

Study on the Development of Tangqi Loquat Industry in Hangzhou during the Period of the Republic of China

Chaofei Pang

Hangzhou West Lake Scenic Spot Management Committee, Hangzhou, Zhejiang, China

Keywords: China, Tangqi, loquat, industry, cultivation, improvement, promotion, sales

Abstract: This paper studies the development of Tangqi loquat in the Republic of China through the interpretation of journals such as the investigation of Tangqi fruit, the cultivation overview of Tangqi loquat, and the investigation report of Tangqi loquat. During the period of the Republic of China, Tangqi loquat industry made remarkable achievements in variety improvement, market promotion, fruit processing, industrial expansion and so on. However, there are also problems such as backward cultivation technology, unreasonable transportation and marketing structure, backward concept of fruit farmers and so on, which need to be further improved and optimized. It has certain reference significance for the development of Tangqi loquat industry at present.

1. Introduction

Fruit industry research is the key field of agricultural economic research. The research on contemporary fruit industry has achieved fruitful results, but the research on the initial stage of fruit industry in the period of the Republic of China is still relatively weak. Studying the development of the fruit industry in the period of the Republic of China, understanding the problems and advantages of the development of the fruit industry at that time and learning from them are conducive to the healthy development of the contemporary fruit industry. Tangqi is located in Hangjiahu Plain, about 15 km away from the urban area of Hangzhou. It was a giant town of Hangzhou county during the period of the Republic of China. The land has fertile soil and mild climate, which is suitable for the growth of fruit trees. Therefore, it is known as "Hangzhou County orchard", among which loquat is the most famous. This paper explores the development of Tangqi loquat industry in the period of the Republic of China, analyzes its cultivation, transportation and marketing, industrial expansion and other aspects, and tries to provide a useful supplement for a comprehensive understanding of the development of the whole fruit industry in the period of the Republic of China.

2. Cultivation of Tangqi Loquat in the Period of the Republic of China

In the first 30 years of the 20th century, the cultivation of Tangqi loquat reached its peak, and the cultivation area expanded to the whole Tangqi area [1]. During the period of the Republic of China, Tangqi loquat cultivation area was about 6 km from Quanzhang in the East, about 6 km from Dongtang in the west, about 5 km from Yaojiawan in the South and about 10 km from Deqing County in the north, with a cultivation area of about 1300 hm²; Among them, Dongjia River, Xijia

River, Dingshan River and beiyangdun are the most famous. There are many farmers who cultivate loquat with Hm^2 , and there are few farmers who cultivate loquat with hm^2 . The annual yield of loquat is high, but according to the records of various statistical data at that time, there is a large difference. In terms of total output, it is recorded that Tangqi produces no less than 10000 tons of loquat every year; It is also recorded that the well-known Tangqi loquat can produce 4000 tons a year; In terms of unit yield, the output of Tangqi loquat can be divided into large and small years, with a great difference, 667 m^2 . The large annual output is 500 kg and the small annual output is 300 kg [2]. It is also recorded that Tangqi loquat 667 M^2 can harvest 1500 kg in the big year and about 500 kg in the small year.

According to the investigation report on Tangqi loquat in the period of the Republic of China, Tangqi loquat has a wide variety, and many of them are excellent varieties. According to the investigation report of Tangqi loquat in 1930, there are at least 14 species of Tangqi loquat. Wang Zhongyi's "overview of Tangqi loquat cultivation" believes that there are 13 kinds of Tangqi loquat. According to Zhao pizhong's rural sideline survey: the current situation of Tangqi loquat cultivation and its countermeasures and improvement measures, the species of Tangqi loquat are particularly complex, with no less than 20 species in statistics. According to the statistics of the investigation of Tangqi fruits, there are 13 species [3].

Among many Loquat Varieties, soft hanging white sand has the best quality, but it has some disadvantages, such as low yield, fruit every other year, rainy and easy to crack, not resistant to storage, and many seeds, which led to less fruit farmers cultivating this kind of loquat in the period of the Republic of China. Dahongpao varieties have a high proportion of cultivation, but their quality is medium. Although their fruits are large and have more seeds, they are not called top-grade. Claw dragon White was the most potential variety at that time. In addition to high yield, long tree life, less fruit core and more meat, it also had the characteristics of storage resistance and no alternate year fruit. It had many advantages compared with Baisha and Dahongpao [4].

