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The Current Situation and Bottlenecks of the Vegetable Industry in Shouguang City, Shandong Province

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ABSTRACT

Taking the vegetable industry of Shouguang City in Shandong Province as the research object, this paper sorts out the industrial development status of Shouguang, known as "China's Hometown of Vegetables", covering dimensions including annual output, number of employees, GDP contribution rate, product category structure, sales markets and channels. On this basis, four core industrial bottlenecks are analyzed: low added value of industrial chain, uneven application of digital agriculture, insufficient brand value, and low market circulation efficiency. This study objectively presents the development advantages and existing shortcomings of Shouguang's vegetable industry, and provides practical references for Shouguang and similar characteristic vegetable producing areas nationwide to realize quality upgrading and promote high-quality development of modern agriculture.

KEYWORDS

Shouguang Vegetables; Digital Agriculture; Rural Revitalization.

1. INTRODUCTION

Shouguang is reputed as "China's Hometown of Vegetables". Relying on the advantages of facility greenhouse cultivation, it has completed the transformation from traditional scattered household planting to a modernized, large-scale and deeply integrated industrial cluster worth hundreds of billions of RMB, serving as a national benchmark for the modernization of the vegetable industry. Meanwhile, the vegetable industry acts as the core pillar industry for the implementation of the rural revitalization strategy in local areas. The industry not only drives local employment and stabilizes farmers' income growth, but also continuously exports demonstration experience nationwide in planting technology, improved seed breeding and facility cultivation models.

In recent years, consumer demand for agricultural products has undergone continuous upgrading. The market has put forward higher requirements for vegetable standardization, branding, intensive processing and digital production and sales. Coupled with the intensified competition among domestic vegetable producing areas and increasingly stringent standards in overseas export markets, the original development model of Shouguang's vegetable industry has gradually exposed weaknesses. Most existing studies focus on single dimensions such as greenhouse technology and improved seed cultivation in Shouguang, lacking comprehensive analysis that systematically sorts out industrial status and deeply explores development bottlenecks with complete data of output, employment, economic contribution and production and marketing channels in the past decade.

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2. CURRENT SITUATION OF THE SHOUGUANG VEGETABLE INDUSTRY

As "China's Hometown of Vegetables" and "Vegetable Cultivation Silicon Valley of china ", Shouguang has formed a development pattern of hundreds-billions-yuan agricultural industrial clusters integrating innovative planting and the primary,secondary and tertiary industries, becoming a national model of modern vegetable industry and a core industrial support for rural revitalization in Shouguang. As shown in Figure 1, the total vegetable output of Shouguang from 2015 to 2024 generally showed a trend of declining first then rising steadily. The output fluctuated and declined from 2015 to 2018, hitting a low point in 2017 affected by natural disasters; after 2018, it recovered continuously and grew rapidly year by year, hitting a decade high in 2024. The growth of output mainly benefits from the upgrading of facility agriculture, popularization of intelligent greenhouses, improved seed breeding and planting technology, which reflects the strong competitiveness of Shouguang's vegetable industry and provides a foundation for national rural revitalization and modern agriculture development.

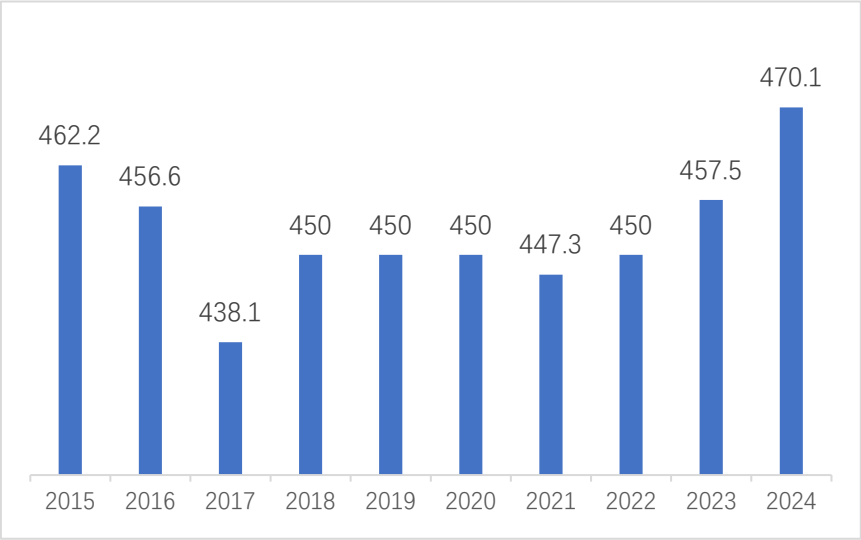


Figure 1. Shouguang's vegetable output data , 2015-2024 (Unit: Ten Thousand Tons)

Data source: Annual Statistical Bulletin of Shouguang Municipal People's Government.

