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Research on the Application of Automatic Control Technology in Agricultural Machinery in Heilongjiang Province

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Abstract: *Heilongjiang Province is a major agricultural province in Heilongjiang Province, an area with a relatively high degree of agricultural modernization, and a "ballast stone" for national food security. Therefore, the application of automatic control technology in Heilongjiang Province in the field of agricultural machinery is particularly important. Among the current agricultural production methods, the traditional farming methods in Heilongjiang Province still occupy a relatively high proportion, which is mainly determined by the dominant position of small farmers in agricultural production. However, this method is not suitable for the fast-paced social development. Therefore, the popularization of mechanical automation control technology should be increased. In the modern agricultural production mode, reducing the manpower farming operation mode and increasing the operation and use of machinery can greatly improve the efficiency of agricultural production. The application of automatic control technology in the application of modern agricultural machinery is explored, and it is hoped that the farming mode can be more proficient in the use of machinery in the future to ensure agricultural production efficiency.*

Keywords: *automatic control technology; agricultural machinery; computer technology; agricultural informatization*

1. Introduction

For the development of a country, its agricultural level directly determines the country's future economic and development pace. At the same time, the country's agricultural level also directly affects the livelihood of all residents in the country. Therefore, in the era of continuous social progress, the agricultural production mode must be continuously explored. With the advent of the information age, the widespread application of computer technology and the emergence of intelligent sensing technology have led to the application of more advanced artificial intelligence technology in various fields and industries. For the use of agricultural machinery, it began to move towards automation control technology. The role of automation control technology in agriculture is not only to liberate the hands of farmers, but also to make agriculture develop towards a more intelligent and informatized direction. The good use of automatic control technology can make the entire production chain of agriculture more efficient. Therefore, the technical aspects of the automatic control technology in agricultural production are explored, and the later application mode is discussed. It is hoped that in the future, agriculture can use automatic control technology more proficiently in the production process, and continuously optimize its development mode to ensure high-efficiency agricultural production.

2. The importance of promoting the intelligentization of agricultural machinery

2.1 Liberate the labor force in the vast rural areas

The application of intelligent agricultural machinery has greatly liberated the labor force. Due to a large number of peasants going to the cities to work, the backward manual labor methods can no longer meet the needs of the current social development, and the labor force in agricultural production is insufficient, so it is necessary to fully use machinery to change the problems existing at this stage. The rural youth labor force is constantly decreasing. With the help of intelligent machinery, labor efficiency can be improved and the rural youth labor force can be truly liberated.

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2.2 Meet people's higher requirements for agriculture

In the process of intelligent development of agricultural machinery, to meet people's needs for agricultural production, not just to meet the needs of food and clothing, green agricultural products with higher nutritional value and better taste are the constant pursuit of contemporary life. With the rapid development of domestic and foreign economies, agricultural competition has become increasingly fierce. It is essential in the process of modern agricultural development to promote production while continuously reducing costs, ensuring quality and stimulating market progress. Process. In order to meet social requirements, in agricultural production, intelligent agricultural machinery needs to constantly update technical means.

2.3 Improve the safety and reliability of agricultural production

The application of intelligent machinery not only improves the quality and efficiency of agricultural production, reduces the workload of farmers, but also strictly manages safety and reliability. high demands. In the process of mechanical automation development, a series of self-diagnosis functions such as self-protection and self-control are used to prevent serious damages in mechanical operation and avoid the occurrence of safety accidents. The advantages of intelligent mechanical sowing are mainly reflected in the sowing accuracy, especially the sowing of large seeds, which requires strict sowing. Through effective control of accuracy and real-time monitoring, the sowing accuracy can be improved, the amount of seeds used can be reduced, and the production efficiency can be improved at the same time. Can effectively control costs.

3. Problems existing in the application of agricultural machinery automation

3.1 No bow, pay enough attention

Although we are currently in the context of the information age, there are still many managers in agricultural management departments who are more inclined to use traditional agricultural machinery and equipment, and electronic information technology is mainly used in weather forecasting and Internet construction, etc. The core field has not played its effective role in the integration process of agricultural machinery and equipment. At the same time, the field of agricultural machinery and equipment has not yet received the attention of relevant departments, and there is a lack of in-depth research on agricultural machinery and equipment, which leads to the inability of electronic information technology to give full play to its performance. There is still a certain gap between the application of machinery and equipment and that of western developed countries. Many managers in management departments have little understanding of electronic information technology itself, so they do not pay attention to the innovative development of agricultural machinery and equipment, and lack innovative awareness.

3.2 The technical research ability of automation technology in the field of agricultural machinery is weak

Due to the limited development time of automation technology in Heilongjiang Province, its technical level is still low, and the gap between it and developed countries is large. The low level of domestic informatization and backward technology have hindered the development of automation in agricultural machinery. The relevant standards formulated by the state for agricultural mechanization automation also need to be continuously improved. In the field of agricultural mechanization application in Heilongjiang Province, most of the machinery is only suitable for plain areas, while for some mountainous areas with complex terrain, the application of machinery is not suitable for the phenomenon that it is not suitable. This is all Heilongjiang It is caused by the weak technical ability of provincial machinery automation. Therefore, it is necessary to continuously improve its research level and technical ability, and constantly improve the use of machinery, so that automation technology has been comprehensively improved in the field of machinery.

