

Research and Development of Intelligent Greenhouse Steward Control System

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Abstract: "greenhouse steward" control system is a new greenhouse control system based on computer management and automation technology, its design takes the agricultural modernization as the key goal, and strives to combine agricultural science and technology. Intelligent "greenhouse steward" control systems will have an important impact on the accuracy of agricultural production management. This paper aims to sort out the modernization of agricultural problems and describe the operation mode of the control system of "greenhouse housekeeper", which mainly makes an outstanding contribution to the promotion of China's agriculture.

1 Introduction

In his recent report to the 19th National Congress of the Communist Party of China (CPC), general secretary xi jinping put forward a strategic plan for rural revitalization, "accelerating the modernization of agriculture and rural areas."The success of agricultural modernization is of great significance to the building of a moderately prosperous society in all respects and the building of a strong modern socialist country. At the meeting, he also firmly pointed out that without the implementation of agricultural modernization, there will be no rural prosperity and prosperity, farmers live and work in peace and contentment, and the modernization of the country is not complete, comprehensive and solid. In addition, he stressed that the key to solving the problems of agriculture, rural areas and farmers lies in deepening reform and unswervingly taking the road of modern agriculture with Chinese characteristics.

2 Intelligent Greenhouse Steward Control System

2.1. Definition of Agricultural Modernization

Agricultural modernization refers to the transformation of traditional agriculture into modern agriculture and the combination of agriculture and modern science to make agricultural management more scientific and the production system more high-quality, which not only meets the requirements of green environmental protection but also has a higher utilization rate of resources. It is a historical process of technological transformation and economic development that involves a wide range of areas and is highly comprehensive. It is both a historical concept and a universal concept.

2.2. The Significance of Agricultural Modernization

Agricultural modernization is the basis and key to the comprehensive settlement of the problems concerning agriculture, rural areas and farmers in China. Agriculture has always been the foundation of the problems concerning agriculture, rural areas and farmers. The stronger the foundation of agriculture, the more secure the increase of farmers' income will be, and the longer the road of rural development will be. Since the reform and opening up, "three rural" issues have been the focus of the party and the government. The report to the 19th National Congress of the Communist Party of China (CPC) stated: "issues concerning agriculture, rural areas and farmers are fundamental issues that affect the international people's livelihood. We need to give priority to the development of agriculture and rural areas, establish and improve systems, mechanisms and policies for integrated urban and rural development, and accelerate the modernization of agriculture and

rural areas in accordance with the overall requirements of thriving industries, livable ecosystems, civilized practices, effective governance, and a better life." The report not only affirms the importance of agriculture, but also points the way for agricultural modernization. Xi Jinping, general secretary of agriculture modernization thought covers the agricultural system construction, food security, scientific technology, agricultural supply side structural reforms, "the trinity" the agriculture and construction aspects of content, is the new era of Xi Jinping, general secretary of the new way of thinking about the current situation of the agricultural development of our country, and timely for agricultural modernization in our country puts forward more times and more comprehensive development train of thought, to promote the long-term development of our agriculture modernization, the comprehensive solution of "three rural issues" provides a solid theoretical basis. It is the only way to improve agricultural competitiveness. Since China's entry into WTO, the degree of market opening in agricultural products is increasing day by day. This competition, in the final analysis, is the competition of agricultural modernization level of all countries in the world. Therefore, only by strengthening the development of agricultural modernization, improving the overall quality and international competitiveness of the agricultural system, and enhancing the level of agricultural food safety, can we gain more space for development and gain more benefits in this fierce competition and stand firm. Be helpful for reducing agricultural labor intensity. Traditional agricultural labor is generally the use of human power, animal power, manual tools and other main manual operation, this way is still playing an important role in today's times. However, although traditional agriculture has the advantages of low energy consumption and low pollution, its disadvantages are obvious to all. In other words, the department structure is not flexible enough, the production scale is not large enough, the management and production technology are relatively backward, the ability to withstand natural disasters such as drought and flood is poor, and it is extremely vulnerable to the influence of natural weather. "Relying on the weather for food" is the best interpretation of traditional agriculture. Therefore, in modern agriculture, agricultural infrastructure will be greatly improved, significantly enhance the disaster resistance, significantly improve the degree of agricultural mechanization, fundamentally reduce the intensity of agricultural labor, bid farewell to the heavy and laborious manual operation in traditional agriculture, and greatly improve productivity.

