

SWOT Analysis of Economic Development of Navel Orange in Ningdu and Countermeasures Research

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Abstract: Ningdu County is one of the main production areas of navel oranges in Ganan. By 2021, the area of navel oranges planted in Ningdu County has increased by 0.9 million mu, with the total area reaching 278,000 mu, accounting for 15.89% of the total area of navel oranges planted in Ganan (the total area of navel oranges planted in Ganan was 1.75 million mu in the same year), ranking first in Ganzhou. Ningdu agriculture has four leading industries, among which navel oranges are its "golden economy" industry, with an annual output of more than 600,000 tons, which are sold at home and abroad and are currently in short supply. In recent years, Ningdu County has made full use of its unique local advantages in mountain and forest resources to take the navel orange industry as a major pillar industry to win the battle against poverty and implement the rural revitalization strategy. Nowadays, Gannan navel oranges have become a veritable agricultural "family tree", rural "wealth tree" and farmers "money tree" in Ningdu. However, there are some disadvantages and threats affecting the economic development of Ningdu navel orange. This paper will make a SWOT analysis of Ningdu navel orange and propose some countermeasures to promote the economic development of Ningdu navel orange and realize the income increase of local farmers, agricultural efficiency and rural economic development.

1. Analysis of the Advantages of Economic Development of Navel Oranges in Ningdu

1.1 Geographical and climatic advantages

Ningdu is located in the south of Jiangxi Province and the northeast of Ganzhou City, which is a subtropical monsoon climate zone with mild climate, sufficient light, four distinct seasons, abundant rainfall and long frost-free period, which is very suitable for the growth of navel oranges. There are many hills and mountains, and the whole county has a forested area of 30,700,000 hectares, of which the slope is below 25 degrees and the area of low hilly slope suitable for growing citrus is in 53,300,000 hectares. ^[1] Ningdu County has the best microclimate for growing navel oranges. And it is in the highest latitude zone of navel orange distribution. In addition, the large temperature difference between day and night during the ripening of navel oranges has created the high quality fruit of Gannan navel oranges in Ningdu County. Ningdu's unique geographical conditions have given birth to world-class navel oranges. Navel oranges have large and thin skin, bright color, crisp and tender flesh, moderately sweet and sour, fragrant and juicy.

1.2 Variety

In addition to the well-known orange flesh navel oranges in the market, Ningdu also has a kind of red heart navel orange, also known as CaraCaranavel orange. This variety has pink to red flesh, uniform color, special fragrance, excellent quality, good merchantability, high seating rate, early production, extremely resistant to storage, and a cold storage period of more than 4 months. Cara Cara navel oranges are suitable for cultivation in areas where the average annual temperature is above 17.5°C and the average multi-year extreme minimum temperature is above -6°C. The most suitable area for planting Cara Cara navel oranges requires an annual activity temperature of 5500~6500°C, and a suitable area for planting navel oranges with a large temperature difference between day and night from the end of October to November before fruit ripening, and a suitable area for planting in winter frost or with frost appearing after the end of December or for a short period of time, and Ningdu just meets the climatic requirements for this planting.

2. Analysis of the Disadvantages of Economic Development of Ningdu Navel Orange

2.1 The area of single variety is too large

Excessive area of a single variety is a common problem of navel oranges in Gannan. The proportion of this variety of New Holland navel oranges in Gannan is over 90%, which leads to too concentrated listing of navel oranges in Gannan during the ripening period and a surplus of seasonal products. ^[2]Other varieties of navel oranges are rare. The proportion of Cara Cara navel oranges in the market is very small, and it can be said that there is almost no circulation in the offline market and some sales in the online e-commerce platform. The vast majority of customers do not know the existence of Cara Cara navel oranges. A small number of people who know about red heart navel oranges can't stop praising them, because the flesh is indeed very juicy, sweet and sour. In terms of nutritional value, Cara Cara navel oranges have a higher vitamin C content than yellow navel oranges and contain lycopene which is not found in yellow navel oranges. As for why there are fewer Cara Cara navel oranges on the market? I learned from a survey of farmers in Ningdu, Cara Cara navel oranges and yellow navel oranges, compared to lower production, Cara Cara navel oranges for the soil and climate is more picky, more difficult to grow, the market price is also 1.5-2 times higher than the yellow navel oranges.