There are other conclusions about the cultivation of Loquat Varieties. For example, according to the survey results of the College of agriculture of national Zhejiang University, Wuer is the most cultivated near Tangqi, followed by Qingbi and Dahongpao. The main reason is that Wuer and Qingbi have high output and are easy to store and transport. Although Dahongpao is not comparable in output, its appearance is the most beautiful among loquats. Therefore, although the quality of these three species is not the best, there are many planters [5].

According to "Tangqi loquat cultivation Overview", Tangqi loquat was mainly cultivated by grafting in the period of the Republic of China. From May to June, loquat seeds were sown, covered with garbage as fertilizer, and transplanted the next spring, with a plant spacing of about 0.3 m; Transplanting again in the third year, with plant spacing of about 1 m; In the fourth year, the plant spacing is about 2 m; It can be used as grafting stock before and after the beginning of summer in the third to fourth year after sowing. With biennial branches with strong apex, about 10 cm long. Saw the rootstock at a place about 0.3 m away from the ground, but not completely, taking the natural sag of the rootstock as the degree (part of the fracture is not broken and connected with the upper part). At the fracture of rootstock, use a grafting knife to cut between the cortex and wood, insert the scion, wrap it with straw, coat the joint with wet mud, and stick it outside with loquat leaves to prevent direct sunlight and water evaporation. In August of that year, when the scion grew about 30 cm, the upper part of the rootstock was cut off. After the scion survives, all the buds on the rootstock must be erased to save nutrients and promote the growth of scion. One year after grafting, colonization shall be carried out, the row spacing shall be controlled at 5 m, 667 m^2 , and the planting density shall be 20 ~ 30 plants. In addition to the grafting method, farmers also use the method of direct sowing (such as platform planting), but its fruit quality is poor, so it is rarely used.

After transplanting loquat trees, fruit thinning is one of the most important tasks in loquat

cultivation. Remove the excess fruit and promote the growth of the remaining fruit. Generally, fruit thinning is divided into young trees and strong trees. Young trees and sparse fruits. Loquat Seedlings began to blossom and bear fruit 2 ~ 3 years after planting. However, due to insufficient nutrients, small fruits and poor quality, farmers removed all the fruits in the first ~ second year, so as to concentrate nutrients on branches and roots, hoping to have a good harvest in the future. Strong trees and thin fruits. The flower buds of loquat often grow 30 ~ 40 on a flower axis, resulting in many results, but the fruit is very small, which leads to the disadvantage of bearing fruit every other year. For ordinary large fruit species, 5 ~ 6 per flower axis and 7 ~ 8 for small fruit species [6].

During the period of the Republic of China, chemical fertilizer was not widely used, so the fertilizer used for Tangqi loquat was mainly natural fertilizer. There are many kinds of fertilizers used, such as soybean meal, rape meal, river mud, human urine feces, garbage, etc. Among them, there are more human urine feces and river mud and less soybean meal and rape meal. Only some relatively affluent farmers would apply them at that time. Fertilization for big trees is generally conducted twice a year. After fruit picking and in winter, 25 kg of human excrement and urine is used for each plant after fruit picking. In winter, 25 kg of human excrement and urine is applied first, and then river mud is poured; Young trees are fertilized only once in winter. Ordinary families use 12 kg of feces and urine per plant. If rape meal or soybean meal is used, it is about 2 kg per plant [5].

Tangqi loquat has relatively few diseases and insect pests, so farmers generally ignore the prevention and control of diseases and insect pests, and the prevention and control of diseases and insect pests is also dominated by manual control. The main diseases and pests and control measures are as follows. (1) Anthrax. When the fruit is ripe, dark gray spots appear on the surface, which are gradually concave and corrupt. The prevention and control measures are to sprinkle lime sulfur mixture for 2 ~ 3 times; (2) Weevil. It is especially harmful to eat fruit, and can bite off the fruit stem. The prevention and control measures are to apply cloth under the tree and kill with a rod; (3) Longicorn. Perforations gnaw at branches. The control measures are to remove the egg leaves when laying eggs, hook the larvae out of the hole with lead wire, and catch and kill the adults at any time [7].

