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# The Problems in Circulation Channel of Dujiangyan Kiwi Fruit and the Countermeasures

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**Abstract** Based on the overview of researches on circulation channel of agricultural products, this article presents the status quo of circulation channel of Dujiangyan kiwi fruit, including the production and circulation pattern of Dujiangyan kiwi fruit. Then it analyzes the problems in the current circulation channel of Dujiangyan kiwi fruit as follows: first, the long circulation channel leads to inefficient circulation and high costs; second, the deep processing capacity is poor, and the added value of fruits is low; third, the application of cold chain logistics technology is insufficient; fourth, blocked information circulation makes the cooperative relations between the subjects in channel fragile. Finally corresponding countermeasures and recommendations are put forward as follows: shortening circulation channel and improving circulation efficiency; improving deep processing capacity, and increasing added value of fruits; strengthening the use of cold chain logistics technology and equipments; establishing rational interest distribution mechanism, and consolidating cooperation between the circulation subjects.

**Key words** Kiwi fruit, Circulation channel, Countermeasures, Dujiangyan

In 2006, China's "Eleventh Five-Year Plan" proposed to promote the construction and improvement of wholesale market of agricultural products; promote graded quality and normalized packaging of agricultural products; continue to implement "Market Project of Thousands of Villages and Townships"; speed up business network transformation of the supply and marketing cooperatives, and extension of urban outlets to rural areas; improve "green channel" network of fresh agricultural products. In the subsequent five years, the Central Document No. 1 repeatedly proposed to improve the circulation channel of fresh agricultural products, strengthen the application of cold chain logistics, and reduce the loss in the circulation process. Sichuan Province is one of the main provinces producing kiwi fruit, so vigorously promoting the improvement of fruit circulation channel is conducive to solving the problem of connecting buying and selling in the kiwifruit industry; further enhancing its market competitiveness; effectively resolving the contradiction between "small production" and "big market" existing in the current China's agricultural production; increasing the income of fruit growers; strengthening the quality control of agricultural production.

## 1 The status quo of research on circulation channel of agricultural products

Taking the agricultural products as object, circulation channel of agricultural products means the process of controlling business flow, interflow of goods and materials and information flow, to complete the operation of circulation of agricultural products from the production area to consumption area, from the procurement of agricultural products. The circulation channel has a direct impact on costs and efficiency of logistics.

At present, most of the researches on circulation channel of agricultural products are focused on the following aspects. First, the researches on the status quo of circulation channel are concentrated in the research on the current circulation channel pattern, and the research on the problems in circulation channel. Through the survey and research of circulation channel of Artemisia selengensis in the Nanjing vegetable market, Lu Lingxiao and Xie Meijing (2009) found that there were three kinds of circulation pattern; in the research of circulation channel market system of agricultural products in Hunan Province, Tu Qi (2007) pointed out that there were six problems in circulation of agricultural products in Hunan Province, namely, unsound price mechanism, imperfect regulations of the market operation, irrational circulation channel structure, blocked information circulation channel, and insufficient quality supervision; Wu Guihua (2007) researched the circulation channel of agricultural products in Guiyang City, and pointed out that there were five problems, namely, low degree of market development, irrational distribution of sales outlets, regional blockade clogging circulation channel, lack of market information, disorderly circulation subjects, and poor standardization of product circulation; Wang Xiaohong (2009) pointed out one serious problem in China's modern circulation of agricultural products, namely low level of informatization, and proposed to use modern information technology in combination with digital construction of agriculture, to promote the construction of circulation channel of agricultural products. Second, the researches on behaviors of the subjects participating in circulation channel of agricultural products, are focused on many behavioral choices of channel link made by the peasant households, specialized cooperative organizations and the leading enterprises in the

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sales process, and the research on the link mechanism of all behavioral subjects based on the overall level of the circulation channel; Xiao Hong'an and Tao Li (2008) analyzed the factors influencing farmers' market information acquisition, and put forward the countermeasures; Wang Shuhan, Fu Xinhong and Hu Jingwei (2008) analyzed the factors influencing the farmers' participation in agricultural professional cooperatives; Xu Lin and Jia Xianwei (2006) analyzed the leading agricultural enterprises' participation in marketing; the research of Li Jifang (2007) showed that in the process of circulation, the fresh agricultural products posed higher requirements on the circulation rate and efficiency, and proposed to introduce third-party logistics to reduce the loss rate of fresh agricultural products. Third, there are researches on performance evaluation of circulation channel of agricultural products, and the fuzzy evaluation is conducted mainly through the establishment of performance evaluation indicator system of circulation channel. Based on the Balanced Scorecard, Chen Dongdong (2009) established performance evaluation indicator system, from value, business process, future development and customers; used information entropy theory to conduct multi-attribute evaluation. Fourth, there are researches on innovation of circulation channels for fresh agricultural products. Through the survey and analysis of the status quo of circulation of fresh agricultural products in Jiangsu Province, Yang Jianying (2009) proposed to focus on four aspects for the innovation of the circulation channels, namely innovation of the circulation subjects, change in circulation pattern, innovation of cold chain logistics pattern of fresh agricultural products, and information-based construction of circulation channel; Cai Guochen (2009) proposed the strategy for developing and improving the cold chain logistics system of fresh agricultural products in China.

