

Analysis on the Application of Big Data in Modern Agricultural Economy

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Abstract: Under the background of the information age, big data technology is playing an increasingly important role in various production fields. In the process of agricultural production, through the full application of agricultural big data technology, it can better promote the efficient development of agricultural economy. Through the application of big data technology, the effective collection, analysis and processing of various valuable data information can be realized, the scientificity of agricultural economic decision-making can be improved, and the cost of production and sales can be greatly saved. This article briefly introduces the application of big data in modern agricultural economic management, and gives the corresponding application strategies, hoping to be helpful to relevant people.

Keywords: Big Data; Agricultural Economy; Rural Revitalization

Introduction

Agriculture is the foundation of China, and agricultural economy occupies a pivotal position in China's national economy. Over the years, the No. 1 document of the Central Committee of the Communist Party of China has all involved the issue of "Agriculture, Rural areas and Farmers", which shows that the party and the state attach great importance to agricultural issues. Under the current external situation of China's economic development, the key position of the agricultural economy has become increasingly prominent, but at the same time, agricultural and food issues are the basis and guarantee for the sustainable development of the Chinese economy, and the development of the agricultural economy affects the overall level of the Chinese economy. Therefore, in the long run, agricultural production capacity and ability to resist risks should be continuously enhanced to lay a solid foundation for sustainable and healthy economic and social development. The digital economy is a new economic form different from industry and agriculture^[1]. It is the result of new communication technologies such as mobile Internet, information technology, and cloud computing penetrating into all levels of the economy and society. Since agriculture has significant regional and periodic characteristics, the development of the digital economy is not affected by location factors, and its convenience and efficiency also provide a guarantee for the development of the rural economy in remote areas. Therefore, strengthening the combination of digitalization and agricultural economy is the general trend and the path we must take to develop social modernization.

1. The Concept and Characteristics of Agricultural Big Data

Agricultural big data is the product of the effective combination of communication technology and agricultural production during modern agricultural production. By using the massive data information in the database, we can better grasp market demand, make targeted treatments for agricultural production, and give full play to various potential values of data. The promotion and application of big data technology can provide a large number of information resources and data information for agricultural production management, and can better support the healthy development of modern agriculture. Through the effective collection, collation, mining and analysis of these data information, agricultural production can be better guided and the industrial structure can be effectively adjusted^[2]. The full integration of big data technology into the field of agricultural production is an important measure to realize the adjustment of

agricultural industrial structure. Agricultural big data is closely related to modern agricultural production. It has the characteristics of fast, diversified, precise and complicated big data. Special requirements for agricultural production are included. Agricultural big data is mainly applied to the whole process of agricultural production, including agricultural production management, operation and sales. At the same time, in the application process, it is necessary to rely on production information. Market information is technical information and regulatory information. Compared with other industries and service industries, agricultural production With its own particularity, it is more susceptible to natural disasters and various human factors in the production and processing process, which causes certain uncertainty and variability in the application process of big data technology.

2. Problems Existing in the Application of Big Data Technology in Agricultural Economy

2.1 Fewer Channels for Dissemination of Information

In most rural areas of China, the geographical location is relatively remote, and there are few channels for farmers to receive advanced agricultural technology training, and they can only obtain information through newspapers, magazines, TV and other media. However, these traditional information channels inevitably have lagging problems, and farmers cannot learn new technologies in time. There is a serious problem of information asymmetry in the traditional agricultural market. Consumers cannot judge whether the quality and price of agricultural products are normal, and farmers cannot determine whether the price given by the purchaser is reasonable. This is also due to the fact that there are fewer and slower channels for information dissemination.

2.2 Expensive Hardware Deployment Costs

To make full use of big data technology in agricultural production and economic management, the data needed for analysis must first be collected. The basic data needs to deploy corresponding hardware equipment to complete the collection. These costs are relatively high, which is an unacceptable cost for scattered farmers. Deploying these hardware devices requires regular maintenance, and the limited cultural level of farmers themselves makes it difficult to achieve effective maintenance and use, which invisibly increases the cost of equipment maintenance.