2.2 Some farmers use "sweetener"

Some farmers will play "sweetener" for navel oranges in order to make them sweeter, but when the buyers of navel oranges go to buy navel oranges, they will test the navel oranges and can detect the navel oranges with "sweetener", for which the buyers will not buy, because "Sweetener" is harmful to the human body. Therefore, some farmers can not sell the whole mountain of navel oranges, only rotting in the ground. In fact, the so-called "sweetener" on citrus is not the way to sweeten, but to reduce acid, so as to enhance the sugar-acid ratio, most of the things used are arsenate, which can reduce the citric acid synthesis enzyme activity, to reduce the effect of organic acid content. Arsenic can be toxic to plants, and arsenic enters the plant mainly in the form of arsenate. After spraying, a large amount of arsenate is reduced to arsenite, which is too late to undergo methylation and chelation to be transferred into the vesicles or exocytosis, and eventually detained in the plant, which in turn damages the plant. The above-ground part is often manifested as leaf curling and yellowing, and the underground part of the root system is damaged and blackened, and the number is reduced, which can lead to dead trees in serious cases. If the yellow leaves are caused by changes in chlorophyll content, the root damage is related to membrane damage under

adversity. Therefore, the spraying of "sweeteners" on the hills of navel oranges will seriously damage the growth of navel oranges, and even the next few years, it is impossible to plant navel oranges.

3. Analysis of Opportunities for Economic Development of Navel Oranges in Ningdu

3.1 Government policy support

In order to promote the development of navel orange industry and give escort to growers, in recent years, Ningdu County has issued documents such as "Decision on Accelerating the Development of Navel Orange Industry" and "Opinions on Further Encouraging the Development of Navel Orange Industry", subsidizing the newly developed contiguous 100 mu standard navel orange garden at 200 yuan per mu; giving priority to poor households in supplying virus-free seedlings, implementing first-purchase and later-supplement, and subsidizing 5 yuan per plant at the municipal and county levels. Subsidies for the construction of fake planting net sheds are tilted to poor households, with financial subsidies at the municipal and county levels of RMB 20 yuan per square meter, with the implementation of first-built subsidies.

3.2 Government training for fruit farmers' planting knowledge and technology

Lack of technology is also no longer a concern for fruit farmers. The county fruit industry bureau from the village of experienced fruit farmers selected and hired fruit technician, regular classroom to the front line to teach planters; with "invited in""go out" two legs and go the way, regular hiring of fruit industry experts to Ningdu lectures to solve the problem, the annual government funding to allow Fruit farmers to study at agricultural universities. The county fruit industry bureau implements piecemeal services and management for navel orange orchards, focusing on technical guidance, capital implementation and other "two help" services, so that 90% of fruit farmers in each village have mastered planting techniques such as planting, soil, fertilizer and water management, pruning, pest control, etc. The overall management level of navel orange orchards is high; advocate the formation of "village level Navel orange exchange micro letter group", share experience, exchange technology, realize unified medicine, unified fertilization, unified training, Ningdu navel orange planting is guaranteed.

4. Threat Analysis of Economic Development of Navel Oranges in Ningdu

4.1 Frost disaster and pest disaster

Due to climatic factors, navel oranges can not be planted in the whole county in Ningdu County, but only in the middle and southern townships of the county, because the northern townships will suffer from frost damage in successive years when planting navel oranges. ^[3]From the end of December 2020 to January 2021, Ningdu navel oranges were affected by several low-temperature cold waves and suffered severe frost damage, resulting in widespread frost damage to navel oranges, which led to many fruit farmers losing their blood money.

Huanglong disease is known as citrus (navel orange) "cancer", there is no effective treatment drugs and methods, and has become the number one "killer" to limit the development of the navel orange industry. In recent years, Huanglong disease has spread to every corner of Gannan, and a considerable part of the diseased trees have to be cut down every year. Through years of efforts, Huanglong disease has been better controlled, but other pests and diseases such as decline disease still threaten the development of navel orange industry.

4.2 Coronavirus pandemic affects sales

With the outbreak of Coronavirus pandemic in 2020, the external sales of navel oranges were hit. In previous years, they were exported to many countries, but in 2020 they could only be sold domestically. And in this year, the seriousness of the epidemic in many domestic provinces and cities has affected the logistics and transportation, which has affected the sales of navel oranges in Ningdu. The original cultivation and sales of navel oranges led to the development of transportation, tourism and other related industries. For example, Ningdu navel orange orchard tourism route has driven the development of homestay, catering, sightseeing and picking industries, but because of the epidemic, people could not gather too much, and all these industries were affected and the economic revenue dropped.