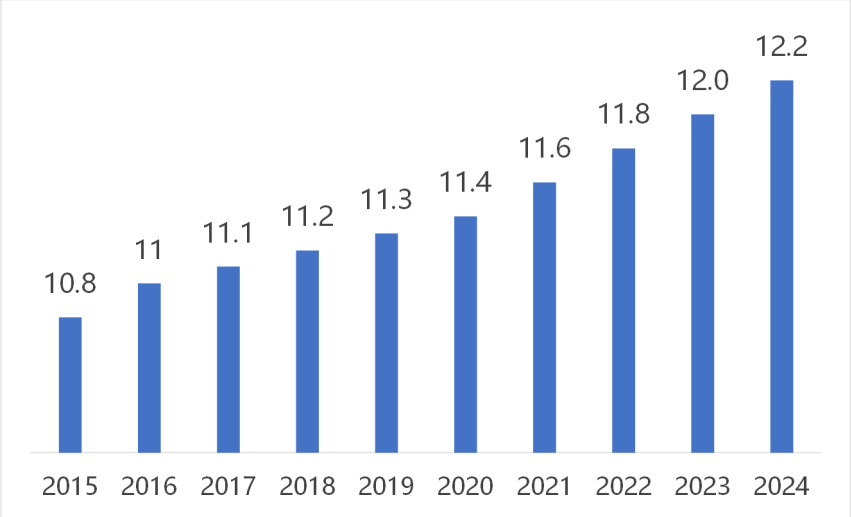


Figure 2. number of practitioners in the vegetable industry, 2015-2024 (Unit: Ten Thousand People)

Data source: Bureau of Agriculture and Rural Affairs of Shouguang City.

As illustrated in Figure 2, the number of employees in Shouguang's vegetable industry increased slightly from 108,000 in 2015 to 122,000 in 2024, showing an overall steady upward trend. The steady expansion of employment scale reflects the continuously enhanced capacity of the industry to drive local employment, provides stable income sources for farmers, and highlights the role of characteristic agriculture in stabilizing employment and promoting common prosperity under rural revitalization.

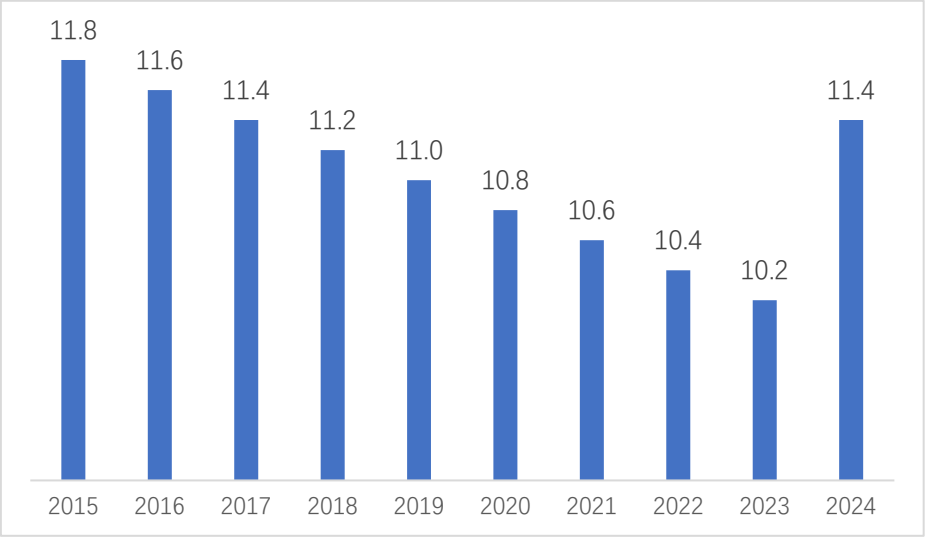


Figure 3. GDP contribution rate of vegetable industry, 2015-2024 (Unit: %)

Data source: The Statistical Yearbook of Shouguang Municipal People's Government.

