

# **A Study on the Development of Modern Agricultural Informatization Based on "Internet Plus"**

**Xin Ma, Dan Lv**\*

Economic College, Wuhan Donghu University, Wuhan, Hubei, 430212, China

\*Corresponding author

**Keywords:** Internet Plus; modern agriculture; agricultural informationization; development ideas

**Abstract:** As a fundamental industry in the development of China's national economy, agriculture has a vital impact on the basic living and production. Modern agricultural production pursues the most agricultural production value with as low cost as possible to achieve intensive and technology-based agricultural production. With the continuous improvement of agricultural production technology, the "Internet + Agriculture" development model meets the current needs of agricultural production. To achieve innovative development of agricultural production and management, information technology has become the focus of agricultural development in China. Based on the author's study and practical experience, this paper first outlined the modern agriculture in the era of "Internet Plus" and then analyzed the importance of modern agricultural informatization in the era of "Internet Plus". Finally, the author proposed development ideas of modern agriculture in this era.

## **1. Introduction**

Modern information technology mainly includes the Internet, 3S, cloud computing and big data. The current trend of information technology development is centered on the development and application of Internet technology, which is characterized by digitalization, networking and intelligence. It has changed the model from the typical technology-driven one to technology and application-driven one. As one of the most active fields of information technology, the Internet is the precondition and foundation of agricultural informationization in the world and it is called the information superhighway. By explaining the connotation of the "Internet +" modern agriculture, this paper aims to make recommendations and countermeasures to provide a useful reference for promoting the sustainable, stable and sound development of modern agriculture in the era of "Internet +".

## **2. The connotation of modern agriculture in the era of "Internet +"**

### **2.1 Modern agriculture**

Based on modern industry, science and technology, modern agriculture is a comprehensive agricultural system that attaches great importance to the construction of agricultural infrastructure, fully absorbs the essence of traditional Chinese agriculture and adopts to modern science, technology, industrial equipment and modern management concepts according to domestic and international market needs and WTO rules. Characterized by commercialization, its core is science and the direction is intensification. Its goal is industrialization. In modern agriculture, Internet, perception, big data, cloud computing and other advanced technology featured by information and space invariably infiltrate modern agricultural science, technology, industrial equipment, management concepts and its connotation of being scientific, commercialized, intensive and industrialized. Modern agriculture has emerged a new form --- information agriculture.

### **2.2 "Internet +" modern agriculture**

"Internet +" modern agriculture refers to modern agriculture supported by information

superhighway. It means that the advanced information technology represented by the Internet is widely used in various processes (biology, environment, technology and economy) of modern agriculture, all kinds of structural elements (planting industry, forestry, animal husbandry, fishery and processing industry) and a variety of departments (production, scientific research, education, administration, circulation and service). By connecting people, machines and objects, the advanced information technology promotes the application process of modern science, technology, industrial equipment, management concepts in agriculture to accelerate scientific, commercialized, intensive and industrial development of the agriculture and achieve the goals of good harvest, quality, efficiency, ecology and safety of the agriculture. Therefore, the content of "Internet +" modern agriculture includes "Internet +" various agricultural processes (biology, environment, technology and economy), "Internet +" all kinds of structural elements (planting industry, forestry, animal husbandry, fishery and processing industry) and "Internet +" a variety of departments (production, scientific research, education, administration, circulation and service). If we make a metaphor, the Internet is the information superhighway and the agricultural process, various structural elements and the agricultural departments are the "car" or "goods". The three things are indispensable. In "Internet +" modern agriculture system, "Internet +" is the key to all agricultural departments, the core of all agricultural elements, and the basis of all agricultural processes. In the key part of the "Internet +" agriculture departments and circulation, e-commerce takes the leading role.

### **3. Importance of modern agricultural informatization in the era of "Internet +"**

#### **3.1 Agricultural informatization is an important way to achieve the integration of agricultural production and management**

As a basic industry, agriculture involves the processing and sale of agricultural products except for crop production. With the exploration of the precision agriculture development path, the division of labor in all aspects of agricultural development will be more specific. The circulation of social resources in all aspects strengthens the necessity to integrate agricultural production and management. In the development model of "Internet + agriculture", the relationship between information technology and agricultural production, processing, sales and circulation of agricultural products becomes closer, such as the application of GPS technology in agricultural production. The e-commerce promotes the sales of agricultural products. The modern Internet of things becomes a bridge for the circulation of agricultural products. The above all are new features of agricultural development.

#### **3.2 Agricultural informatization is an important step in the realization of agricultural modernization**

Agricultural modernization is an important goal of the development of traditional agriculture, which pays attention to integrating modern industrial technology, science, technology and economic management ways into agricultural production so as to enhance the level of agricultural development. As an entrance to the integration of modern science and technology with agricultural production and management, agricultural informatization construction has a very important influence on the level and quality of agricultural production and management. On one hand, informatization can optimize the environment of agricultural production and management by virtue of technical means to enhance the output and benefits of agricultural production. On the other hand, informatization can provide necessary information support for agricultural management and decision-making and enhance the accuracy of agricultural development to achieve precise agricultural development.

