



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Constraints of Quality and Marketing of Gannan Navel Orange and Measures for Industrial Development

Yayan CHEN\*

School of Business, Gannan Normal University, Ganzhou 341000, China

**Abstract** In order to provide reference for the sustainable development of Gannan navel orange industry, this paper analyzed constraints of quality and marketing of Gannan navel orange. From developing the dominant area of the navel orange and ensuring high quality healthy development of navel orange, it came up with sustainable development recommendations for Gannan navel orange industry, to realize high quality, efficient, and deep development of Gannan navel orange industry in both the area and quantity, and change from simple planting and sales to fresh fruit sales, deep processing, and tourism combined development.

**Key words** Gannan navel orange, Quality, Marketing, Constraints, Measures

## 1 Introduction

On June 28, 2012, the State Council issued *Several Opinions about Supporting Development of Gannan Former Soviet Central Area* [Guo Fa (2012) 21], which clearly determined the strategic position of building Gannan former soviet area into the world largest high quality navel orange production base. On August 22, 2016, Premier Li Keqiang inspected Ganzhou and fully affirmed its development of Ganzhou navel orange industry. In recent years, Gannan navel orange has developed from the simple planting industry into an industrial cluster integrating the planting, production, warehousing logistics, and deep processing<sup>[1]</sup>, showing significant development advantage of the navel orange industry. At present, the navel orange yield of China accounted for 12% of the world's total yield, while the navel orange yield of Jiangxi Ganzhou accounted for 48% of China<sup>[2]</sup>. Gannan navel orange ranks the first in both the planting scale and the yield, but the market advantage of Gannan navel orange is not prominent and it has not become the leading force in the navel orange market. Therefore, in such large scale planting pattern, to promote transformation and upgrading of Gannan navel orange industry, we analyzed constraints of development of Gannan navel orange industry, and came up with pertinent recommendations, to provide certain references for sustainable development of Gannan navel orange industry.

## 2 Problems in the development of Gannan navel orange industry

Quality and marketing are two basic lifelines for the development of Gannan navel orange industry. High quality and high price of navel orange are fundamental objectives of the entire navel orange

industry. With the expansion of the planting scale of Gannan navel orange, the dilemma of large area of planting but low income is becoming more and more prominent. Therefore, in the context of Gannan navel orange industry, the core of lifting the industrial competitiveness is still improving the quality and grasping the marketing, but its quality and marketing are constrained by many factors, and the factors are mutually interacted and restricted.

### 2.1 Constraints of the quality

**2.1.1** Inconsistency between planting scale expansion and orchard management level. In Ganzhou City, the navel orange planting area grew rapidly from 20000 ha in 2000 to 77000 ha in 2005, and it was up to 112000 ha in 2014. Navel orange growers expand the planting scale blindly, but the orchard management (investment, labor, and technology) did not catch up with the planting scale, the management was extensive, and orchard success rate was low; orchard workers were older than 50 years old, had primary school or junior middle school education; orchard management was still undertaken in a traditional manner, their learning ability of modern orchard management technology was low, their enthusiasm was weak; there were few technicians for navel orange protection; in counties and cities where there were professional personnel, they were not arranged specially; the low orchard management level leads to failure to ensure the navel orange quality.

**2.1.2** Few bases of high quality navel orange. In the process of expanding the planting scale and building navel orange orchard, the traditional orchards accounted for more than 90%, while there were few organic or green, mechanized high standard navel orange bases. At present, there was 2166.7 ha organic navel orange base, accounting for 1.93% of the total planting area; the navel orange mechanized production base was 6700 ha, accounting for 6% of the total area; orchards smaller than 2 ha accounted for about 90%; 50% of the orchards did not have roads, 70% of the orchards did not have electricity, only 18% orchards had irrigation system; facilities for preventing natural disasters were not in place. In 2013, the yield of Gannan navel orange was 12900

Received: March 7, 2017 Accepted: April 2, 2017

Supported by Project of Gannan Normal University "Interprovincial Comparison of Export Competitiveness of Gannan Navel Orange" (15kyw09); Student Innovation Project of Gannan Normal University in 2016 (84).

\* Corresponding author. E-mail: 56595980@qq.com

kg/ha, which was 14603.1 kg/ha lower than the average yield of sweet orange in China, having a big gap with Brazil (24688.5 kg/ha) and the United States (32587.8 kg/ha). The average planting scale of navel orange was large, but the production scale of individual grower was small, the yield was low and the quality can not be guaranteed. The production cost can not be reduced, leading to low benefits of Gannan navel orange.

