

Research on the planting status and development of herbal medicine industry in Lantian County under the background of modern technology development

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ABSTRACT

Lantian County in Shaanxi Province has abundant natural herbal resources, and the development of the herbal planting industry is closely related to the people's livelihood in the planting areas of Lantian County, which is crucial for the implementation of the rural revitalization strategy. With the popularization of Internet technology and the development of digital infrastructure, modern technology has become a powerful guarantee for the prosperity of rural industries, the modernization of agriculture and rural areas, and poverty alleviation. It is also an effective power to promote the planting and development of herbal medicine industry in Lantian County. In order to further accelerate the pace of modern technology enabling herbal medicine planting, this paper analyzes the problems existing in the development of the herbal medicine planting industry in Lantian County based on the current situation of the development of the herbal medicine planting industry in Lantian County, makes in-depth analysis from three aspects of planting mode, sales channels and industrial influence, and explores the path to the prosperity of the herbal medicine planting industry in Lantian County under the background of modern technology development, providing theoretical reference for the poverty alleviation of Lantian County, It also provides ideas and references for the development of herbal planting industries in other regions of China.

KEYWORDS

Modern technology; Herbal medicine industry; Herb planting.

1. INTRODUCTION

The report of the 20th National Congress of the Communist Party of China proposes to "promote the inheritance, innovation, and development of traditional Chinese medicine, and promote the construction of a healthy China", continuously promoting the high-quality development of traditional Chinese medicine. At the same time, with the increasing medical value of traditional Chinese medicine and people's health awareness, coupled with the implementation of rural revitalization strategies and the continuous introduction of local industrial transformation and upgrading strategies and policies, more and more farmers are using land resources to plant herbs. The vigorous development of the herbal planting industry can not only help farmers generate income, but also effectively upgrade the herbal planting industry and promote the process of rural revitalization [1]. However, the destruction of the ecological environment has led to the scarcity of wild herbal resources, and the market demand for herbs has been increasing year by year. The supply of herbs far cannot meet the market demand. Based on the unique geographical conditions, artificial cultivation of herbs has become the best choice for local farmers to overcome poverty [2]. Then, under the background of modern technology deeply penetrating into the medical field and agricultural planting field, how to scientifically and reasonably use the Internet platform to better guide the planting of

herbal medicine, and make the planting of herbal medicine industrialized and large-scale, is the primary goal of the development of herbal medicine industry in Lantian County [3].

2. CONCEPT DEFINITION AND NECESSITY

2.1. Concept Definition

2.1.1. Concept of Herbs

Herbs refer to plant materials used for the prevention, treatment, or relief of diseases, mainly derived from plant extracts. They can include plant tissues from different parts, but do not contain animal and mineral components. They are composed of crude herbs, herbal materials, herbal preparations, etc. Herbs contain natural chemical elements, many of which have pharmacological activity and can have positive effects on the human body to achieve the effects of healing diseases and maintaining health. They are often used in traditional medical systems [4] [5].

2.1.2. Concept of Herbal Cultivation

Herbal cultivation refers to the cultivation of herbal plants in farmland, greenhouses, or other planting environments to meet the demand for herbs. In the subsequent development of the herbal industry, natural cultivation and planting will become the main sources of herbs, including selecting suitable varieties, suitable planting locations and soil conditions, reasonable planting and management techniques, as well as processing methods before and after harvesting and processing. However, in the current natural planting process, there are often problems with planting due to insufficient understanding or weak technology [6] [7].

2.2. Necessity of planting herbal medicine industry in the context of modern technology development

2.2.1. Information management

Modern technology can realize the information management of herbal medicine planting. At present, most herbal farmers still adopt traditional manual planting methods and lack scientific planting experience. The use of the Internet platform can provide more extensive, timely and advanced information resources for herbal medicine farmers. Herbal medicine farmers can obtain the latest trends of planting technology, market dynamics and other information on many Internet platforms, so as to adjust planting strategies in a timely manner, broaden the information source channels, reduce planting costs, and improve the output and quality of herbal medicine planting.

