of intelligent sensing chips, mobile embedded systems and other Internet of Things technologies; develop smart agriculture and precision agriculture, and actively apply RFID electronic tags and QR codes to track the processing, circulation and sales of agricultural products. Through the popularization and application of a number of advanced information technologies in the agricultural field of Shijiazhuang, we can promote the transformation of modern agricultural development mode and ensure the quality and safety of agricultural products. 4) We will build an animal disease monitoring and early warning system and comprehensively improve the ability of prevention and control. Adhere to the principle of prevention first,

implement the policy of “compulsory prevention first, epidemic control, supplemented by culling and disinfection,” establish and improve the epidemic prevention, quarantine supervision and epidemic situation monitoring system of livestock, poultry and aquatic products in Shijiazhuang, build a long-term mechanism for animal epidemic prevention and control with sound network, stable team, strong guarantee and efficient disposal, and comprehensively improve the ability and level of major animal epidemic prevention and control. Focus on building an animal epidemic prevention team with fast response, complete equipment, perfect functions, advanced means, in line with international standards and in line with the development of modern animal husbandry, strengthen the quarantine of production areas, strengthen the monitoring of major animal epidemics, strictly prevent the introduction of foreign epidemics, deal with sudden major animal epidemics in strict accordance with the law in accordance with the principle of “early, fast, strict and small”, remove the epidemic spots in time to prevent the spread; ensure that there is no outbreak of major animal diseases and ensure the safety of agricultural production. 5) Strengthen the construction of agricultural science and technology training system and improve the level of talent support. Increase the investment and training of agricultural science and technology, expand the agricultural science and technology team, further improve the agricultural science and technology training system in Shijiazhuang, and implement multi-level, multi form and multi content agricultural technology education and training. To meet the needs of agricultural structural adjustment, introduce and promote new varieties and technologies, arrange special plans and funds for agricultural technology training, take the project to carry out practical technology training courses such as grain planting, agricultural machinery operation and facility cultivation, and train a number of rural science and technology leaders and science and technology demonstration households. At the same time, vigorously carry out farmers’ entrepreneurship training and skill development training, increase the special skill training of agricultural management focusing on the heads of agricultural leading enterprises and large-scale operators, and pay close attention to the reeducation of agricultural scientific and technological personnel, so as to provide strong human resources and talent support for the cause of new rural construction in Shijiazhuang^[3-6].

3.3.4. Construction of modern agricultural operation and management system

1) Support and expand leading enterprises, explore and develop the operation and management mechanism of “large parks and small owners”; and develop family farms. According to the concept of “factory operation and enterprise management”, the company explores a new model to screw the interests of farmers and the interests of the park together. 2) Improve the socialized service system. Explore the coordinated operation mechanism of the agricultural industrial system, strengthen cooperation among financial institutions, agricultural guarantee companies, improved seed enterprises, feed enterprises, seed and breeding bases, processing enterprises, logistics parks, cooperatives and farmers, strengthen the construction of public welfare service institutions and give play to their leading role. Integrate resources, build rural comprehensive service cooperatives and service centers, and actively carry out the establishment of agriculturally socialized service demonstration counties. 3) Improve the development level of farmers’ professional cooperative organizations, continue to expand the coverage of cooperative organizations, give full play to the functions of cooperative organizations such as production services, technical guidance and marketing, and improve the ability and level of cooperative organizations to serve agriculture.

3.3.5. Building a sustainable development system of modern agriculture

1) Strengthen the construction of quality supervision system. Focus on the construction of agricultural product quality and safety supervision and testing network system, accelerate the improvement of hardware facilities and management level of Shijiazhuang agricultural product quality and testing center, and strive to improve the construction of agricultural standardized production capacity, routine monitoring capacity of agricultural product quality and safety and traceability of agricultural product quality. By 2020, we will

establish a framework and operating mechanism for the quality and safety inspection and testing system of agricultural products with reasonable layout, clear functions, complete specialties and efficient operation, focusing on solving the quality and safety problems of agricultural products and bulk exporting agricultural products. The quality and safety of major agricultural products will be supervised throughout the whole process, and the quality and safety inspection and testing level of agricultural products will be effectively improved. Make the product quality certification rate of Shijiazhuang agricultural product quality pollution-free base reach 100%, and the qualified rate of sampling inspection of agricultural product quality reach more than 98%. 2) Strengthen the ecological and environmental protection of cultivated land, promote the reduction of chemical fertilizers and pesticides and farmland ecological interception projects, carry out the renovation of large-scale livestock and poultry farms, adopt resource-based, harmless and reduction methods, effectively improve the level of ecological breeding, accelerate the comprehensive utilization of straw, actively expand multiple utilization channels of straw, realize the recycling and commercialization of straw, and promote resource conservation, environmental protection and increase farmers' income, so that the city's straw energy utilization reaches a new level. 3) Improve the rural ecological environment and living environment, and build a beautiful countryside. Actively develop environmental protection industries such as organic fertilizer and realize the coordinated development of agricultural production and resource development. Strengthen the management of waste plastic film and make scientific use of crop straw, so that the recovery rate of plastic film can reach 100%, the comprehensive utilization rate of crop straw can reach more than 85%, the "three wastes" can be discharged up to standard, and there are 21 agricultural non-point source pollution monitoring points^[7,8].

