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Key points of preservation technology of Zigui navel orange tree

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Abstract
Zigui County has formed a pattern of fresh oranges on the market throughout the year through the improvement of citrus varieties and cultivation technology innovation. Based on the fresh-keeping experience of Zigui navel orange trees for many years, this paper expounds and summarizes the function and technical key points of keeping navel orange trees fresh-keeping.

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1. Introduction

Zigui County is located in the west of Hubei Province, the head of the Three Gorges Dam reservoir and belongs to the citrus belt in the upper and middle reaches of the Yangtze River. Zigui County has a long history of planting citrus, in 1995 was named "China navel orange Township", in 2022 was approved to build Zigui Navel orange National Geographic indication product protection demonstration area, in 2023, Hubei Zigui citrus cultivation system was identified as the seventh batch of important agricultural cultural heritage in China, Zigui Navel Orange has also won the "China famous trademark" "China Famous fruit" and other honors. Zigui County belongs to the subtropical continental monsoon climate, warm and humid, adequate sunlight. The average annual temperature is 16.9 ℃, the average annual rainfall is 1292.6 mm, the average annual total sunshine duration is 1498.0 h, and the annual frost-free period is more than 306 days. The county seized the climatic advantages of "warm winter and cool summer, slow spring warming", promoted the improvement of varieties, optimized the maturity structure, developed late-maturing varieties and late-picking supporting technologies, and achieved balanced annual supply of citrus, and has formed a "late spring, summer orange, autumn September red, and winter Newhall" fresh fruit listing pattern all year round. By 2023, the area of sweet orange planting in the county has reached 386,000 mu, and the output has reached 810,000 tons. Among them: early maturity is about 65,000 mu, medium maturity is about 165,000 mu, late maturity is about 156,000 mu [1]. It is beneficial to maintain and improve the inherent quality of navel orange varieties, and increase economic benefits by keeping trees fresh-keeping and harvesting. Through many years of observation, the author now will keep the tree fresh, the main points of ripe harvest technology are summarized as follows.

2. What is keeping trees fresh and harvesting when ripe?

To keep the tree fresh and harvest it fully is to take advantage of the climatic advantages of Zigui County, which are warm in winter and cool in summer and slow in spring temperature rise, to take some technical measures to delay the maturity of navel orange fruits, continue to retain them on the tree for a period of time, reduce acid and improve quality, pick fresh fruits and go to market at the wrong peak [2].

3. What is the function of keeping trees fresh and harvesting them when ripe?

Keeping trees fresh and harvesting them when ripe can reduce storage cost, improve fruit quality and extend fruit picking period [3]. This method can show the inherent characteristics of Zigui navel orange varieties, prolong the fruit market period, adjust the contradiction between supply and demand in the market, improve the brand influence of Zigui Navel Orange, promote brand marketing, and is a powerful measure to achieve cost saving and efficiency.

4. Technical points of keeping trees fresh and harvesting when ripe

4.1. Grasp the 'three choices'.

One is the choice of garden. Choose the orchard with soil depth of more than 40 cm, moderate fertility, moisture and heat preservation, timely irrigation, and lee to the sun in winter; The second is tree selection. Select the high-fruit trees with good structure, strong tree potential, no serious pests, drought and cold resistance; The third is altitude selection. For the overwintering of fruit, Zigui should choose an area below 450 m above sea level and free from freezing damage in winter, such as extreme low temperatures, cold prevention measures should be taken.

4.2. Do a good job of three management.

One is tree management. Through pruning, fertilizing, preventing diseases and insects, promoting spring shoot and controlling summer shoot, the medium strong trees with ventilation and light were cultivated. The second is fertilizer and water management. Apply organic fertilizer + compound fertilizer + calcium magnesium fertilizer once more 30 days before harvesting (the fertilizer amount is determined according to the fruit amount of the tree, the yield of 50 kg of trees, generally apply organic fertilizer 2 kg, compound fertilizer 0.5 kg, and spray calcium magnesium fertilizer twice in June to August). Timely irrigation during drought to prevent fruit atrophy and cracking; The third is fruit management. Take the fruit to save the fruit. The amount of fruit retained in the expanding period was determined according to the crown size, and diseased fruit, mechanically damaged fruit, secondary fruit, small fruit, large fruit, top fruit, etc. were removed from June to August (generally 2.5m high, 3m × 3m crown width, 260-300 fruits were left to measure the amount of fruit retained). Fruit thinning before overwintering, according to the amount of fruit, pick the lower part of the tree, the upper part of the tuyere part of the fruit, the amount of fruit retention should be 70%-75% of the tree load; The overwintering period is from early November to early January, and every 30 days, the leaf fertilizer is sprayed once, and the Guoguangjia or other plant growth regulators are added [4].

4.3. Pay attention to three things.

First, pay attention to the prevention of frost damage. To promote root downward growth, strengthen fertilizer and water management, control diseases and pests, control the amount of fruit and late autumn shoots, enhance tree growth, improve cold resistance, one week before low temperature, drainage, underground irrigation, tree cover grass or mulch, snow removal and smoking. Second, pay attention to timely harvesting. Different varieties of fruit can be hung on the tree for different periods of time, generally fruit acid content is less than 0.5%, according to sales and market conditions, can be picked on a day to prevent the aging of fruit stem cells, forming a "separation layer" fruit drop; Third, pay attention to preservation. Strengthen the cleaning management of orchards before harvest, scientific harvest and post-harvest green preservation, and prevent diseases such as acid rot, phytophthora brown rot and green mold during harvest.

5. References

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