5. Feasibility Countermeasures

5.1 Improve the production of Cara Cara navel oranges and promote the planting of Cara Cara navel oranges

The author's investigation found that an important reason why the planting area of Cara Cara navel oranges is small is that the planting history of navel oranges with yellow flesh is much earlier than that of red heart navel oranges. Ningdu County is one of the earliest counties to plant navel oranges in southern Ganzhou. 11 new varieties of navel oranges were introduced from abroad in 1981 for experimental planting in Ningdu County, and after years of comparative observation, New Holland was selected as a suitable, high-yielding and high-quality navel orange variety for planting in Ningdu County. [1] Since then, New Holland navel oranges have been promoted and planted in Ningdu. The Caracalla red flesh navel orange was introduced under the "948" project (August 1994). Before that, the yellow-fleshed New Holland oranges had been planted for many years and the seedlings of New Holland oranges were widely owned by the farmers. The farmers who have been growing New Holland oranges for many years are naturally reluctant to switch to Cara Cara navel oranges on a large scale.

If you want the farmers to promote the red navel orange, first of all, to improve the yield of the red navel orange, which requires Ningdu fruit industry enterprises joint research institutions and universities, to carry out research cooperation to improve the yield of the red navel orange, improve the planting technology of the red navel orange; after the power of the government to promote the planting of red navel orange, for example, to give farmers to plant red navel orange subsidies; send experts to teach farmers how to better planting to improve the yield of Cara Cara navel oranges.

5.2 Improve the ideological education of farmers and prohibit the use of "sweeteners"

Fruit farmers generally have a low level of education, whether they know the harm of using "sweetener" to navel oranges and even to human body or not, the government should give them more ideological education and publicize the harm of "sweetener" to fruits and even navel orange saplings, some hills are hit with After the "sweetener", even if the navel orange seedlings did not suffer extensive necrosis, the navel oranges planted in the next few years are not purchased by buyers. The loss caused to the navel orange economy is huge. This is also a huge loss that the farmers who used "sweetener" did not anticipate. The government can guide the farmers to improve the sweetness of navel oranges in a scientific way. On the other hand, the government should legislate to punish farmers who use "sweeteners", such as conducting random inspections of orchards from time to time and imposing high fines on farmers who use "sweeteners".

5.3 Prevent natural disasters in advance and insure navel oranges with government subsidies

Agriculture depends on the weather and the yield is closely related to the weather. Snow, ice and frost disasters will have a huge impact on the yield of navel oranges, so it is necessary to do a good job in preventing frost damage: (1) appropriate trees for the right place, try to transplant native species and trees with similar environment. (2) Scientific fertilization, fertilization in late autumn with less nitrogen and more phosphorus and potassium fertilizers. (3) For young trees, should do a good job in advance to prevent cold and frost measures. (4) For newly planted trees, they should be whitened and tied with thermal tape. (5) Try not to plant trees in windy places. (6) Choose frost-resistant and cold-tolerant species. (7) Spray snapdragon frost protection 3-5 times in autumn before leaf fall.

The county government should introduce the support policy of financial subsidies for navel orange insurance, provide financial support for navel orange plantation insurance, and push state-owned insurance companies to expand the scope of agricultural insurance to insure navel orange plantation. Efforts should be made to improve the anti-risk capacity of navel orange plantation industry and vigorously support the high-quality development of navel orange plantation industry.

5.4 Do a good job of Coronavirus pandemic prevention, promote live banding and open green channels for transportation

In the situation of Coronavirus pandemic in spring of 2020, there is a Fengjie County navel oranges can still be sold more than 3,000 tons per day. Ningdu, as a big navel orange county like Fengjie, can refer to Fengjie's way of navel orange sales during the epidemic. First of all, doing a good job of epidemic prevention is the most important aspect. The sorting plant factory must be strictly disinfected every day, separate rooms are chosen to establish isolation rooms, employees monitor their body temperature and wear masks when they enter the plant, and no gathering is allowed. It is ensured that the automated machine sorting operation line runs at full speed, cutting and loading, soaking and washing to preserve freshness, size sorting, color categorization, and automatic boxing and transfer are carried out in an orderly manner.^[4] Due to the epidemic, the traditional offline sales method is hampered, and fruit farmers can adopt live sales and cooperate with Alibaba, Shake and other platforms online to promote navel orange sales. The government should promote the implementation of a county-wide vehicle card for the sale of navel oranges to facilitate the rapid shipment of navel oranges to all parts of the country under the Coronavirus pandemic.

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