

Analysis of the Present Situation and Countermeasures of Agricultural Mechanization and Automation Popularization

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Abstract: Agricultural mechanization and automation is an important way to realize agricultural modernization, ensure food security and promote to increase farmers' income. At present, the level of mechanization and automation in rural areas of China is relatively low, and there are some problems, such as unbalanced technology application, lack of scientific and technological innovation ability, lack of talents, and single financing channels. In view of these situations, this paper puts forward a series of countermeasures and suggestions to optimize the development environment, break through the core technology, consolidate the talent foundation and broaden the capital channels, so as to promote the process of China's agricultural modernization and realize the development strategy of rural revitalization.

Keywords: Agricultural mechanization; Automation; Status quo

Introduction

Agricultural modernization is an important basis for enhancing national strength. Mechanization and automation are the core support of agricultural modernization, which is of great significance to improving the comprehensive agricultural production capacity, optimizing the allocation of resources, ensuring food security and promoting the increase of farmers' income. With the progress of science and technology and the continuous development of modern agriculture, agricultural mechanization and automation are entering a new stage of development. The wide application of large agricultural machinery and intelligent equipment effectively improves the agricultural production efficiency; the introduction of new technologies such as precise operation and remote control realizes the fine management of agricultural production.

1. Analysis of the current situation of agricultural mechanization and automation popularization

Although agricultural mechanization and automation have brought a lot of benefits to the development of modern agriculture, there are also some prominent problems and challenges in the process of promotion. First, in the more economically developed areas, the agricultural production efficiency and output level have been significantly improved. In many poor and remote areas, due to the limited economic conditions, the agricultural production mode is relatively backward. The imbalance of the application of this technology intensifies the gap of regional agricultural development. Secondly, although some new agricultural machinery equipment and intelligent systems are constantly updated, the overall independent innovation ability of China's agricultural mechanization and automation is still insufficient. Third, agricultural mechanization and automation have put forward higher requirements for the operational skills and professional level of practitioners. At present, the talent reserve in rural areas is still insufficient, which affects the efficient use of relevant technology and equipment^[1]. Professional maintenance service outlets are evenly distributed, often difficult to maintain in time, affecting normal production. The early investment cost of agricultural machinery and automation facilities is high, while agricultural benefits are relatively limited, many farmers are difficult to raise enough start-up funds.

2. Countermeasures of agricultural mechanization and automation promotion

2.1 Strengthen policy support and guidance to promote the balanced development of agricultural machinery automation

The promotion of agricultural modernization process is inseparable from the policy support and guidance of the government. Appropriate policies and measures can not only create a good environment for the development of agricultural mechanization and automation, but also guide them to the scientific, green and sustainable development path. The government should further increase the fiscal and tax policy tilt to provide policy incentives for the development of agricultural mechanization and automation. In order to reduce the cost of farmers, we can also open up a green channel for the purchase of agricultural machinery, and exempt or reduce import tariffs. Due to the great differences in

agricultural production conditions in different regions, the development needs of agricultural mechanization and automation are also different. According to the actual situation, we should take differentiated support measures for different regions to avoid "one size fits all". In areas with better conditions, encourage the development of precision agriculture, smart agriculture and other new models, and support the promotion and application of basic agricultural machinery and tools. The government should strengthen the publicity and guidance of the policies. Through holding various kinds of publicity activities, popularize the significance of agricultural mechanization and automation to the majority of farmers through multiple channels and multi-level, and improve their understanding level. Actively publicize the successful practices and practice cases of some advanced farmers or new agricultural business entities in this respect, and form a demonstration and driving effect. Only when the development of agricultural mechanization and automation gets all-round policy support, can we truly mobilize the enthusiasm of farmers and achieve sustainable and healthy development.