**2.1.3** Point and non-point source pollution. Due to the excessive use of pesticides, fertilizers, agricultural plastics and livestock breeding pollution, there were serious point and non-point source pollution in the navel orange production areas. Such pollution starts endangering the safety of the entire navel orange industry. According to the survey, orchards and farmland in Xunwu County used pesticides up to 252 kg/ha, fertilizer 604.5 kg/ha, film hardly degraded up to 22.05 kg/ha.

**2.1.4** Single variety structure and few fine varieties. In the variety structure, the main varieties of navel orange include Newhall, Washington Navel Orange and Bonanza Navel Orange, accounting for 95%. In the maturity period structure, more than 85% of the varieties were mature in November and December; less than 10% varieties were mature before the end of October or in the next year. In 2004, Ganzhou City started planting the late mature variety of navel orange. However, by 2011, the planting area of late mature variety was still less than 666.67 ha (including newly developed and high grafting varieties), the annual yield was below 100 t<sup>[3]</sup>. The late mature navel orange varieties were few, and planting area and yield had not formed scale and advantages. Gannan navel orange varieties are single and the maturity period is concentrated, leading to seasonal or regional surplus of navel orange. In the functional structure, Ganzhou mainly developed fresh navel orange varieties, while those varieties suitable for the processing have not formed a large-scale and specialized cultivation. In the quality structure, there was little difference in the quality of Gannan navel orange, the satisfaction for different levels of consumers was not high, and navel orange at market was common and few varieties were fine.

**2.1.5** Wide regional distribution and single planting. Firstly, the concentration degree of planting distribution is not high. Xinfeng, Anyuan and Xunwu were major areas of navel orange planting in Ganzhou City, their navel orange planting accounted for 43.27% of the total area; Ganxian, Chongyi County, Longnan County, Yudu County, Ningdu County, Xingguo County, Huichang County, and Ruijin City accounted for 46.6% of total navel orange planting area, the rest 10% planting areas were scattered in other counties and cities. Navel orange planting was too scattered. In addition to lack of agricultural technical personnel, local agricultural service stations can not concentrate on technical promotion and guidance, accordingly affecting the stability of quality of navel orange. Secondly, the trend of single variety planting is increasing. In 2014, the citrus planting area of Ganzhou accounted for 87.03% of the city's fruit planting area; while the navel orange planting area accounted for 71.27% of the citrus

planting area. Such single planting mode diminishes diversity of ecological environment, leading to decline in resistance of natural disasters and pests and insects<sup>[4]</sup>. For example, the resistance of Gannan navel orange to the greening disease is sharply declining in recent 5 years. What's worse, the single variety planting mode accelerates the spread of greening disease and becomes a key factor restricting the safety of Gannan navel orange industry.

**2.1.6** Serious occurrence of the greening disease. The greening disease is the most serious challenge faced by the world's sweet orange industry, is called the cancer of citrus. In 2012, the greening disease broke out in large area of Gannan; in 2013, 1.5247 plants of navel orange were confirmed infection of greening disease in Xinfeng County, the incidence was up to 11.8%; in 2012 – 2013, the average incidence of greening disease was 20% – 25% in Xunwu County, the annual loss was up to 1.5 billion yuan; in 2014, more than one million plants of navel orange got the greening disease in Anyuan County. In 2012 – 2015, the planting area of Gannan navel orange reduced 13300 ha, and the existing planting area was 98700 ha. Incurability and contagion of greening disease cause enormous difficulty in navel orange quality control and high risk of planting. Besides, circulation of navel orange affects evaluation of the quality of Gannan navel orange. At the same time, according to the survey of our team in Xunwu County, many orange growers abandoned their orange orchards or changed to plant other crops because of the greening disease, desolation or poor management may become the outbreak points of the greening disease<sup>[5]</sup>.