2.3. The Advancement of Agricultural Modernization

Xi Jinping the general secretary pointed out that, to accelerate the modern agriculture construction, take the lead in some areas to realize the agricultural modernization, to concentrate on industrial system to speed up the construction of modern agriculture, modern agricultural production system, three key modern agricultural management system, and accelerate the agricultural structure adjustment, to strengthen the construction of agricultural infrastructure and technical equipment, we will accelerate the cultivation of new agricultural management main body. The guidelines on comprehensively deepening rural reform and accelerating agricultural modernization call for a new type of agricultural modernization with Chinese characteristics featuring advanced production technology, appropriate scale of operation, strong market competitiveness and sustainable ecological environment. To accelerate the development of modern agriculture, we can focus on the following five aspects.

First, should promote the marketization of agriculture. Agricultural marketization management can be divided into two kinds: one kind is a "company + peasant household" as the main operation organization form, this form mainly contracts, the scattered farmers together, realize the circulation of mass production of crops, can effectively improve the standard of peasants' production and efficiency, a form is the most broad market business prospects. The second type is joint-stock cooperative operation, which is mostly made profit by technicians, farmers and enterprises according to the proportion of technical labor contributed by them according to share dividends. The advantage is that large-scale production can be expanded, crops can be taught and effectively preserved, and there are good prospects for development. Promoting agricultural marketization can protect the interests of farmers, make crops available for sale, protect the market price of crops, and

make the rational distribution of land resources. Agricultural marketization is to organize farmers in various forms to enter the domestic market, to transform the problem of insufficient agricultural total, and to cultivate new energy for agricultural and rural development.

Second, we should operate on an appropriate scale. Large modern farmers enjoy a high degree of mechanical modernization and a significant reduction in the amount of manual labor. After eliminate the non-modern mode of intensive farming, the drop in food price is an inevitable result. Environmental pollution, low operating efficiency and more difficult land renting are additional factors. Therefore, moderate scale operation has been put on the agenda of the 18th National Congress of the Communist Party of China. The basic feature of moderate scale operation is family operation, which does not need to employ labor force or expand land production. It relies on the productivity of families to achieve the purpose of reducing costs and guaranteeing benefits. Young people do not want to engage in agricultural work because of overwork and low income, but they are unwilling to transfer the land due to its potential value, so they can rent the land to trusted neighbors and give full play to the surplus value of the land, so that some unemployed people in cities are willing to return to the countryside to solve the problem of food and clothing and promote social harmony. On the basis of the marketization of agriculture, the daily productivity can be guaranteed by the family as the unit, which can effectively save resources, increase employment flexibility and improve neighborhood relations. It is more conducive to cultivating a group of professional agricultural personnel and helping agriculture realize ecological and sustainable development.

Third, should develop ecological agriculture. In view of China's vast territory, natural conditions and basic national conditions, ecological agriculture gives full play to the overall function of the agricultural ecosystem, adjusts and optimizes the agricultural structure, enables balanced development of various industries to support each other, and improves comprehensive productivity. Ecological agriculture main advocate material recycling, use of modern means of science and technology, realize series deep processing, promote economic growth, make the existing large QingZhuang rural labor force has an internal job opportunities and protect the working enthusiasm of surplus labor force, combined with the rural economy development, the environment construction in meet people's pursuit of environmental protection at the same time improve the stability of the agricultural ecological environment, to facilitate the construction of China and beautiful countryside.