Figure 3 shows that the GDP contribution rate of Shouguang's vegetable industry from 2015 to 2024 generally declined moderately and rebounded in the later period, remaining steadily above 10% for a long time. With the rapid development of secondary and tertiary industries, the proportion dropped slightly and rebounded again in 2024. This demonstrates that the vegetable industry is still a core pillar, providing solid support for rural revitalization and the high-quality development of the county-level economy.

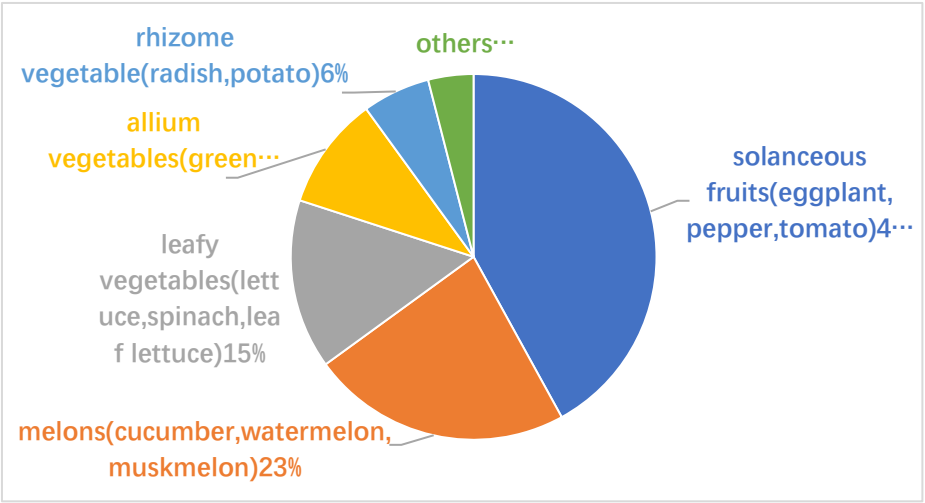


Figure 4. Vegetable Categories Produced in Shouguang in 2024

Data source: Bureau of Agriculture and Rural Affairs of Shouguang City.

As shown in Figure 4, Shouguang boasts abundant and balanced vegetable varieties in 2024, dominated by fruit vegetables. Solanaceous fruits account for the largest share of 42%; melons rank second at 23%; leafy vegetables, alliums vegetables and rhizome vegetables account for 15%, 10% and 6% respectively, with other categories occupying 4%. The variety layout matches market demand, featuring prominent advantages and diversified complementarity to improve market competitiveness.

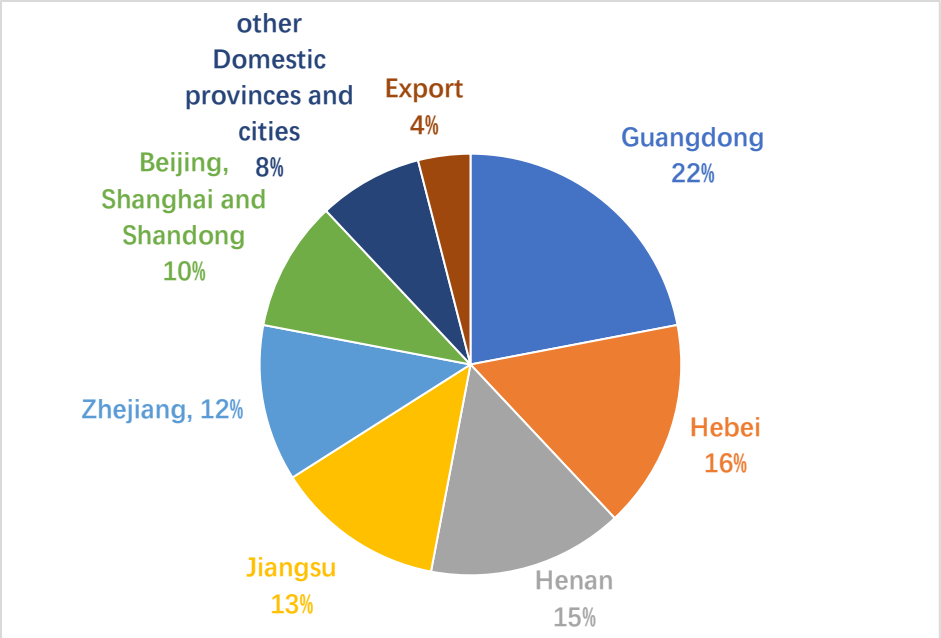


Figure 5. Major Sales Regions of Shouguang Vegetables in 2024

Data source: Official Website of Shouguang Municipal People's Government.