**2.1.7** Low organizational level and lack of leading enterprises. At present, there are 1000 specialized fruit cooperatives registered in Ganzhou, covering only 30% farmers. Agricultural cooperatives are generally controlled by several local large farmers, in order to obtain national preferential policies. However, they did not bring into functions of helping orange growers to obtain market information and sales. According to the *List of Fruit Planting Enterprises in Ganzhou City* (2016), there were 202 fruit planting enterprises in 18 counties of Ganzhou, but only 11 city-level fruit leading enterprises. Leading enterprise is the link between fruit growers and the market, while specialized cooperative is the bridge between fruit growers and enterprises. Low organizational level of fruit growers and lack of leading enterprises in Gannan caused small and medium-sized fruit growers fail to plant fruit according to demands and feedback information of fruit. Separate fruit growers would pick navel orange to seize the market. For the whole industry, it is difficult to establish a production and marketing information network and large-scale, standardized, mechanized cultivation and realize unified fruit quality, and the measures for prevention and control of diseases and pests can not be implemented effectively.

## 2.2 Constraints of the marketing

**2.2.1** Difficult to guarantee the fruit quality in sales process. The post-harvest commercialization rate is low, and the distribution of fruit processing enterprises is unreasonable. By 2013, there

were only 194 post-harvest commercialized grading production lines in Ganzhou, the grading capacity was 3380 t/h, the annual grading packaging of navel orange post-harvest commercialization (preliminary processing) was 730000 t, and the grading packaging rate was 55%<sup>[6]</sup>. In Xunwu County and Ganxian, 80% fresh orange was only roughly graded and picked, packaged by ordinary cartons or net bags, plastic bags for sales<sup>[7]</sup>. The navel orange planting area of Quannan County was 1400 ha, the yield was 12000 t, there was only one fruit processing enterprise in the whole county, the fruit processing capacity was less than 15 t/h, and the commercialization rate was only 10%. In warehousing and sales of fruit, the preservation measures are inadequate, and cold storage and ventilation shelves are not in place. At present, preservation of Gannan navel orange depends mainly on low temperature refrigeration and chemical reagents. Low temperature refrigeration needs high cost, while chemical preservation inflicts certain harm to human health. In sales area, Gannan navel orange is not refrigerated and the quality can not be guaranteed.

**2.2.2** Great pressure of sales due to centralized sales. In the whole Ganzhou City, the navel orange storage capacity is insufficient, far less than extending the sales period and realizing the balanced marketing requirements. By the beginning of 2015, large warehouse stored 200000 t, simple warehouse stored 600000 t, the storage capacity accounted for 65.58% of the navel orange yield in 2014, but the storage capacity of quality warehouse was only 16.39%<sup>[8]</sup>. The export volume of Gannan navel orange in Jiangxi Province was 16900 t, 30100 t, 15900 t and 12000 t in 2011, 2012, 2013, and 2014 respectively<sup>[9]</sup>, and the export volume accounted for 1.0% – 2.5% of total yield. In the whole country, the export volume of Gannan navel orange accounted for only 14.66% of the export volume of the whole country in 2013, and it diminished to 11.91% in 2014. The fine and deep processing lags behind. In Ganzhou City, there were 10 navel orange deep processing enterprises, including 3 orange juice processing enterprises<sup>[8]</sup>. Fine and deep processing of navel orange in Ganzhou City is faced with high processing capacity but insufficient processing materials, because the storage volume is small; navel orange growers plant navel orange mainly for fresh orange, few for processing; the purchase price of processing enterprises is low, and orange growers are not enthusiastic.

**2.2.3** Constraint of sales of navel orange by logistics service. The cold chain transport for Gannan navel orange has not been established. Generally, Gannan navel orange is delivered by ordinary trailer (refrigerator truck has to be rented from Guangzhou and Shenzhen). This limits expansion of Gannan navel orange market in the north, resulting in failure to transport to Dandong, Qingdao, and Manzhouli where the navel orange price is high. In the past two years, the e-commerce of Gannan rural navel orange has developed rapidly. However, due to the limited distribution of rural logistics in Gannan, in addition to coincidence of the sales season with Double Eleven (November 11) and Double Twelve (December 12), and Christmas Day, the online sales is hot, but the

offline express services get paralyzed, leading to high compensation rate due to return and replacement of navel orange. In addition, logistics process is complex, the transport efficiency is low, and the transport loss is huge, so the quality can not be guaranteed, consequently restricting the development of e-commerce of navel orange.