2.2.2. Intelligent management

Modern technology can realize intelligent management of herb planting. On the one hand, farmers can install Internet devices such as sensors and monitoring devices before planting herbs, which will not affect production management, and can improve the growth and development effect of herbs through intelligent management. On the other hand, farmers can use Internet equipment to remotely monitor the real-time status of herb growth and changes in environmental factors during the process of herb planting, which can not only improve efficiency, but also help farmers adjust planting management measures in a timely manner.

2.2.3. Digital Management

Modern technology also contributes to the digital management of herbal cultivation. The database and various service platforms built on the Internet platform can manage the category, growth cycle, harvest time and other relevant information of herbal medicine with digital technology. In the context of digital management and quality control, establish standardized production processes for herbal cultivation, and improve the standardization and safety of herbal cultivation products. At the same

time, farmers can also monitor and adjust production processes in the background at any time, effectively and efficiently trace and manage them.

3. CURRENT SITUATION OF PLANTING AND DEVELOPMENT OF HERBAL MEDICINE INDUSTRY IN LANTIAN COUNTY UNDER THE BACKGROUND OF MODERN TECHNOLOGY DEVELOPMENT

3.1. Current situation of Internet development in Lantian County

Internet technology helps to adjust the industrial structure of traditional herbal medicine planting, reduce planting costs and improve planting results [8]. By comparing the data of fixed Internet broadband access users and mobile phone users in Lantian County in the past five years, it can be found that the fixed Internet broadband access users in Lantian County will gradually increase from 2018 to 2021, and will fluctuate significantly in 2022. After a temporary decline in the number of mobile phone users in Lantian County from 2018 to 2019, the number of mobile phone users in Lantian County has been in a steady and continuous increase from 2019 to 2022. The above data all reflect the development status of the Internet in Lantian County. It can be seen from Figure 1 that Lantian County has a certain level of digital infrastructure development, but the overall development level of the Internet is still low, indicating that the Internet level of Lantian County still has great development potential.

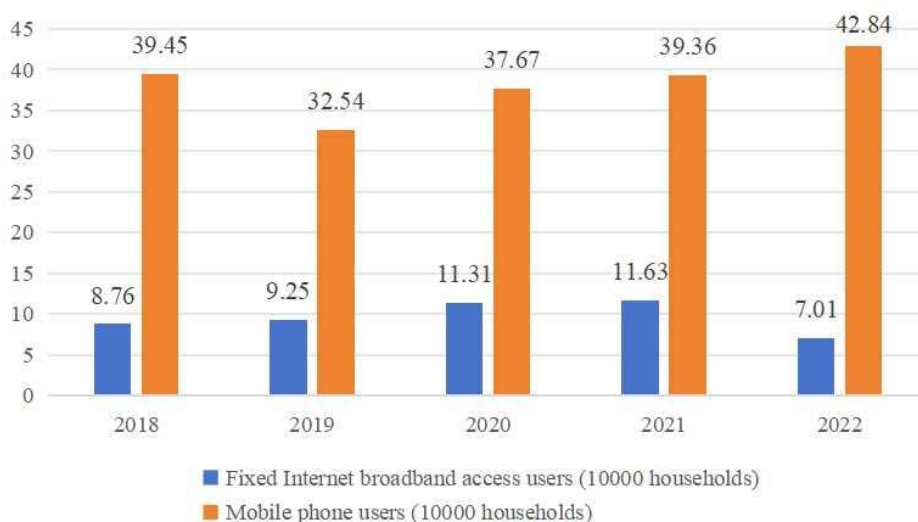


Figure 1. Development Status of Internet in Lantian County

3.2. Current Development Status of Herbal Industry in Lantian County

According to the Selected Chinese Herbal Medicine in Lantian County, there are a total of 1538 plant medicines, animal medicines, and other medicinal resources in Lantian County, including more than 50 commonly used medicines. According to relevant statistics, the area of wild herbs in Lantian County is 4900 acres, and the area of artificially cultivated authentic herbs is 8570 acres, distributed in 80 administrative villages in 16 towns throughout the county [9]. The diversification of herbal resources in Lantian County gives it certain advantages in the supply of herbs in the market. Farmers in Lantian County can leverage this market advantage to vigorously develop the herbal planting industry to meet various market demands. Lantian County is located in the central part of Shaanxi Province, with a good ecological environment, and most areas have not been affected by industry and pollution. This ecological environment gives Lantian County natural environmental advantages for the growth of herbs. In addition, the soil in Lantian County is rich in minerals and organic matter,