3. Transportation, Marketing and Industrial Development of Tangqi Loquat in the Period of the Republic of China

The sales market of Tangqi loquat is relatively concentrated, mainly distributed in Shanghai, Northern Zhejiang and southern Jiangsu. Statistics on the sales share of each region are different. "The bulk of the market is transported to Jiangsu Province and Shanghai, accounting for 60% of the total amount, and 40% to Hangzhou, Deqing and other places [4]; "The output quantity of loquat accounts for about 50% in Shanghai, 30% in Nanjing, Wuxi and Suzhou, and 10% in Hangzhou. The rest is transported and sold to nearby four townships [8]; "The most popular products are transported to Shanghai, followed by Hangzhou and Ningbo, and a few are transported to other places [5]". To sum up, although the market share of other regions is different, there is no doubt that Shanghai is the largest sales market of Tangqi loquat and the main market is Taihu Lake Basin, which is related to the transportation conditions and storage technology of loquat at that time, so it is impossible to transport a large number of Loquats across the country.

During the period of the Republic of China, the packaging of Tangqi loquat was relatively simple, mainly in bamboo baskets. Loquats are packed in round bamboo baskets, with a height of 15 cm, a mouth width of 28 cm and a bottom width of 19 cm. It is made of bamboo strips, with large eyes and a width of 2 ~ 3 cm. Each basket can hold 2 kg of loquat. The bottom of the basket is

lined with loquat leaves or newspapers. Most of them are not covered, but they are also sealed with mulberry. The words "Tangqi real soft strip and white sand" are pasted on the basket. For loquat packaging in rural areas, it is more common to use large bamboo baskets, each basket can hold about 5 kg of loquat [5]. Because the loquat packaging is simple, loquat is easy to be damaged in transportation, which is not conducive to long-distance transportation.

As Tangqi loquat is transported to the city for sale, it is impossible for farmers to sell it directly to consumers and must be sold through fruit merchants. There are two kinds of fruit shops that carry out loquat business in Tangqi: Zuozhuang and ordinary loquat shops. (1) Sit on the throne. Around the loquat harvest period, foreign businessmen set up temporary buying offices in towns and townships. The merchants set a market price, and farmers can sell it directly to farmers; Or the middleman will go to the countryside to buy, so most of these transactions are cash transactions. (2) Ordinary loquat line. It is the usual fruit line. During the loquat harvest period, it is priced by experts and bought directly, and then transported by the fruit line to all parts of Shanghai and Hangzhou. After the transaction is completed, the price is handed over to the farmer [9]. Middlemen generally charge 15% commission. The purchase price of ordinary loquat shops is slightly higher than that of Zuozhuang. Because Zuozhuang is a cash transaction, the transaction of ordinary loquat shops is speculative and risky, so the purchase price is also high [5].

During the period of the Republic of China, Tangqi loquat was mainly transported by water. After the opening of Shanghai Hangzhou Ningbo railway, part of it was transported by railway [8]. The external transportation cost of Tangqi loquat includes various miscellaneous taxes in addition to freight. According to the cost of transporting to Shanghai in normal years, the statistics are as follows: Tangqitong donated 0.24 yuan for each load of main tax and 0.0624 yuan for auxiliary tax, with a total of 0.3024 yuan; Shimen checkpoint tax 0.8 yuan; Shimen Bay checkpoint tax 1.0 yuan; Doumen checkpoint tax 0.6 yuan; Jiaying South Gate checkpoint tax 0.6 yuan; Jiaying west gate tax: 6.0 yuan; Tangwan customs duty: 1.5 yuan; Xitang checkpoint tax 0.4 yuan; Sijiangkou donated 0.1 yuan per load [4]. According to the calculation of carrying 2 T loquats in medium sailboats, the freight from Tangqi to Shanghai is about 13 yuan, various taxes are about 22 yuan, and the total cost is about 35 yuan. According to the calculation that the freight is 10% of the selling price [9], The total sales value of a ship of loquat is about 350 yuan, the average retail price of every 50kg loquat is about 8.8 yuan, and the price of every 0.5kg loquat is about 0.088 yuan.