In terms of sales markets, Shouguang vegetables are mainly sold to domestic regions including Guangdong, Hebei, Henan, Jiangsu and Zhejiang, covering more than 200 cities nationwide, while a small portion is exported to Japan, South Korea and Southeast Asia, demonstrating strong national radiation capacity. In 2024, Shouguang exported about 800,000 tons of vegetables worth 1.27 billion US dollars to over 40 countries. Japan and South Korea constitute the largest market accounting for 45%; Southeast Asia takes up 25% with the fastest growth rate; Russia and Central Asia account for 15%, the Middle East 10%, and Europe and America 5%. Fresh-keeping vegetables are the main export products, and carrot exports account for 60%-70% of China's total, with simultaneous promotion of brand and standard output.

3. CORE BOTTLENECKS OF SHOUGUANG VEGETABLE INDUSTRY

(1) Low Added Value of Industrial Chain and Fierce Market Competition. Although the complete industrial chain has taken shape, most enterprises only engage in primary processing, while deep processing enterprises are extremely scarce. In 2024, Shouguang's total vegetable output reached about 4.7 million tons, among which 70% was sold fresh and 30% entered processing procedures. Specifically, 22% went through primary processing (cleaning, grading, packaging, quick freezing), and only 8% entered deep processing (freeze-drying, fruit and vegetable crisps, prefabricated dishes, pickles, plant extracts). This processing structure—dominated by low-value, pre-harvest activities—fails to align with the rising consumer demand for ready-to-eat, functional, and traceable vegetables, creating a critical mismatch between supply capacity and market-driven value expectations. With the upgrading of consumer demand for agricultural products driven by rising

living standards, the supply of high-end and differentiated products is inadequate, failing to meet the demand of consumption upgrading. Table 1 presents the evolution of core consumption demands for agricultural products in different periods.

Table 1. Evolution of Residents' Core Consumption Demands for Agricultural Products

Period	Core Demand	Focus
Before Reform and Opening-up	Sufficient supply	Output, quantity, price
1990-2000	Food safety	Quality safety, pollution-free certification
2000-2010	Freshness	Freshness, taste, variety
2010-2020	Nutrition and health	Organic and green products
2020 to present	Exquisite and characteristic products	High-end packaging, prefabricated dishes

Shouguang's brand system is generally imperfect with weak premium pricing power. There exists a powerful regional public brand "Shouguang Vegetables", together with corporate brands such as "Qicai Manor" and "Leyi Vegetables", and characteristic brands including "Cuixi Yipin" and "Mixiang Manor". Nevertheless, the market concentration of both enterprise brands and regional public brands remains relatively low. Furthermore, Shouguang vegetables rarely enter high-end supermarkets such as Hema and Sam's Club, mainly due to low standardization, unstable quality control and insufficient high-end branding, which fail to meet strict standards of membership supermarkets. At present, vegetables supplied to membership supermarkets mostly come from Yunnan, Ningxia, Hong Kong supply bases and Hema Villages in the Yangtze River Delta, which feature unified quality control, complete traceability and compliance with high-end supermarket requirements, putting Shouguang at a comparative disadvantage.