which is the planting advantage of the herbal planting industry in Lantian County. The above market advantages, environmental advantages and planting advantages provide a good foundation for the large-scale allocation of Internet resources in the herbal medicine planting industry.

3.3. Planting status enabling herbal medicine industry in Lantian County

At present, Lantian County has explored in many fields for the practical application of modern technology. Among them, the construction of the "Internet plus Rural" digital management service platform has improved the modernization level of grass-roots governance and effectively promoted the revitalization and development of Lantian rural areas. Moreover, "Internet plus Agricultural Technology Promotion" focuses on the demonstration of Lantian grain production and the establishment of APP network platform, answering questions and updating dynamically on major agricultural technology problems in the development of agricultural characteristic industries. Modern technology has also made a preliminary exploration in the field of herbal medicine planting. For example, a planting base in Lantian County has built 8 sunshine greenhouses in the process of planting herbal medicine, supporting the newly built main roads of the park of 1.6km, 8 automatic irrigation equipment, 3.6km pipeline construction, a new 215 transformer, and 2km internal lines. Advanced facilities have been used in infrastructure construction. It can be seen from this that the application of modern technology in the agricultural and rural areas of Lantian County has begun to take shape, which provides a solid technical foundation and reference basis for the next step of modern technology enabling herbal medicine planting industry.

4. PROBLEMS IN THE DEVELOPMENT OF HERBAL MEDICINE PLANTING INDUSTRY UNDER THE BACKGROUND OF MODERN TECHNOLOGY DEVELOPMENT

4.1. Modern technology planting mode is not clear

The following three problems exist in the planting mode of modern technology herbal medicine planting industry in Lantian County. First, at present, most of the herbal medicine planting industry is manual planting, and the cultural and technical level of farmers is still low, as well as the lack of Internet basic knowledge, leading to the existing herbal medicine planting model is not fully integrated with the development trend of modern technology. Second, as the basic condition for the development of modern technology herbal medicine planting industry, the importance of rural information facilities can be seen, but there is still a certain gap between the construction of information facilities in Lantian County and the development requirements of modern technology herbal medicine planting, which restricts the breakthrough development of modern technology herbal medicine planting model. Thirdly, the herbal planting model in Lantian County currently adopts the model of "company + farmer + cooperative", and the interconnection and connectivity between various entities are insufficient to form an effective herbal planting model network.

4.2. Inadequate construction of modern technology sales channels

The construction of the "Internet plus sales channel" of the herbal medicine planting industry in Lantian County is not good, which is mainly reflected in two aspects. On the one hand, Lantian County has a relatively closed access to market information related to herbal medicine, and product sales information is not smooth, resulting in a lack of understanding of the theory, characteristics, and advantages of herbal medicine among non professional groups such as farmers, which is extremely detrimental to the production and sales of herbal medicine. On the other hand, herbal medicine farmers mainly rely on the purchase of drug dealers, or take the lead in sales through cooperatives and other organizations. There are relatively few large-scale herbal medicine trading markets and

platforms built on the Internet, which makes it impossible to develop a special Internet platform for consumers to understand detailed product information, leading to consumers' demand for herbal medicine has not been accurately matched and met.

4.3. Weak influence of modern technology planting industry

The industrial influence is an important foundation for the high-quality development of the industry. According to the current development status of the herbal planting industry in Lantian County, it can be found that the planting mode, production mode, and sales mode of the herbal planting industry in Lantian County are all in a dispersed development state, without forming a large-scale and industrialized development mode. This has led to the weak industrial influence of the herbal planting industry in Lantian County, which has become a limitation of its development. At the same time, due to the planting mode of Lantian County, the planting and sales of herbal medicines are managed by farmers, which is limited by the knowledge and technical level of farmers, resulting in a low level of operation and management. The Internet technology has not been used to build and promote Lantian County's characteristic herbal medicine brands, and the herbal medicine resources have not been effectively used to create market influence.