3.3.6. Construction of modern agricultural products logistics industry system

Following the concept and mode of headquarters economy and headquarters base development, and taking advantage of Shijiazhuang's current industrial foundation, geographical advantages, transportation advantages and product advantages of a large agricultural city, accelerate the development of modern agricultural product market and the construction of key logistics enterprises, improve the construction of logistics infrastructure, and build an agricultural logistics system dominated by "third-party logistics". In 2020, the agricultural headquarters base will have complete infrastructure and bring together high-end agricultural enterprises at home and abroad. The agricultural exhibition industry has gradually expanded, forming an exhibition center focusing on bulk agricultural products and characteristic vegetables, and establishing the status of Shijiazhuang as a famous exhibition city in the north. The construction of international agricultural products logistics distribution center and agricultural products logistics distribution center has been completed, making Shijiazhuang the most internationally influential agricultural products trade center in the north.

4. Safeguard measures for the establishment of national modern agricultural demonstration zone in Shijiazhuang

4.1. Establish and improve the policy and fund implementation guarantee of agricultural demonstration zone

Establish and improve the stable growth mechanism of financial support for agriculture, ensure that financial expenditure gives priority to supporting agricultural and rural development, and implement the preferential policy of public finance, so that the growth rate of financial support for agriculture at the same level is at least 20 percentage points higher than that of general budget expenditure. Give full play to the guiding role of public finance, improve the agricultural subsidy system and market regulation mechanism, bundle and use all kinds of agricultural support resources in key areas of industrial development, strengthen

supervision and management, improve the effectiveness of support, and promote agricultural modernization^[9-11].

4.2. Strengthen public service guarantee measures

Actively build a "four-in-one" agricultural public service system with government leadership, scientific and technological support, farmers as the main body, and social participation. Efforts should be made to build public service institutions with advanced service methods, excellent professionals, large-scale demonstration bases, strict responsibility systems, and stable financial guarantees.

4.3. Innovative agricultural investment and financing and agricultural insurance guarantee measures

Focusing on promoting the equalization of basic public services and the construction of functional areas, we will adjust the structure of fiscal expenditure, focus on supporting the development of social undertakings, the protection and restoration of natural ecology, the development of circular economy and the construction of major infrastructure, and increase transfer payments to areas with financial difficulties. Establish investment funds in accordance with relevant management measures. Establish a development guarantee company to provide financing guarantee services. Improve the management system of rural credit cooperatives.

4.4. Strengthening agricultural technology guarantee measures

Strengthen the establishment of good cooperative relations with well-known scientific research institutes and universities, and carry out the construction of teaching base, scientific research base and entrepreneurship base. Strengthen the research on key technologies and high and new technologies, improve the technical system support of the close combination of production, learning and research, enhance the ability of independent innovation and agricultural science and technology promotion, establish and improve the socialized rural science and technology service system, and ensure the rapid development of Shijiazhuang in establishing a national modern agricultural demonstration zone.

5. Conclusion

Through the construction of the demonstration area, Shijiazhuang will form a modern agricultural system with prominent leading industrial characteristics, complete service system, significantly improved facilities and equipment level and significantly improved agricultural benefits. By 2020, take the lead in realizing the three major goals of agricultural modernization, coordinated development of "agriculture, rural areas and farmers" and synchronous development of "four modernizations", and build Shijiazhuang into a national modern agricultural science and technology equipment R&D Exhibition Center, a pilot of modern agricultural financial reform and innovation, a national important production base of grain and agricultural and sideline products, a headquarters base of agricultural enterprises in North China and a modern agricultural demonstration base of ecological metropolis in North China. In a relatively short period of time, Shijiazhuang will be built into a national modern agricultural demonstration area with farmers' organization, production standardization, base scale, product branding, operation industrialization and equipment modernization^[12,13].

Conflict of interest

The authors declare no conflict of interest.

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