**2.2.4** Single sales channel and insufficient talents. At present, sales of Gannan navel orange mainly relies on production and marketing wholesalers and local fruit enterprises. Scattered small-scale single planting led to the weak position of orange growers. In recent 2 years, the e-commerce of Gannan navel orange developed rapidly, but the sales scale was less than 1%. Due to limitation in the quality of orange growers, planting scale, and rural logistics, individual network operators may become characteristics of navel orange sales, but are difficult to become the mainstream. Large-scale growers and fruit companies have their own stable sales network, but a large number of small fruit growers still face the difficulty in sales and unstable price. Ganzhou is located in the central region of Jiangxi, the traffic is not developed, the industry is weak, the wage level is low, in addition to neighbor to Shenzhen of Guangdong, a large number of talents flow to large cities, leading to shortage of marketing and foreign trade talents, thus restricting the marketing of Gannan navel orange.

**2.2.5** Weak marketing awareness of navel orange growers and difficult to obtain market information. The marketing awareness of fruit growers is weak. They care only about fruit yield, but care little about the fruit quality. As a result, the fruit benefit is low. Under the impact of the greening disease, the yield of Gannan navel orange declined. Some navel orange growers expected high price. However, in the event of poor sales, growers will sell at a low price, which will increase the market risk. The channel for fruit growers to obtain market information is narrow. About 70% fruit growers obtained market information from successful growers, large growers, relatives and friends. The Internet did not bring into play the powerful force of information dissemination. Many fruit growers did not understand the network, and there was no reliable network information publishing platform. In addition, the channel for obtaining information was narrow, affecting the scope, quantity, quality and speed of fruit growers' information and accordingly affecting the actual production and sales activities. For example, according to the market situation, e-commerce, and WeChat business, and greening disease in 2014, navel orange growers were optimistic about the market in 2015 and set a high price and were unwilling to sell navel orange at a low price. Consequently, the navel orange suffered poor sales and had to be sold at low price.

### **3 Recommendations for sustainable and high efficient development of Gannan navel orange industry**

#### **3.1 Developing the dominant area of navel orange**

**3.1.1** Stabilizing the navel orange planting scale. At present, Gannan navel orange planting area is large. Relevant departments should change the development idea of promoting the navel orange

industry with the scale. Instead, it is recommended to control the planting scale and avoid vicious competition harming the ecological environment. For example, Gannan navel orange production areas may reduce the planting area of non-dominant varieties and varieties with centralized maturity period, adjust resources, and develop fine varieties in ecological suitable areas, to establish the navel orange dominant belt.

**3.1.2** Highlighting the dominant production areas and building navel orange + tourism. It is recommended to optimize the distribution of navel orange industry, make regional planning for navel orange planting, and develop specialized large-scale navel orange planting in Xinfeng, Anyuan, Xunwu, Huichang, and Yudu counties, to form the dominant navel orange production areas. Ganxian, Shangyou, Chongyi and Dayu counties should develop navel orange + tourism relying on advantages of being close to central cities and combining local natural tourism resources. Ruijin City and Xingguo County should build navel orange + red tourism. Longnan, Dingnan and Quannan should develop navel orange + Hakka cultural tourism.

**3.1.3** Optimizing the distribution of navel orange varieties to establish the large fruit industry pattern. It is recommended to optimize the distribution of varieties and determine the main varieties and supporting varieties. Specific measures include structural adjustment of maturity period, adjustment of regional variety structure, differentiation between fresh and processing, to realize navel orange going on the market in different time, giving prominence to regional variety characteristics and sufficient raw materials for processing. Early maturing navel orange is more suitable for Yudu, Ganxian, Ruijin, Xingguo, Ningdu and Xinfeng; late maturing navel orange should be planted in Anyuan, Dingnan, Longnan and Quannan<sup>[10]</sup>; areas with high accumulated temperature (such as Yudu, Xinfeng, and Xunwu) may develop summer orange and blood orange, and areas with convenient transport (such as Ganxian, Ruijin, Ningdu, and Dingnan) may develop fresh orange<sup>[11]</sup>. The government should guide fruit growers to transform orchards with low yield or old age through subsidies, preferential credit policies, to rapidly promote new varieties. Also, Gannan areas should adhere to the idea of taking the navel orange as main fruit to develop various characteristic fruit. On the basis of the original navel orange and grapefruit and other citrus fruits, the government should actively guide some fruit growers in the counties (cities) to change fruit and develop special fruits, such as grape, *Passiflora edulia* Sims, blueberries, red bayberry, and kiwi, which have good adaptability in Ganzhou. Diversified fruit industry pattern on the one hand can alleviate the problem of large planting area but low income, increase the income of fruit growers; on the other hand, it can maintain the local ecological diversity, strengthen fruit disease resistance, increase the utilization efficiency of fruit storage facilities, to avoid insufficient raw materials of fruit processing and packaging enterprises in non-navel orange season.