At that time, the sales of Tangqi loquat in the market had a good reputation and a high market share. This paper analyzes the sales situation of Tangqi loquat from Shanghai, the largest market of Tangqi loquat. Although Tangqi loquat has a wide variety, it is mainly sold in Shanghai market in four categories: Baisha, Hongzhong, Yangdun and grass. The soft white sand is as white as fresh litchi because of its white flesh, many slurries and sweet taste. Considering its sweet and fresh taste, it is inferior to fresh litchi, so soft strip white sand is the best among loquats and a treasure among fruits. As for the red seed, it has only its own name. It is not only far inferior to the white sand, but also better than the grass seed ear. The Yangdun species is very good. Except for the soft strip and white sand, it should be pushed. It only has the skin color like grass species, and its shape is small, so it is not noticed [10]. "Among Tangqi loquat quality, soft hanging white sand is the best, Yangdun species is the second, red species is the third, and wild species (wild Loquat Varieties) is the worst. Tangqi loquat sales network is all over every corner of Shanghai." We can see baskets of orange and round loquats [11] in the street, in the corner of the lane, on the fruit stall and in the peddler's shoulder."

The advantages and disadvantages of Tangqi loquat can be analyzed by comparing Tangqi loquat with Dongting loquat in terms of yield, price and listing time. The loquats sold in Shanghai market are Tangqi loquat from Hangzhou and Dongting loquat from Dongting mountain in Suzhou. Most of the loquats sold in Shanghai are Tangqi red species, Baisha loquat and Baisha loquat from

Dongting mountain [12]. Yafei [13]Comparing Tangqi loquat with Dongting loquat, "the so-called mountain Baisha loquat is nothing more than some cheap Tangqi loquats. The real Dongting mountain red sand Dahongpao, I believe, is rarely bought in Shanghai, because the goods are few and expensive. The price of 2.5 kg per basket is at least 0.8 yuan, while Baisha is more than 1 yuan, which is several times higher than that of ordinary Tangqi loquat in the market", "Tangqi loquat is early maturing, good-looking and cheap, but it tastes sour and light. Mountain loquat is not. Its maturity period is at least one week after the Dragon Boat Festival. However, it doesn't look like Tangqi goods, and its price is also high, but it makes a difference." It can be concluded that in terms of yield, the annual yield of Tangqi loquat is higher than that of Dongting loquat (no matter the yield is rich, it is only high or low); Therefore, the price is also more reasonable and more acceptable to the general public in Shanghai. According to the calculation of 2.5 kg per basket of loquat, the average price of Tangqi loquat is 0.5 yuan ·kg -, while Dongting loquat is 0.8 yuan ·kg - even if it is cheap, and more than 1 yuan ·kg if it is expensive. However, Tangqi soft hanging Baisha loquat is also more expensive than ordinary Dongting loquat. "The so-called real Tangqi Baisha, ladies in Beijing and Shanghai, can hardly taste its taste, not to mention other remote areas" [14]; Tangqi loquat is also better than Dongting loquat in terms of appearance. Tangqi loquat is of superior quality, especially the soft hanging white sand. It is second to none among the loquat species in China. No matter what kind, it can not be surpassed, that is, Dongting Changzhao species can be regarded as a treasure in Wu County and can not be compared with it" [14]. And most people also appreciate the description of Tangqi loquat, such as "Tangqi loquat has the softest pulp and is rich in sugar juice [15]". From the perspective of seedling price, Tangqi loquat tree is also higher than ordinary loquat trees, "... Baisha loquat is 3 yuan, monocyte loquat is 3 yuan, Tangqi loquat is 4 yuan... [16]".