2.3 Bottlenecks in Information Sharing

The application of big data technology requires the support of massive data, which requires close cooperation and data exchange among all walks of life involved in agricultural production. However, there are still certain bottlenecks in information sharing under the current environment. For example, some companies think that crop growth data, business data, etc. belong to corporate privacy, so they report false information when sharing data, which leads to deviations in the final analysis results. Some enterprises leaked the private information of farmers and enterprises due to inadequate information security protection measures, and information security problems occurred. In order to rectify the problem, information sharing was stopped. Without data support, the application of big data technology will become worthless and meaningless.

2.4 Failure to Integrate Analysis and Services

China's modern agricultural economic management has introduced big data technology to realize data analysis and prediction, provide decision-making basis for the government and related enterprises, and also provide certain reference opinions for farmers' production activities. However, the current application is limited to data analysis. In actual operation, relevant managers and farmers still need to complete it offline, and the integration of analysis and services has not been achieved, which will still waste a lot of labor costs, and cause certain obstacles to the rapid development of the agricultural economy.

3. The Application Optimization Path of the Combination of Agricultural Economy and Big Data

3.1 Improve Rural Infrastructure Construction

Rural infrastructure, especially information infrastructure, is an important factor restricting rural economic development, especially in remote rural areas. Due to the backward rural infrastructure, it is difficult to sell agricultural products, and the agricultural product sales network cannot be effectively established, resulting in great obstacles to the flow of rural production factors. To improve

the level of information infrastructure construction in rural areas, the following aspects should be done: First of all, government departments should increase investment in funds and other aspects, increase financial support for rural areas, and strengthen financial support for rural infrastructure construction; continue to improve the financial funding mechanism, and help establish smart agricultural platforms and agricultural databases system; promote the development of the agricultural economy in the direction of digitization and intelligence [3]. Secondly, strengthen the training of rural digital economy talents, encourage qualified capital and enterprises to actively integrate into the construction of rural digital infrastructure; introduce supporting policies and measures, and increase human capital training, especially for remote areas with relatively weak infrastructure.

3.2 Promoting the Digitalization of Rural Economy through Smart Agriculture System

Carry out pilot demonstrations in different climatic zones, soil zones and different topographical areas, and respectively build a field IoT (Internet of Things) measurement and control system integrating nature, manpower and machines. Coordinate the use of national funds for supporting agriculture and benefiting farmers, explore collaborative production models such as sharing intelligent machinery, and accelerate the utilization rate of intelligent machinery in agricultural planting, maintenance, and collection. Focus on enhancing the intelligence and automation level of the breeding industry, build a digital precision feeding management system, and promote the digitalization of the vegetable basket project through the introduction of a precise environmental control system.

3.3 Prevent Rural Poverty from Returning to Poverty through Agricultural Big Data

Use big data to analyze weather data, water and soil data, market data, etc., to promote the development of agricultural insurance. Through the power of science and technology, we can continuously reduce the risk of agricultural production and operation, improve the income of agriculture and farmers, and reduce the risk of pre-production, production and post-production in agriculture. Develop rural e-commerce trading platforms, improve the circulation efficiency of agricultural products, build a bridge between agriculture in remote areas and urban household consumption, and increase the success rate of agricultural product marketing.

3.4 Achieving Agricultural Disaster Reduction and Prevention by Using Big Data

Establish a big data agricultural disaster reduction and prevention center, establish a unified big data platform, and strengthen the top-level design. Use satellite remote sensing technology to help agricultural disaster reduction and prevention, assess the scope of drought and the assessment of disaster losses. It can also carry out disaster prevention and disaster assessment of agricultural diseases and insect pests, low temperature freeze damage prevention and disaster assessment, agricultural rainfall monitoring and assessment, etc. Increase the opening and sharing of big data resources in disaster prevention and mitigation, and realize the sharing of data information such as monitoring, disaster situation, population distribution and disaster resistance ability among departments.

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