**3.1.4** Strengthening the infrastructure construction and making effort to build superior navel orange production areas. In the large

and concentrated planting areas, it is recommended to improve the road system, water conservancy system, cold-resistant facilities, set up navel orange trading market, production information market and logistics and transportation center in the navel orange concentrated areas to meet the needs of production, transport, and sales of fruit growers.

### **3.2 Ensuring the healthy development of high quality navel orange industry**

**3.2.1** Strengthening the construction of navel orange seed breeding system. Gannan is the main production area of navel orange in China. Government, universities, research institutions and seed producers should make clear division of labor and strengthen mutual cooperation, to form non-virus container seedling production chain and establish a healthy and safe navel orange seed breeding system. Besides, it is recommended to strengthen the nursery stock management, and implement the strict quarantine certificate, production license, business license, nursery stock quality assurance management for nursery enterprises, units, large fruit growers, suppress the planned management of nursery, and change the unordered seedling growing. For building new orchards and bases after the occurrence of greening disease, it is recommended to fully promote the non-virus container seedling growing.

**3.2.2** Strengthening close cooperation between industry, universities and research institutions, to improve the scientific and technological service level. In Ganzhou City, it is feasible to set up agricultural technology and management disciplines (agriculture, plant protection, soil and fertilizer, etc.), agricultural product quality testing discipline, agricultural machinery application technology discipline, tourism agriculture, take appropriate orientation training of grassroots agricultural technicians, to solve the problem of insufficient local agricultural talents and low quality of agricultural technology team. In addition, the government should arrange technicians for dominant areas of the navel orange, especially in remote areas, to ensure the preparation and funding are in place and effectively solve the problems of fruit growers and enterprises.

It is recommended to integrate resources of Ganzhou Citrus Institute and National Navel Orange Engineering Technology Research Center, strengthen the cooperation with China Agricultural University, Huazhong Agricultural University, and Southwest University, build comprehensive navel orange industry research platform, bring into play functions of the platform in scientific and technological research, scientific research promotion, scientific and technological consultation, and personnel training, and make special research in new variety development, prevision and light cultivation technique, pest control, post-harvest loss reduction, processing value adding, and market information; technical extension departments at all levels should extend mature achievements to orchards and fields; it is required to set up navel orange protection fund; the fruit association should feedback problems encountered by fruit growers and enterprises to scientific research personnel.

**3.2.3** Changing the operation mode and developing the complete industrial chain. Based on the economic strength of management of

navel orange, fruit growers should develop moderate scale planting. It is recommended to participate in specialized cooperatives, enterprise planting or join in shares in the form of land<sup>[12]</sup>. Considering the high input of navel orange in the early stage, high benefit in the middle and late period, and the long period of return, it is recommended to develop large scale planting, raise the enthusiasm of fruit growers. The government should promote the transfer of land management rights and slightly extend the land contractual period. Besides, it is recommended to raise educational level and organizational level of fruit growers, and promote coordinated development of fruit growers, cooperative economic organizations and enterprises. (i) It is recommended to vigorously raise the cultural and technical quality of fruit growers and enhance their sense of responsibility for fruit safety in production. (ii) It is recommended to encourage fruit growers to establish fruit grower association, specialized cooperatives and other cooperative economic organizations, to form orderly navel orange production. The government should strengthen the financial support and institutional normalization of economic organizations, and give full play to economic function of promoting increase of fruit growers' income and the social function of protecting the fruit growers' rights and interests, and preventing the alienation of economic organizations from harming the interests of fruit growers. (iii) Enterprises should give full play to the advantages of capital, technology, information and product sales; cooperative economic organizations should gather separate fruit growers and bring into play advantages in coordination and service before the production, in the production, and after the production; fruit growers should take advantage of land resource and labor, and make adjustment of standardized, specialized, and large scale production of navel orange. It is recommended to cultivate leading enterprises, guide enterprises to concentrate in dominant production areas, extend the industry chain, and gradually develop logistics, printing and packaging, fertilizer production, and agricultural machinery manufacturing industries, to realize the development of the whole industry chain. It is recommended to establish diverse service organizations in the family orchard and agricultural means market, agricultural technology market, and the sales market. It is recommended to tackle deep processing integrated utilization technology, form preserved fruit, essential oil, orange juice, pectin, and feed processing, realize comprehensive utilization of navel orange from the fruit to peel, increase the added value of navel orange, and build the navel orange entire industry chain.