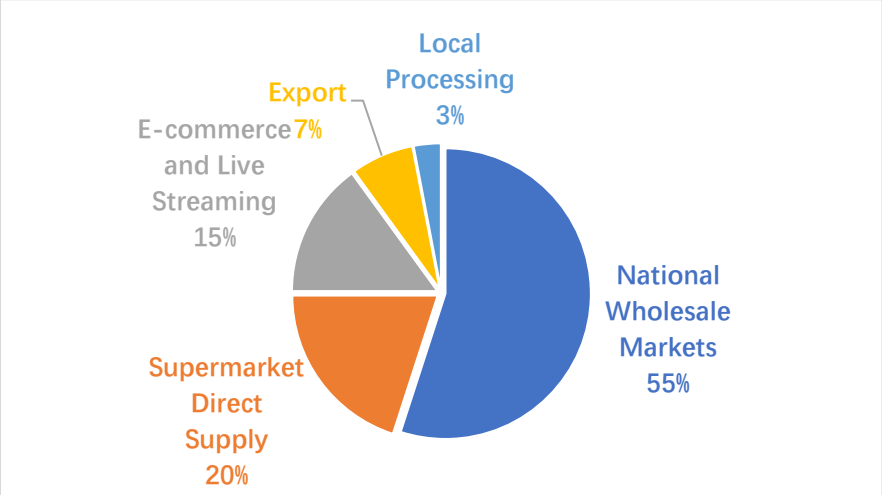


Figure 6. Main Sales Channels of Shouguang Vegetables in 2024

Data source: China Agricultural and Rural Information Network.

(2)Uneven Application of Digital Agriculture. According to survey data released by Shouguang Municipal Government, only about 16,000 greenhouses in the city are equipped with mature intelligent control devices, while 50,000 greenhouses only have basic Internet of Things access, resulting in an intelligent equipment coverage rate below 30%. A large number of small and medium-scale growers still rely on traditional planting modes, creating a prominent digital application gap in agricultural production [1]. Surveys from China Agricultural and Rural Information Network show that a complete set of intelligent regulation equipment costs 20,000 to 30,000 RMB, which imposes high cost pressure on small and medium farmers and reduces their willingness to adopt digital facilities.

(3)Insufficient Brand Value. According to the 2025 Research Report on Agricultural Product Brand Construction in Shandong Province released by Shandong Provincial Committee of the Chinese People's Political Consultative Conference, most brands in Shouguang suffer from disadvantages of small scale, weak competitiveness and scattered layout. Enterprise brands including "Qicai Manor" and "Leyi Vegetables" are priced lower than high-end brands from Yunnan, Guangdong and other regions such as Yunling Fresh and Chunmuyuan. [2]

In addition, Shouguang's vegetable industry still falls behind in brand promotion and digital marketing development. As shown in Figure 6, traditional offline wholesale accounts for the largest share of vegetable sales, reaching 55%; supermarket direct supply accounts for 20%, e-commerce and live streaming 15%, export 7%, local processing 3%. Brand communication lacks youthful expression; compared with internet-famous brands like Taoximeimei and Xiacheng Renjia, Shouguang vegetables have low recognition among young groups, restricting the expansion of brand influence among younger generations.

(4)Low Circulation Efficiency In Farmers-Market Docking. According to the 2024 report *Digital Production and Sales Platform Empowers Efficient Industrial Development of Shouguang Vegetables* released by Douyin Platform, scattered purchasing stations and agricultural material stores in Shouguang lead to fragmented circulation links and a high long-distance loss rate. The cold chain logistics coverage rate is only about 60%, far lower than the 80% level of developed countries. [3]

4. SUMMARY

Based on the data and analysis above, Shouguang's vegetable industry has established a mature and complete industrial foundation after years of development, with prominent advantages in production scale, planting technology and nationwide market radiation. From 2015 to 2024, vegetable output recovered and grew overall, the industry's employment absorption capacity expanded steadily, and it continuously contributed stable output value to county-level economy. The vegetable category structure fits market demand well, the domestic sales network covers the whole country, and overseas export markets are diversified, making Shouguang a benchmark in China's vegetable industry and providing replicable experience for national modern agriculture and rural revitalization.

However, prominent structural contradictions accumulated during long-term industrial development remain unresolved. The processing links are dominated by primary treatment with insufficient intensive processing capacity, which cannot match current consumption demands for high-end products and prefabricated dishes. High popularization cost and low coverage rate of intelligent digital planting equipment hinder the transformation of small and medium farmers from traditional planting modes. Although the public brand enjoys strong recognition, scattered enterprise brands, inadequate standardization, unstable quality control and backward youth-oriented marketing restrict expansion into high-end markets. Fragmented production-sales circulation links and imperfect cold chain supporting facilities lead to a high loss rate and low circulation efficiency when small farmers connect with large markets.

Overall, Shouguang's vegetable industry boasts unique industrial foundation and huge development potential. To maintain its leading position nationwide, targeted measures should be taken to make up four major weaknesses: intensive processing of industrial chain, inclusive digital agriculture, standardized brand construction and cold chain circulation system. The industry needs to transform from scale expansion to synchronous improvement of quality, brand and efficiency, so as to further release the core value of characteristic agriculture in enriching farmers and boosting county development.

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