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Practice and Thinking of Agricultural Science and Technology Experts Serving the Grassroots to Promote Rural Revitalization

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Abstract Provincial agricultural research institutes are local agricultural research institutions. They are familiar with local agricultural and rural conditions, and have advantages in scientific and technological achievements, technical reserves and the construction of scientific and technological talent support systems. In the process of promoting the implementation of the rural revitalization strategy, all the responsibilities and obligations of the agricultural research institute are to identify the focus of scientific and technological support and talent support in rural revitalization, and break the bottleneck and constraints of rural revitalization. By sorting out the current situation of agricultural science and technology experts serving the grassroots in the problem of talent support for rural revitalization, this paper analyzed the existing problems and put forward countermeasures and recommendations.

Key words Agricultural science and technology experts, Serving the grassroots, Rural revitalization

1 Introduction

Agricultural research institutes are an important platform for original agricultural innovation and technology transfer and transformation, and the main force of agricultural scientific and technological talents to support the rural revitalization strategy[1], gathering a large number of scientific and technological achievements and outstanding talents, and it is of great significance to promote the high-quality development of agriculture and realize the rural revitalization in an all-round way. General Secretary Xi Jinping pointed out: "rural revitalization depends on talents, and if rural talent elements have been flowing to cities only in one direction and have been in a state of 'blood loss' and 'anemia' for a long time, rural revitalization will be an empty talk[2]. Therefore, the implementation of the rural revitalization strategy requires the support of science and technology, and more importantly, excellent scientific research achievements and talents that can be transformed into productivity[3].

2 The practice of agricultural science and technology experts serving the grassroots to assist rural revitalization

2.1 Cooperation model between scientific research institutes and local areas Cooperation between scientific research institutes and local areas is an important way to promote the development of agricultural science and technology innovation system, and an important way to improve the ability of independent innovation and the ability to transform achievements[4-5]. In June 2022, the launching ceremony of agricultural science and technology demonstration and service cooperation between the Hebei Academy of Agricultural Sciences and the Qinhuangdao Municipal People's Government was held in Changli Pomology Institute. Changli Pomology Institute provides point-to-point technical guidance and training to 16 professional cooperatives in Qinhuangdao for 25 experts with deputy senior technical titles or above in three districts and four counties in Qinhuangdao City. These experts have certain grassroots work experience and have the ability to solve the technical needs of municipal and county agricultural science institutes, which can not only effectively promote the improvement of the scientific and technological and extension level of the municipal and county agricultural system, but also provide accurate and efficient agricultural science and technology services for agricultural operators. They not only bring science and technology to the countryside but also import talents to the rural areas, opening up the "last kilometer" for agricultural experts to serve the grassroots in the problem of talent support for rural revitalization.

2.2 Deeply implementing the special project for "talents of three regions", to give full play to the supporting and leading role of scientific and technological talents The special project for "talents of three regions" refers to the professional and technical personnel exported to remote and impoverished areas, border ethnic areas and old revolutionary areas. In 2019, the two fruit tree institutes of the Hebei Academy of Agricultural Sciences launched the first batch of special projects for scientific and technological talents in the three regions, and successively sent 110 scientific and technological personnel to Pingquan City, Weichang County, Lingshou, Xingtang, Wei County, Pingxiang, Renze District, Xingtang, Wei County, Zanhuang, Shunping, Zaoqiang, and Pingshan. The talents of the three regions go deep into the grassroots, actively carry out scientific and technological services,

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popularize new varieties and new technologies, bring technology to the fields, show farmers and lead farmers to do it, realize the close integration of science and technology with agriculture, and plug in the wings of science and technology for agricultural development. In accordance with the relevant requirements of Hebei Province, the Hebei Academy of Agricultural Sciences selects about 100 scientific and technological talents from the "three regions" every year to go deep into poverty-stricken areas to carry out paired assistance and technical services, carry out the construction of advanced achievement technology demonstration sites, and promote the formation and development of regional poverty alleviation industries.

2.3 Deeply implementing the science and technology commissioner system The science and technology commissioner system has provided a stable contingent of scientific and technological personnel to the grassroots and smoothed the channels for the circulation of scientific and technological personnel to the rural areas. The science and technology commissioner system refers to the Hebei Provincial Department of Science and Technology around the solution of the "three rural" technical shortcomings, according to the market demand and the actual needs of farmers, the selection of professional and technical personnel and agricultural companies, enterprises, cooperatives, in accordance with certain procedures to sign a tripartite agreement, to provide related services, and by the provincial financial arrangements for the work of science and technology commissioner subsidies. The Hebei Academy of Agricultural Sciences takes the science and technology correspondent as the starting point to encourage and support the science and technology correspondent to go deep into the rural areas to carry out paired assistance. It has provided more than 1 000 person-times of hand-in-hand guidance and more than 6 000 face-to-face technical consulting services, which has effectively improved the effectiveness of precise assistance.