During the period of the Republic of China, the sales of Tangqi loquat was not limited to fruit sales, but also extended to sweet food processing and picking tours. At that time, there was an old Huichang store in Tangqi Town, which made loquats into candied fruit for sale. The business was very good. Later, businessmen from Suzhou, Shanghai and other places came to purchase loquats. Some purchased raw fruits and took them back to make them themselves, and some set up factories in Tangqi to make [17], "Shanghai Meilin company has also set up a branch in Tangqi to keep this delicious" fresh tree head "flavor in a very fresh loquat device can with scientific methods, which is transported to Beijing, Shanghai and other places abroad to supply ladies in distant places. This famous fruit is delicious" [15]. At that time, Tangqi loquat sugar processing industry was relatively developed, and modern canned processing methods were introduced, which was relatively rare in the fruit industry at that time. In addition, Tangqi loquat picking tour and farmhouse fun also started. "People from nearby Hangjiahu and other places also made a special trip to this loquat garden to eat loquats. They bent over and ate loquats in the loquat forest as much as possible. Those with a good appetite can eat five kilograms of loquats. If they are full of loquats and have a rest, they will not reduce their original appetite." [15]

Loquat honey is also one of the specialties of Tangqi. At that time, bee farmers were very enthusiastic about picking loquat honey in Tangqi. According to the records of bee farmers in 1933, "in the past, there were two or three bee farms to try, and then they gradually attracted the attention of ordinary beekeepers. In the past one or two years, there has been a sudden increase. For example, there are more than 40 farms of people living in the pond this year, and the total number of bee colonies is more than 5000. It can be seen that ordinary people pay attention to living in the pond" [18]. The above 5000 bees can collect 12.5 tons of honey a year according to 2.5 kg of honey collected by each group.

4. Problems in the Development of Tangqi Loquat Industry in the Period of the Republic of China

The development of Tangqi loquat industry in the period of the Republic of China has made remarkable achievements, which has something to do with the pioneering and enterprising of Tangqi people at that time. Constantly improve Loquat Varieties and cultivate better varieties; Actively explore the market and occupy a large share in the loquat market; Actively try loquat deep processing to break through the deficiency of loquat storage; Develop loquat picking industry and loquat picking industry; Continuously improve the utilization rate of loquat fruit trees and carry out loquat honey collection projects. However, as pointed out in the report of the Department of horticulture, College of agriculture, national Zhejiang University, there are many inherent advantages of loquat cultivation near Tangqi, and the methods are not appropriate, which still need to be improved [5]. At that time, the development of Tangqi loquat industry was still in the primary stage, and there were still deficiencies in many aspects, which needed continuous improvement. The main problems are listed below.

First of all, there are still deficiencies in loquat cultivation techniques, which need to be improved. During the period of the Republic of China, the scientific experiment on loquat cultivation was still in its infancy, including the selection of rootstock, period and method of loquat inoculation; The selection of fertilizer application type, period and quantity; There are many problems in the cultivation of excellent Loquat Varieties. For example, Tangqi loquat has many varieties, but there are few excellent varieties, and there are also deficiencies in terms of excellent varieties. For example, Baisha with the best quality has some problems, such as less yield, alternate year fruit, intolerance to storage, easy cracking and so on; However, claw dragon white, which has the advantages of high yield, no next year fruit and storage resistance, has the problem of poor quality. Therefore, at that time, it was proposed to establish a research institution specializing in loquat improvement to conduct scientific experiments on variety improvement and inoculation optimization of Tangqi loquat.

Secondly, Tangqi farmers have insufficient scientific awareness in loquat garden management and integrity awareness in management. In terms of fertilization, farmers generally apply fertilizer directly on the soil or after loosening the soil, and rarely apply fertilizer to cover the soil, which is very easy to volatilize nutrients; In terms of pruning, farmers allow branches to grow, which is very easy to cause branches to grow on one side, induce various diseases and pests, and affect the normal growth of loquat trees; In terms of pest control, Tangqi fruit farmers often ignore the diseases and pests of loquat trees and often cause losses; In terms of fruit harvesting, except for a few precious varieties stored separately, the general varieties are placed mixed, with different sizes and mixed advantages and disadvantages, which affects the sales price of loquat; In terms of product packaging, loquat packaging uses ordinary bamboo baskets, and the bottom of the basket is lined with green leaves or newspapers. Generally, it is not covered, which is very easy to cause fruit damage during transportation. In addition, Tangqi fruit farmers have a low awareness of honest management. Farmers often cultivate platforms with poor quality for the sake of profit and cost saving; Or put the better loquat on the top and the worse loquat on the bottom, trying to shoddy it, losing the reputation of commercial operation and affecting consumers' evaluation of Tangqi loquat. At that time, Tangqi people of insight had found these problems and established Tangqi people's Education Hall in the hope of improving farmers' literacy in all aspects.