**3.2.4** Establishing a modern production management system to prevent and control greening disease in a diverse manner. In view of different site conditions and varieties, it is recommended to develop standardized sweet orange production technologies, make precise cultivation, implement simplified management, establish a modern production management system, effectively solve the problems of insufficient rural labors, and increase the yield of navel orange, to realize the increase in both the yield and income. It is recommended to take comprehensive prevention and control of the

greening disease. (i) Strictly controlling the nursery stock market; (ii) Establishing the greening disease prevention and control center and establishing the standard plant protection system for the treatment of greening disease system, to ensure that the prevention and control of Psyllidae in a timely manner and remove the sick plants promptly. (iii) Reasonably controlling the planting area, to realize diversified navel orange planting system, return farmland to forest, and establish tall trees ecological barrier in different navel orange planting areas.

**3.2.5** Improving the insurance and financial policies for helping farmers. Through the implementation of navel orange production insurance system, it is recommended to improve the prevention of industrial risks, reduce the losses of fruit growers resulted from unpredictable natural disasters and market fluctuations. In view of the current policy of insurance policy for the promotion of navel orange, the government should raise the awareness of the fruit growers, increase the subsidy for the insurance premium, and expand the insurance coverage from the current frost damage to landslide and greening disease. In addition, it is required to establish a smooth and efficient financing channel, and effectively solve the fund problem of fruit growers.

### **3.3 Multi-dimensional marketing**

**3.3.1** Establishing and improving marketing and warehousing and transportation system. Gannan navel orange sales should be taken in both the production area and sales area, and online and offline simultaneously. It is recommended to strengthen the construction of trading market in navel orange production area and sales area, establish small and medium-sized collection and distribution market (village level, town level, county level, and market level), establish large and medium-sized navel orange market, and establish special export area in Pingxiang City, Wanding City, Suifenhe City, and Manchuria. It is recommended to actively learn Zigui navel orange network, Fengjie navel orange e-commerce platform, improve Gannan navel orange marketing information platform, and encourage fruit growers to take full advantage of the national agricultural product promotion platform, to realize interaction and connection between market and fruit growers through network. It is recommended to increase the storage capacity of navel orange and raise the efficiency of logistics and distribution. (i) Establishing large-scale commercialization and storage center, making the cold storage penetrate the entire process from the production area to sales area, and establishing the navel orange production area pre-cooling in production area-low temperature transport - low temperature sales (summer and autumn) cold chain logistics system. (ii) The municipal government should strengthen strategic cooperation with main logistics enterprises, establish rural logistics distribution system, realize the full coverage of express service network in rural areas of Gannan, and accelerate the development of rural e-commerce. (iii) Trying the preservation of navel orange in other places and improving the storage and distribution system. It is suggested that large-scale fruit industry enterprises should establish large-scale cold storage in central cities

such as Xi'an, Shenyang, Beijing, Zhengzhou, Shanghai and Guangzhou, and distribute the navel orange to the cold storage in central cities, make full use of the cold chain transportation facilities and developed logistics system to achieve smooth flow of goods, fast and efficient logistics effect, and solve the problems of weak transportation capacity and many circulation links, and reduce the logistics time and save the costs.

**3.3.2** Precisely positioning the market and doing a good brand promotion. Navel orange is a kind of domestic high-end fruit and consumer goods. City is the main consumer market. Therefore, it is recommended to take the city marketing as the main line, for example, in Beijing, Shanghai, Guangzhou, Shenzhen, and radiated market, expand market in Henan, Shandong, Shanxi, and Liaoning, also in Fujian, Guizhou, Hainan, and Yunnan, and avoid sweet orange production area in Hunan, Hubei, Sichuan, Chongqing, and Guangxi. The government should strengthen the brand promotion of Gannan navel orange, attach great importance to the role of public transport in brand media, and bring into play the propaganda role of daily necessities such as shopping bags, umbrellas, kettles and backpacks. Southeast Asia, Eastern Europe and other countries and regions are Gannan navel orange traditional export market, these markets still have further development space<sup>[13]</sup>, South Korea and Japan are two large markets to be explored. Government should raise the popularity of Gannan navel orange through various foreign media or sponsoring to hold international events in China.