2.4 The model of scientific and technological expert service group has entered thousands of villages and served thousands of households This mainly relies on the scientific and technological expert service group of the academy, and organizes hundreds of experts to carry out timely, invited, and emergency services in the form of on-site training according to the agricultural season, and demonstrate and promote advanced and applicable scientific and technological achievements, which are characterized by intuitive and obvious driving effect. There is not only traditional classroom training, on-site observation, but also online and mobile phone teaching, as well as practical operation, exchange and discussion interaction, which has played a training "combination punch" and enhanced the training force.

2.5 Actively assisting local government departments to rely on scientific and technological support to create modern agricultural industrial parks and "one village, one product" characteristic industry projects In 2019, in order to actively respond to the implementation of the "one village, one product, one town, one industry" project in Hebei Province, the Hebei Academy of Agricultural Sciences carried out the work of "science and technology into thousands of villages", and sent 12 scientific and technological personnel to serve more than 12 professional towns (villages) with agricultural characteristics in accordance with the service form of "one village, one expert, one town, one group, one county, one team".

2.6 Strengthening the construction of demonstration bases, promoting the transformation of scientific and technological achievements, and promoting the support of talents The establishment of demonstration bases is one of the important forms of transformation of scientific and technological achievements[6]. Relying on the "four stations and one post" of the national agricultural industry technology system (Changli Comprehensive Experimental Station of the National Apple Industry Technology System, Changli Experimental Station of the National Peach Industry System, Changli Experimental Station of the National Pear Industry System, Cherry Qinhuangdao Comprehensive Experimental Station of the National Peach Industry Technology System, and Expert Research Base of the National Modern Grape Industry System Construction), Changli Pomology Institute has established 48 agricultural demonstration bases outside the country, with a core area of more than 1 733 ha and a radiation area of more than 26 666 ha.

2.7 Relying on the Hebei Provincial Department of Agriculture and Rural Affairs on the promotion and release of agricultural leading varieties, main technologies and green technology models, as well as the major agricultural achievements selected by the National Conference on the Transformation of Agricultural Science and Technology Achievements In 2023, Changli Pomology Institute was selected as one of the 100 major agricultural scientific and technological achievements in China, including Yanshan Zaofeng chestnut, new varieties and technologies selected as one of the 1 000 outstanding agricultural scientific and technological achievements in China, Golden Honey Table Grape and Linglong Crisp Cherry from Changli Pomology Institute, Jijiu Strawberry, Jixiu Pear, Jiping No. 5 Apple, Meiyang Peach, Jizao Red Apricot and Purple Dragon Pearl Table Grape from Shijiazhuang Pomology Research Institute.

3 Existing problems

3.1 Single training mode The training is mainly based on traditional classroom teaching, supplemented by new media training mode. The training course is developed from the top down and does not really take into account the actual needs of the local industry. There is a lack of scientific and efficient management and coordination in the training arrangement, and there are duplicate lectures and unclear responsibilities. The training mechanism has not been normalized and institutionalized, and the follow-up service for the cultivated local talents is not in place, resulting in the decline of farmers' enthusiasm and enthusiasm for participation and the waste of cultivation resources, and the training effect is not outstanding.

3.2 Some bases are not functioning enough The characteris-

tics are not obvious, the leading and exemplary role is not strong, they cannot play the due role of training to drive local talents, there is a phenomenon of stylization and training for training, there is a lack of explanation and easy to understand, and the phenomenon of being a casual view, and the base arranges few problems such as observation and practice demonstration for local talents.

4 Countermeasures and recommendations

4.1 Adhering to problem-oriented and demand-oriented principles It is recommended to further strengthen the construction of the bases, strictly select the training objects, scientifically set the training content, innovate the training method, strengthen the process management, further increase the proportion of on-site experiential observation, select the wiring and system design according to the training theme, effectively improve the quality of on-site training, work hard to improve quality and efficiency, and provide strong talent support for the implementation of the rural revitalization strategy.

4.2 Adhering to the combination of precise training and precise cultivation It is necessary to do a good job in demand research according to different industries, take agriculture as the foundation, and use modern means to adopt order-based precise training of "farmers ordering dishes and experts cooking"[7], and experts should take the pulse on the spot, and strengthen standardized management, process exchanges and on-site exchanges. It is recommended to summarize the opinions, suggestions and needs of farmers in a timely manner, so as to facilitate the follow-up development of precise services, and cultivate professional farmers into the leading force in the construction of modern agriculture by industry, so as to promote the transformation of farmers from part-time to occupation, achieve the goal of precise cultivation, and provides strong talent support for the rural revitalization.

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