Finally, in the period of the Republic of China, Tangqi loquat needs to be improved in the transportation and marketing structure. Tangqi loquat is mainly sold in farms and ordinary loquat shops, and intermediaries squeeze fruit farmers heavily. Therefore, some investigation reports pointed out that loquat cooperatives should be established, carry out unified external sales and

purchasing fertilizer on behalf of others, so as to reduce the exploitation of fruit farmers by middlemen. In addition, fruit farmers can also unify the packaging of Tangqi loquat through loquat cooperatives to improve the external popularity of Tangqi loquat; Through cooperatives, we can also strengthen the publicity of scientific methods of loquat cultivation, improve farmers' business ethics, and carry out large-scale promotion of excellent varieties.

5. Conclusions

During the period of the Republic of China, Tangqi loquat industry has made remarkable achievements in variety improvement, market promotion, fruit processing and industrial expansion, but there are also some problems, such as backward cultivation technology, unreasonable transportation and marketing structure, backward concept of fruit farmers and so on, which need to be further improved and optimized. The development of loquat industry in the period of the Republic of China has reference significance for our current research and development and business strategy adjustment of Tangqi loquat industry in the period of the Republic of China has reference significance for our current research and development and business strategy adjustment of Tangqi loquat agricultural technology.

References

- [1] Chen Qifeng. *Are examination of the cultivation history of Tangqi loquat*, *Chinese agricultural history*, 2001 (3): 43.
- [2] Wu Baoheng. *Loquat in Tangqi town*, *Beijing Shanghai Hangzhou Ningbo railway Journal*, 1934 (1): 995
- [3] Wang peizhi. *Investigation of Tangqi fruits, industrial and commercial bimonthly*, 1930, 2 (7): 24-25.
- [4] Wang Zhongyi. *Overview of Tangqi loquat cultivation, nature*, 1930, 5 (1): 94-95.
- [5] Department of horticulture, Zhejiang University. *Tangqi loquat investigation report (1930)*, ancient books Department of Zhejiang Provincial Library, file No.: 633.316/3234.
- [6] Zhao Pizhong. *Rural sideline survey: the current situation of Tangqi loquat cultivation and its improvement measures*, *Dazhong rural sideline monthly*, 1936, 1 (4): 5.
- [7] Zhao Pizhong. *Rural sideline investigation: The current situation of Tangqi loquat cultivation and its countermeasures and improvement measures*, *Dazhong rural sideline monthly*, 1936, 1 (4): 8.
- [8] Wu Baoheng. *Loquat in Tangqi town*, *Journal of Beijing Shanghai Hangzhou Ningbo railway*, 1934, (995): 2.
- [9] Zhao Pizhong. *Rural sideline survey: The current situation of Tangqi loquat cultivation and its countermeasures and improvement measures*, *Dazhong rural sideline monthly*, 1936, 1 (4): 6.
- [10] Li Zhixian. *Talk Tangqi loquat*, *shanghai paper*, 1932-07-05 (11).
- [11] Lu Dibo. *Wang Xianwen. loquats*, *shanghai paper*, 1937-06-14 (14)
- [12] Pang Boren. *Farmers and merchants of the Dragon Boat Festival*, *shanghai paper*, 1940-06-11 (9).
- [13] Zhao Ping. *Loquat*, *shanghai paper*, 1937-06-14 (14).
- [14] Zeng Mianzhi. *Suzhou Dongting and Hangzhou Tangqi loquat (1937)*, *gardening*, 1937, 3 (6); *Quoted from Lin Yongjin: Tangqi loquat*, Hong Kong: Tianma books Co., Ltd., 2003.138.
- [15] Liao Yueting. *Tangqi loquat*, *shanghai paper*, 1947-06-02 (9).
- [16] Li Sen. *Nanyang seed and seedling company gives fruit tree seedlings*, *shanghai paper*, 1933-09-08 (6).
- [17] Zhu Jiashan. *Fruit producing area of rich town*, *shanghai paper*, 1947-02-19 (8).
- [18] Xian Zhen. *Collecting loquat honey in the pond*, *rural Xunzhan journal*, 1933 (6): 91.