5. PROBLEMS IN THE DEVELOPMENT OF HERBAL MEDICINE PLANTING INDUSTRY UNDER THE BACKGROUND OF MODERN TECHNOLOGY DEVELOPMENT

5.1. Optimizing planting modes

Firstly, in the early stages of planting. Lantian County government and leading enterprises should make full use of the Internet platform to help farmers learn new agricultural technologies while updating traditional agricultural production concepts, and take a variety of industrialization development models such as "company+base+farmers", "company+promotion unit+base" as the organizational model of herbal medicine planting. Secondly, in the middle stage of planting. Create the "Internet plus Herbal Medicine Industry Planting Mode", design and establish intelligent systems such as Internet based multifunctional planting racks for precise control, such as various sensors built into each monitoring unit in the planting area to monitor the growth status of herbal medicine planting in real time, and improve the production efficiency of herbal medicine planting [10]. Finally, in the later stages of planting. Establish the traceability management system of herbal medicine, scientifically and effectively improve the quality management of herbal medicine, and actively break through the key and difficult points of technical research in the construction of the "Internet plus herbal medicine industry planting mode" system.

5.2. Building sales channels

On the one hand, develop a special Internet platform to publicize herbal medicine in Lantian County. The Lantian County government can lead the organization of professionals to collect herbal resources, develop the Lantian County Herbal Database, and provide detailed labeling of herbal resources. By developing an informationized, intelligent, and standardized herbal database, the intensification of herbal resources can be achieved, achieving a balance between supply and demand of herbal medicine in Lantian County. On the other hand, establish an operational mechanism for herbal e-commerce platforms. Under the background of modern technology, herbal medicine farmers in Lantian County should participate in or build large-scale herbal medicine trading markets and platforms to launch multi-mode sales channels. At the same time, as herbal medicine is a special product, the establishment of "Internet plus Herbal Medicine E-commerce Platform" can eliminate the barriers of

timeliness or regionalism, and also accelerate the spread and circulation speed of herbal medicine in Lantian County, so as to realize the destocking of herbal medicine products [11].

5.3. Strengthening Industrial Influence

On the one hand, strengthen the industrial influence of the herbal planting industry in Lantian County. Make full use of the advantages of Internet platform and policy to extend the industrial chain of herbal medicine planting in Lantian County. Under the background of Internet empowerment, herbal medicine farmers in Lantian County reconstruct their industrial chain thinking from the individual level, grasp the supply and demand dynamics of the herbal medicine market, and further promote the scale, industrialization and marketization of the development of herbal medicine planting industry in Lantian County. On the other hand, building the market influence of the herbal planting industry in Lantian County. With the help of the Internet, it provides a platform for farmers to learn knowledge and technology, so as to improve the management level of farmers in aspects such as herb planting and sales. In addition, the Internet platform is used to connect various herbal medicine industries, enhance the added value and brand marketing awareness of herbal medicine products and services, and improve the output and quality of herbal medicine brands around Lantian County.

6. CONCLUSION

Modern technology is one of the important strategies for China's development. At the same time, the national and local governments attach great importance to the protection of herbal resources and the development of herbal medicine planting industry. Lantian County has market advantages, environmental advantages and planting advantages in the herbal medicine planting industry. With the help of Internet technology, it can carry out information, intelligent and digital management of the herbal medicine planting industry, which not only adjusts the traditional herbal medicine planting structure, but also reduces the planting cost to improve farmers' planting technology. After analyzing the problems existing in the development of herbal medicine planting industry under the background of modern technology, this paper explores the path for the prosperity of herbal medicine planting industry in Lantian County, such as continuously optimizing planting mode, building sales channels, improving industrial influence, etc., in order to promote the application of Internet technology in herbal medicine planting in Lantian County.

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