#### **4. Development ideas of modern agriculture in the era of "Internet +"**

##### **4.1 Take "Internet +" all agricultural structures and various agricultural processes as the core to create a steady and endless supply of high-quality goods for the information superhighway so as to promote the scientific development of modern agriculture**

By the definition of modern agriculture, science is at its core. Therefore, "Internet +" modern agriculture should focus on the "Internet +" all agricultural structures and agricultural processes and create a steady and endless supply of high-quality goods for the information superhighway to promote the modernization of modern agriculture. There exists the goal to achieve economic maximization to meet people's needs by tapping the biological potential, improving technology, coordinating the relation with environment and realizing sustainable development in the "Internet +" various elements of agricultural structures. The article takes the planting industry as an example. It can use the Internet of things to monitor crop growth status and environmental conditions in real time. By comparing with appropriate index under different conditions, the management of crop growth can be precisely controlled.

##### **4.2 Take "Internet +" all agricultural departments as a driving force to promote the intensification and industrialization of modern agriculture**

The factors of modern agricultural production mainly include peasants, land, agricultural equipment and agricultural means of production. The improvement of quality, the increase of the content of elements, the concentration of factor inputs and the adjustment of elements combination cannot be separated from the synergy and innovation of various agricultural departments. With the help of the information superhighway --- "Internet +", the synergy and innovation of various agricultural departments can be realized and the above objectives can be better achieved. Modern agriculture will become more intensive. Agricultural industrialization is market-oriented and economic benefits-centered. It takes the leading industries and products as the focus and optimizes the combination of production elements. Besides, it carries out geographical distribution, specialized production, large-construction, serialized processing, socialized services and enterprise management. It essentially refers to the technological transformation of traditional agriculture to promote the agricultural science and technology. Promoting the transformation from traditional agriculture to modern agriculture as a whole and finally achieving the industrialization is an effective way to speed up agricultural modernization.

##### **4.3 Take "Internet +" agricultural circulation as the starting point and seize the leading agricultural e-commerce to vigorously promote the commercialization of modern agriculture**

Agricultural commercialization refers to the process of agricultural transformation from natural economy, semi-natural economy or semi-subsistence economy to commodity production, exchange and economy. Commercialization of agriculture is guided by market demand to achieve a reasonable flow and optimization of production factors through the market. Currently, the consumption of green and safe agricultural products has become the mainstream of consumption, and brand marketing will be one of the main ways of commercializing agricultural products. Facts have proved that the relation between market competitiveness of agricultural products and the origin of these products is close. Taking the "Internet +" agricultural circulation as a starting point can boost the e-commerce of agricultural products and agricultural means of production. It also can reduce the impact of the origin on agricultural products as far as possible so as to improve the agricultural market competitiveness. This will help it become a leading part in the "Internet +" modern agriculture and vigorously promotes the commercialization of modern agriculture. With regard to the development of agricultural e-commerce, the introduction of market mechanism is the key. In line with the requirements of agricultural e-commerce, the improvement of supporting systems such as brand, technology, system, laws and regulations is the guarantee. Ultimately, the modern agriculture should be guided by the market demand and ensure the reasonable flow and optimization of production factors in the market to guarantee the sound, stable and sustainable

development of modern agriculture.

#### **4.4 Take the mobile "Internet +" issues of agriculture, farmer and rural area as a breakthrough point to get through the "last mile" of information superhighway**

As the terminal nerve of the mobile Internet, mobile "Internet +" issues of agriculture, farmer and rural area can effectively push the information, technology, ideas and products required by the scientific, commercial, intensive and industrialized process of modern agriculture in all directions. Therefore, it will become an effective breakthrough point to get through the "last mile" of information superhighway. It is an important way to realize informatization of modern agriculture.

#### **5. Conclusions**

"Internet +" has brought new opportunities and new challenges to the development of modern agriculture. The major opportunity is that massive data analysis brought by big data on the Internet will provide a new way to solve the problems caused by "unsalable, hard-sell and expensive" agricultural products from the source. The challenge mainly means that under the background of "Internet +", agriculture will face both international and domestic competitions. It is urgent to improve agricultural varieties, brands, technology, systems and rules to adapt to the "Internet +" modern agriculture in the competition. In short, "Internet +" will effectively promote the scientific, intensified, industrialized and commercialized development of agriculture, speed up the agriculture transformation from a traditional one to a modern one, and add wings to modern agriculture.

#### **Acknowledgement**

This research was supported by the Program for Excellent Young Science Innovative Research Team in Higher Education Institutions of Hubei Province (Grant No. T201733).

#### **References**

- [1] Xu Jiahong, Zhu Lin, Peng Liansi, You Yong, Luo Shuhui. *A Study on the Development and Trend of Modern Agriculture from the Perspective of "Internet +"* [J]. *Journal of Zhejiang Agricultural Science*, 2017, (06): 913-916 + 919.
- [2] Cao Zhijiang. *A Study on Development of Modern Agriculture Informatization of Internet + Agricultural E-commerce* [J]. *Economic and Trade Practice*, 2017, (10): 37.
- [3] Bai Ling, Fang Ning. *A Research on Agricultural Fair of "Internet +" Modern Agriculture* [J]. *Agricultural Engineering Technology*, 2015, (30): 21-22.
- [4] Wang Wuqiang. *Internet + Modern Agriculture: Opportunities and Challenges* [J]. *China Rural Science and Technology*, 2016, (12): 36-37.
- [5] Gao Xiaoxing. *A Study on the Promotion Strategies of Agricultural Informatization in Hebei Province under the Background of "Internet +"* [J]. *Agricultural Science, Technology and Information*, 2016, (25): 120-121.
- [6] Bai Ling, Fang Ning. *A Study on Agricultural Fair of "Internet +" Modern Agriculture* [J]. *Leisure Agriculture and Beautiful Countryside*, 2015, (12): 24-25.