2.2 Increase research and development and technological innovation, and promote the technological innovation of agricultural machinery automation

The overall strength of China's agricultural science and technology is constantly increasing, and the independent innovation ability in the field of agricultural mechanization and automation is still insufficient. It is urgent to increase investment in science and technology and conquer a number of core and key technologies. We should continue to increase the financial investment in scientific research in the field of agricultural mechanization and automation, and focus on supporting scientific research institutions with innovative advantages. As the main body of agricultural science and technology innovation, enterprises should improve the innovation mechanism, cultivate innovative scientific and technological talents, and enhance the ability of independent innovation. In the direction of innovation, we should focus on making breakthroughs in a number of core and key technologies, such as intelligent perception, remote control, artificial intelligence decision-making, etc., to improve the efficiency of agricultural machinery and equipment. We will accelerate the development of infrastructure such as the agricultural Internet of Things and 5G communication networks. Agricultural production has obvious regional characteristics. In promoting technological innovation, we should fully consider regional differences and diversified needs of farmers, increase targeted research and development efforts, and develop more best applicable technologies that fit the reality. For example, according to different crops and different climatic conditions, special agricultural machinery and equipment with different characteristics are developed; meanwhile, smart agricultural application systems such as agricultural Internet of Things are continuously optimized and upgraded to achieve precise production. Attention should also be paid to the innovation of green environmental protection technology, and the promotion and application of new models and technologies such as UAV prevention and control and no-tillage coverage. By continuing to vigorously promote agricultural mechanization and automation technology innovation, it will be inserted with wings for the development of modern agriculture.

2.3 Provide training and technical services to improve agricultural mechanization and automatic operation skills

The promotion of agricultural modernization technology cannot be separated from the support of talents. To cultivate a talent team skilled in the operation of agricultural machinery and automation equipment maintenance skills is the prerequisite to ensure the efficient application of new technology. To establish a sound hierarchical and classified agricultural practical skills training system. Special training programs for practitioners, maintenance workers, maintenance workers to help master professional operation skills. It should also provide comprehensive ability training in operation management and information application for the employees of new agricultural business entities. In the process of training, we should pay attention to the combination of theory and practice, and adopt various flexible forms, such as combining online and offline mixed training, to ensure the quality and effect of training. We should build a reasonable network of agricultural technology extension services covering both urban and rural areas. We should strengthen the construction of agricultural machinery maintenance service network. Strengthen the layout of maintenance service network, especially the coverage of remote and poor areas; pay attention to personnel training, and improve the professional skills of maintenance personnel through regular technical training to ensure that mechanical equipment can be maintained professionally^[2]. Strengthening the construction of agricultural technical personnel is the fundamental way to realize agricultural modernization and help the high-quality development of agriculture.

2.4 Build a diversified investment and financing system, and lower the threshold of investment in agricultural mechanization and automation

The investment demand of agricultural machinery and equipment and automation system is huge, the individual economic strength of farmers is limited, and the traditional single financing channel is difficult to meet the demand. Building a diversified agricultural investment and financing system and broadening the channels of capital sources are crucial to lowering the investment threshold of farmers and promoting the development of agricultural modernization. We can explore the establishment of a risk-sharing mechanism to provide credit enhancement support for agricultural investment and financing. We should give full play to the role of financial institutions and innovate the financing

model suitable for agricultural development. According to the actual situation of different subjects, commercial banks can develop the purchase loan of agricultural machinery, production and operation loan and other credit products according to local conditions to meet different financing needs. We can encourage the launch and establishment of a number of agricultural industry investment funds to inject new capital vitality into agricultural modernization through equity investment, mergers and acquisitions^[3].

3. Conclusion

Agricultural mechanization and automation are an important support for agricultural modernization, which is of great significance to realize food security and increase farmers' income. Through this paper, a series of countermeasures, such as policy guidance, technological innovation, talent training and financing support, will further optimize the environment of agricultural mechanization and automations. Looking into the future, with the deep application of emerging technologies such as artificial intelligence and the Internet of Things, agricultural mechanization and automation will achieve leapfrog development. Driverless agricultural machinery, intelligent and accurate operations, and accurate decision-making with big data will become the norm, making greater contribution to the sustainable development of human society.

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