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Present situation and Prospect of scientific research on local products

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ABSTRACT

As a local characteristic resource, local products have important economic, cultural and ecological values. This paper discusses the current situation and future development direction of the scientific research on indigenous products from three dimensions: planting suitability and soil research, technological innovation and product development, sustainable development and ecological protection. By analyzing the research progress of soil and climate factors, nutrient management, geographical indications and standardization, variety improvement, processing technology, digital application and other aspects, this paper puts forward strategic suggestions to promote the high-quality development of local products industry, aiming to provide reference for the research and practice in related fields.

KEYWORDS

Native products; Suitability; Technological innovation; Sustainable development.

1. INTRODUCTION

In 2024, the No. 1 document of the Central Committee made a special chapter deployment on improving the development level of rural industry, and clearly proposed that we should adhere to the principle of promoting agriculture through industry, quality and green, and accelerate the construction of a modern rural industrial system that integrates grain, economic and feed, agriculture, forestry, animal husbandry and fishery, production, processing and marketing, and integration of agriculture, culture and tourism, so as to build agriculture into a large modern industry. Encourage local governments to vigorously develop characteristic industries according to local conditions, and support the creation of local characteristic brands.

Local products refer to products with local characteristics unique to a certain region, which are usually closely related to the local natural environment, historical culture and traditional crafts. These products are famous for their unique flavor, quality or manufacturing process, and are often only produced or obtained in specific regions. The core characteristics of native products lie in their unique regionality, culture and scarcity.

The in-depth study of local products can improve the quality and market competitiveness of local products, promote the development of local economy, increase the income of farmers and craftsmen, and is also of great significance for the protection and inheritance of local cultural heritage and the

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enhancement of local identity, which helps to meet the needs of consumers for diversified and high-quality products and improve the quality of life. Therefore, we must strengthen the in-depth study of local products.

2. PLANTING SUITABILITY AND SOIL RESEARCH

2.1. Soil and climate factors

Soil texture, pH, organic matter content and other physical and chemical properties, as well as climatic conditions (such as temperature, precipitation, sunshine, etc.) have an important impact on the growth of local specialties. The research shows that through soil thematic investigation and suitability evaluation, it can provide scientific basis for planting layout of local products, guide farmers to plant according to soil, and realize standardized and specialized production. In different soil types, the growth performance of some local specialties was significantly different. In acid soil, some fruits such as Kiwi fruit and blueberry showed better growth trend, while in alkaline soil, Lycium barbarum and other crops were more suitable. In addition, climate conditions also have a significant impact on the quality and yield of local specialties. Suitable temperature and precipitation can promote the growth of crops, and sufficient sunshine can help to improve the sugar accumulation of fruits.

2.2. Nutrient management

It is the key measure to improve the yield and quality to analyze the nutrient requirements of local products and optimize the fertilization scheme. Reasonable application of nitrogen, phosphorus, potassium and trace element fertilizers can avoid excessive or insufficient nutrients and improve soil fertility and crop quality. The study found that rational application of organic fertilizer can significantly improve the content of soil organic matter, improve soil structure, and improve the quality of local products. In addition, the application of precision fertilization technology can accurately supply nutrients according to the needs of crops at different growth stages, reduce fertilizer waste and improve fertilizer utilization.

2.3. Geographical indications and standardization

The protection of geographical indications is an important means to enhance the uniqueness and market competitiveness of local products. By defining the planting areas and standards of local specialties, we can ensure the consistency of product quality and enhance consumer trust. Geographical indication products such as "Changbai Mountain Ginseng" and "Ningxia wolfberry" have gained high market recognition due to their unique geographical environment and strict planting standards. In addition, standardized production not only helps to improve product quality, but also reduces production costs and improves production efficiency.

3. TECHNOLOGICAL INNOVATION AND PRODUCT DEVELOPMENT

3.1. Variety improvement and new variety cultivation

Biotechnology plays an important role in the improvement of local specialty varieties. Through gene editing, cross breeding and other means, the disease resistance, adaptability and quality of local products can be improved. The wheat varieties with strong disease resistance developed by gene editing technology not only increased the yield, but also reduced the use of pesticides. In addition, the cultivation of new varieties can also be combined with market demand to develop local specialties with special functions, such as selenium rich agricultural products.

3.2. Processing technology and new product development

Developing deep processing technology of local specialties and launching high value-added products are important ways to enhance the added value of the industry. The diversified needs of consumers can be met through the development of new products such as health products and prefabricated dishes. In recent years, some places have developed a variety of local products with high added value by introducing advanced processing technologies, such as differential pressure puffing technology of vegetable chips, fruit and vegetable fermentation technology, etc. These products not only extend the industrial chain, but also improve the market competitiveness of products.

3.3. Digital and smart agriculture

Using the Internet of things, big data and artificial intelligence technology can improve the intelligent level of local specialty production. Through the application of technologies such as precision agriculture and intelligent monitoring, production efficiency and product quality can be improved. In some regions, through the establishment of the whole process quality control system of agricultural products, digital technology is used to accurately depict the quality, brand and characteristics of local specialties, so that the good quality can be clearly seen and the high quality and good price of local specialties can be promoted. In addition, smart agricultural technology can also realize real-time monitoring and precise regulation of agricultural production environment, and improve resource utilization efficiency.

4. SUSTAINABLE DEVELOPMENT AND ECOLOGICAL PROTECTION

4.1. Eco friendly production

Promoting green planting and breeding technology and reducing the use of chemical fertilizers and pesticides are important measures to protect the ecological environment. Through eco-friendly production, the sustainable development of local specialty industry can be realized. Some regions have reduced the use of chemical fertilizers and pesticides, reduced environmental pollution and improved the quality of agricultural products through the promotion of green organic planting technology. In addition, eco-friendly production can also improve resource utilization efficiency and reduce the pressure on the ecological environment through fine agricultural cultivation.

4.2. Resource recycling

Exploring the recycling of waste in the production of local specialties, such as straw returning to the field, livestock and poultry manure treatment, can improve the efficiency of resource utilization. Through resource recycling, environmental pollution can be reduced and green development can be achieved. In some areas, crop straw is converted into organic fertilizer through straw returning technology, which improves soil fertility. In addition, the harmless treatment and resource utilization of livestock manure can not only reduce environmental pollution, but also provide high-quality organic fertilizer for agricultural production.

4.3. Integration of ecotourism and agriculture, culture and Tourism

Combined with rural tourism, developing tourism products related to local specialties is an important way to promote the integrated development of agriculture, culture and tourism. Through the integration of ecotourism and agriculture, culture and tourism, the cultural value of local specialties can be improved and the local economic development can be promoted. Some regions have launched the "agriculture+tourism" eco-tourism mode by developing characteristic agricultural tourism routes and combining local specialty production with rural tourism. In addition, holding agricultural

products Culture Festival and agricultural experience activities can not only enhance the cultural value of local specialties, but also attract more tourists and promote the development of local economy.

5. CONCLUSION AND PROSPECT

The scientific research of local products is of great significance to improve their quality and market competitiveness. Future research should further deepen the research on planting suitability and soil, strengthen technological innovation and product development, and promote sustainable development and ecological protection. Through interdisciplinary research and industry university research cooperation, it can provide strong support for the high-quality development of local specialty products industry, and promote the process of Rural Revitalization and agricultural modernization.

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