3.3 Lack of capital investment

At present, electronic information technology has received extensive attention from all walks of life, and has been continuously used in all walks of life in our country. Although it has also developed correspondingly in the field of agricultural production, according to the current development situation,

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electronic information technology has been widely used in all walks of life. The production process of agricultural equipment started late, the development time was short, and the relevant departments did not pay enough attention. Therefore, the use of electronic information technology in my country's agricultural machinery and equipment limited the innovation and development of agricultural equipment. In order to continuously develop the intelligent technology of agricultural equipment, it is necessary for relevant departments to invest more financial resources to support high-quality talents, constantly learn from foreign advanced equipment and experience, and conduct further research on my country's current agricultural machinery and equipment. However, the amount of funds invested in agricultural machinery and equipment in my country is not sufficient, which leads to the inability to study the application of electronic information technology in agricultural equipment, which limits the application and development of electronic information technology in agricultural machinery and equipment.

3.4 Lack of professional talents

At present, the relevant departments in our country have deep reservations about the traditional concepts of the agricultural industry. Most of the agricultural staff have not received a systematic knowledge system, the level of training and education is uneven, and their ability to accept new things is low. Time training and practical operation, can be fully proficient. Electronic information technology is an emerging technology developed by our country in the process of continuous development. It has high requirements for operation, professional quality and comprehensive quality of personnel. Most agricultural workers in our country lack experience in using electronic information technology, which leads to electronic information technology. Information technology has encountered great challenges in the actual application process, and cannot be effectively used in agricultural machinery and equipment.

4. Suggestions for the application of automatic control technology in agricultural machinery

4.1 Adopt appropriate mechanical automation mode

Due to the short development time of mechanical automation in Heilongjiang Province, the later effect analysis should be done in the application of its technology. It is necessary to ensure that the agricultural use of mechanical automation is efficient, economical and safe. For agricultural areas that have already used automatic machinery, it is necessary to regularly evaluate the effect of its technical application, and then combine the effect analysis to select an automatic machinery mode suitable for the development of agricultural areas. Ensuring the application of automated machinery can improve agricultural productivity and safety. Judging from the current agricultural market, a large number of rural laborers have migrated. For the fierce agricultural market competition, it is necessary to use appropriate and effective machinery and equipment with high technology content to win the market competition, thereby promoting the transformation and upgrading of agricultural machinery automation applications in Heilongjiang Province.

At present, my country's agricultural machinery has been developing in the direction of intelligence and informatization. Therefore, in the process of development, it is necessary to equip agricultural machinery and equipment with professional sensors. By connecting agricultural machinery and equipment with computer terminals, it is possible to better Supervise the entire work flow of agricultural machinery and equipment to meet the needs of my country's agricultural development. At the same time, in the process of electronic information technology assembly of agricultural machinery and equipment, various types of scientific and technical support are needed, and the research on informatization in the field of agricultural machinery should be continuously strengthened, and the professional level of agricultural workers can be improved to help modernization. The electronic information technology is better applied in the production process of agricultural machinery.

4.2 Cultivate relevant personnel

In order to fundamentally promote the development of agricultural machinery and equipment in my country and improve the use efficiency of agricultural machinery and equipment in the working process, the professional skills of the users should be improved first. agricultural production.

The main body of the movement is the farmers, therefore, all practical activities should first take into account the professional quality of the farmers. Electronic information technology itself has relatively strict requirements for operators, so we must increase the cultivation of farmers' professional quality,

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continuously improve farmers' professional technical operation ability, popularize and publicize the use of agricultural machinery electronic equipment to farmers, and constantly promote my country's agricultural production is developing in the direction of intelligence.

4.3 Strengthen the development of agricultural informatization

At present, the relevant departments of our country pay less attention to the innovation of agricultural machinery and equipment, which leads to the slow development of the electronic information technology of agricultural machinery in our country and the low practicability. Experience, increase capital investment in agricultural machinery and equipment innovation, establish a high-quality R&D team, and continuously promote the development of my country's agricultural machinery and equipment in the direction of intelligence and automation.

4.4 Improve the degree of agricultural informatization

Combined with the actual situation of agricultural development, in order to continuously improve the degree of informatization of agricultural machinery, it is necessary to contact the actual situation of my country's current agricultural development, and fundamentally improve the research and development of agricultural machinery, which is the better use of electronic information technology. in the field of agricultural machinery. At present, the practicability of electronic information technology in my country is low in the specific application process, which restricts the innovation and production efficiency of agricultural machinery. Therefore, we should continuously drive innovation and research and development of electronic equipment inside the machinery, so as to strengthen electronic information. The application of technology in the field of agricultural machinery.

5. Conclusion

The social and economic development of Heilongjiang Province is constantly developing, and the technical level of agriculture is also constantly improving. However, compared with developed countries, its automatic mechanization level is still low. It is necessary to continuously increase the research and development of automatic control technology in agricultural mechanization. Increase the support of the state and the technical research level of relevant researchers. Continuously improve the application level of domestic mechanical automation to ensure higher efficiency and safer agricultural production in Heilongjiang Province. At the same time, the application of the automatic control mode of agricultural machinery also has a great contribution to the country's economic development. It is necessary to constantly discuss the application advantages of technology and the problems existing in the application, and constantly solve the problems, in order to have a more mature agricultural machinery production. Automation control technology.

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