**3.3.3** Selling fruit by grades and beautifying the fruit packaging. It is recommended to follow the principle of developing fine fruit in developed cities and fruit supermarket, and selling popular fruit in small and medium-sized cities, supermarkets, stores, and sell Gannan navel orange by grades, to meet the requirements of different consumers. Besides, it is recommended to beautify Gannan navel orange sales packaging and improve product quality and image. For the high-end consumer groups, it is recommended to change the simple carton packaging of Gannan navel orange, popularize the use of the foam screen or take a single independent packaging; the external packaging should be diversified, try to use high-end packaging, for example, use traditional bamboo basket; for export of navel orange, it is recommended to use vacuum pack-

aging during the transport process, to ensure the quality of navel orange.

## References

- [1] HUANG CL, QI CJ. On the achievement, experience and future expectations of the development of Gannan orange industry [J]. China Fruit News, 2010, 27(7): 1-5. (in Chinese).
- [2] WEI BM. The annual output of Ganzhou orange industry account 48% in the whole country [EB/OL]. (2012-12-11) [2016-12-6]. <http://www.people.com.cn/GB/24hour/n/2012/1211/c25408-19853706.html>. (in Chinese).
- [3] LI XL. Investigation and suggestion on rapidly developing late-maturing Gannan navel orange [J]. China Fruit News, 2011, 28(4): 8-11. (in Chinese).
- [4] DENG XX. Modern agriculture and agricultural development [J]. Journal of Huazhong Agricultural University (Social Sciences Edition), 2014 (1): 1-4. (in Chinese).
- [5] DENG L. On the countermeasures of prevention and control of *Candidatus Liberibacter* spp. [J]. China Fruit News, 2016, 33(05): 18-24. (in Chinese).
- [6] ZHANG SR. Study on the international competitiveness of Gannan navel orange industry based on diamond model [J]. Journal of Sichuan Economic Management Institute, 2015, 26(01): 50-54. (in Chinese).
- [7] CHEN X, WANG ZF, YANG QY, et al. Discussion on the problem in Gannan orange industrialization development and its countermeasure [J]. Journal of Anhui Agricultural Sciences, 2007, 35(15): 4475-4477. (in Chinese).
- [8] ZHANG WY. On the summarization of the development strategies of carrying out innovation driven in Ganzhou City [N]. Gannan Daily, 2015-02-01(02). (in Chinese).
- [9] CHEN YY. Export competitiveness of Gannan navel orange from inter-provincial comparative perspective [J]. Guizhou Agricultural Sciences, 2015, 43(11): 194-195. (in Chinese).
- [10] WU XY. Study on the role of local government of Gannan navel orange industry in the formation and development stages [D]. Nanchang: Jiangxi Normal University, 2014: 41-45. (in Chinese).
- [11] ZHANG SR. Study on the international competitiveness of Gannan navel orange industry based on diamond model [J]. Journal of Sichuan Economic Management Institute, 2015, 26(1): 50-54. (in Chinese).
- [12] SHEN ZM. Changing the operation mode and promoting the sustainable development of navel orange industry [J]. Fruit Growers Friend, 2014 (10): 3-4. (in Chinese).
- [13] CHEN YY. Study on international competitiveness of China's orange export [J]. Guangdong Agricultural Sciences, 2016, 43(9): 180-182. (in Chinese).

(From page 19)

social, economic and ecological perspectives, to make rational arrangement and use of natural resources, make a scientific planning for agricultural economic activities of Tianjin, to make the agricultural development of Tianjin reflect the harmony between man and nature and coordination between economic and social development, so as to realize sustainable development of the agriculture in Tianjin.

## References

- [1] YUN XL. Thinking on the strategy of the under-investment of agriculture

in China [J]. Chinese Enterprise Accounting of Villages and Towns, 2010(5): 4-6. (in Chinese).

- [2] YUN XL. Thinking on the path of effective investment increase of urban agriculture [J]. Chinese Enterprise Accounting of Villages and Towns, 2011(3): 6-9. (in Chinese).
- [3] YUN XL. Mechanism of raising urban agricultural effective investment by industrial value chain [J]. Journal of Anhui Agricultural Sciences, 2012, 40(9): 5651-5653. (in Chinese).
- [4] Tianjin Bureau of Statistica. Tianjin Statistical Yearbook (2009) [M]. Beijing: China Statistics Press. (in Chinese).
- [5] Tiannong Network [Z]. <http://www.tjaci.gov.cn/>. (in Chinese).