Fourth, should implement science and technology to promote agriculture. Science and technology is the first productive force, the use of science and technology to promote the production of agricultural modernization is the realization of agricultural modernization is a crucial step, in the loss of rural young and strong labor force now, science and technology once converted into agricultural productivity will greatly improve the efficiency of agricultural production. Scientific and technological progress is the fundamental way of rural economic development in China. We should pay attention to the construction of demonstration bases for the transformation of scientific and technological achievements in agriculture and animal husbandry and the related policies for the display of such achievements, and accelerate the transformation of scientific and technological achievements. We should improve the quality of rural laborers, strengthen the construction of scientific and technological talents in agriculture and animal husbandry and the popularization of knowledge, realize the combination of new innovations, encourage the construction of scientific and technological agricultural areas, increase the efficiency of agricultural work, and lead laborers on the road of scientific and technological prosperity.

Fifth, should build a modern agricultural management system and train a new type of professional farmers. With the rapid development of modern agriculture, our country needs more and more agricultural social services and high-quality talents. Construction number convenient and efficient agricultural social service system needs to do three aspects: first, the development of welfare agricultural service institutions, strengthen grassroots extension work, enhance the security services. Second, to accelerate the development of agriculture, we should promote socialized enterprises and support and cultivate high-tech service organizations such as agricultural machinery

operations. Third, popularize education and cultivate high-tech talents. Make the young and strong labor force master more knowledge, carry on high-tech planting, cultivate professional agricultural talents. Fourth, promote the cooperation and cooperation of various services. We will promote coordination and collaboration among different actors, and gradually improve the supply capacity of modern agricultural services.

3 The Design of the Greenhouse Steward

Greenhouse steward control system is a new greenhouse control system based on computer management and automation technology. Intelligent "greenhouse steward" control systems will have an important impact on the accuracy of agricultural production management. "Greenhouse steward" is a new greenhouse control system developed for the current greenhouse greenhouses with high construction price, low cost performance, large wall area, high difficulty in popularization, time-consuming and laborious management, low automation and many shortcomings and deficiencies. The greenhouse keeper, also known as an online monitor of the agricultural environment, can connect dozens of sensors to monitor soil, weather, crop and other data in real time. The collected data can be viewed on the machine, or uploaded to the mobile APP or smart cloud platform for us to view at any time. Greenhouse butler also carries data broadcast and voice alarm function, can broadcast greenhouse environmental information at any time, to prevent index over-limit; It can also set automatic collection function, unattended uninterrupted data collection; The "greenhouse steward" machine can store more than 8,000 sets of data at most, if not enough, can also configure memory card unlimited storage as needed. The model of "greenhouse steward" is small and portable, which is a representative of strong practicability and high cost performance in facility agriculture.

The upper computer of the greenhouse housekeeper is operated by a host, while the lower computer is composed of several indoor "climate automatic controllers". With multiple communication between line connected to the indoor "climate" automatic controller is responsible for collecting the humidity inside greenhouse, parameters such as temperature, light intensity and co2 concentration, and then through the communication line is transmitted to the host, the host through small housekeeper "greenhouse" send each communication line to the climate of information with the host information deposited in setting the best parameter comparison, analysis, computation, and then "automatic climate control" of the interior to ventilation, heating and other instruction, to control the climate of the greenhouse gas parameters, keep indoor in for quick growth of plants and the best condition. The arrival of the greenhouse butler control system not only simplifies the operating steps of environmental regulation in the greenhouse, but also fundamentally reduces the intensity of agricultural labor.

4 Conclusion

In this paper, review the significance and promotion methods of agricultural modernization, and propose the design of greenhouse steward control system. Today, with the rapid economic development, we should be deeply aware that if we cannot realize agricultural modernization, we will not be able to achieve the prosperity and development of the countryside, let alone the peace and contentment of the farmers, and it will be even more difficult to realize the modernization of our country in an all-round way. Only by earnestly studying and studying general secretary xi jinping's thought on agricultural modernization, can we better clarify the thinking of agricultural modernization development, and then enhance the level of agricultural modernization, so as to fully promote the comprehensive development of agricultural modernization, and finally realize the great rejuvenation of the Chinese nation and realize our "Chinese dream".

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