## 2 The status quo of circulation channel of Dujiangyan kiwi fruit

### 2.1 Overview of kiwi fruit production in Dujiangyan City

The main producing areas of kiwi fruit in Sichuan Province are located in places along the Longmen Mountains, including Cangxi County, Dujiangyan City, Qionglai City, Pujiang County, Dayi County, Ya'an City, etc. The producing areas of kiwi fruit in Dujiangyan City include QingchengShane Town, Zhongxing Town, Yutang Town, Longchi Town, TianmaTown, Xujia Town, Hongkou Township, Xiang'e Township, and Zipingpu Town. At present, there are six leading companies, and 15 professional agricultural cooperatives. Promoted by the government and driven by the leading companies, the growing area and yield of kiwi fruit in Dujiangyan City rise in successive years, making Dujiangyan City become the second-largest producing area, followed by Cangxi County. The kiwi fruit yield in Dujiangyan City in the period 2009 – 2011 can be shown in Table 1.

**Table 1 Dujiangyan kiwi fruit yield in the period 2009 – 2011**

| | 2009 | | 2010 | | 2011 | |
|---|---|---|---|---|---|---|
| | Yield | Growing area | Yield | Growing area | Yield | Growing area |
| Hongyang | 3 800 | 3.2 | 5 000 | 4.1 | 6 500 | 4.4 |
| Haiwote | 20 000 | 5.2 | 18 000 | 6.7 | 20 000 | 7.1 |
| Total | 23 800 | 8.4 | 23 000 | 10.8 | 26 500 | 11.5 |

### 2.2 Overview of kiwi fruit circulation in Dujiangyan City

The main body of the circulation channels includes the peasant households, wholesalers, agricultural professional cooperatives, leading enterprises, consumers.

Circulation pattern and flow direction of kiwi fruit in Dujiangyan City can be shown in Fig. 1.

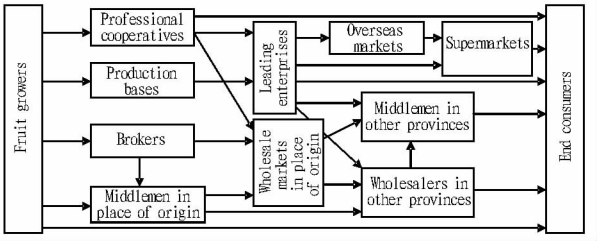


**Fig. 1 Circulation pattern of kiwi fruit in Dujiangyan City**

The share of Dujiangyan kiwi fruit in fresh fruit sale, processing, and cold storage, is at a ratio of about 6:1:3; in fresh fruit sale, the share of Dujiangyan kiwi fruit flowing to other places within the provinces, other provinces and foreign countries, is at a ratio of about 2.5:6.5:1. As for the sale in other provinces, Dujiangyan kiwi fruit is mainly sold to Beijing, Shanghai, Guangdong, Tianjin and other coastal cities.

### 2.3 The problems in the current circulation channel of Dujiangyan kiwi fruit

**2.3.1** The long circulation channel leads to inefficient circulation and high costs. 60% of the circulation patterns of fresh Dujiangyan kiwi fruit is as follows: Fruit growers →Middlemen in place of origin→Wholesalers→Distributors in various places→ Retailers→ Consumers. In the circulation channel with many links, the time lag generated in all links leads to low efficiency of circulation channel, also causing the deterioration of some fresh fruits, increasing the storage costs and unnecessary loss in the process of circulation. According to the survey, the circulation costs of Dujiangyan kiwi fruit are about 15% – 25% of the acquisition costs of Dujiangyan kiwi fruit, with loss rate of 25% in circulation.

**2.3.2** The deep processing capacity is poor and the added value of fruits is low. At present, the majority of the deep processed products of Dujiangyan kiwi fruit are fruit wine and fruit vinegar. In Dujiangyan City, there are 10 leading enterprises of kiwi fruit and 13 professional cooperatives of kiwi fruit nowadays. For the time being, the processed Dujiangyan kiwi fruit products accounts for about 10% of the total output; there are 3

enterprises engaging in deep processing of fruits; in the process of survey, most of the cooperatives have intention to engage in deep processing. In varieties of Dujiangyan kiwi fruit, the sale price of secondary kiwi fruit is 2 yuan/kg; the sale price of preserved kiwi fruit is 52 yuan/kg. It indicates that deep processing can greatly improve the added value of kiwi fruit. Currently, the storage capacity of Dujiangyan kiwi fruit is limited, and the deep processing of fruits can help to reduce the unnecessary loss of fruit and greatly improve the value of fruits.

**2.3.3** The application of cold chain logistics technology is insufficient. The value of fresh fruit lies in "freshness", and the fresh fruit is perishable, having short shelf life. Blocked circulation channel, too long circulation channel, bad road conditions, and natural disasters, contribute to the formation of time lag in the circulation process, which is one of important factors responsible for high loss rate in circulation, so in the circulation process of fresh fruits, we need to use cold chain logistics equipments. At current stage, in circulation of Sichuan's fresh fruits, the cold logistics technology and equipments are applied insufficiently, mainly used in refrigeration. In circulation, few cold chain logistics equipments are adopted, resulting in quality safety problems of fresh fruits in the circulation process, therefore, we should take measures to ensure the quality safety of fresh fruit in the process of circulation.

**2.3.4** Blocked information circulation makes the cooperative relations between the subjects in channel fragile. In circulation channel, the reputation of all members has a effect on the stability of the cooperative relationship. Farmers are the beginning of the channel, the suppliers of the products, whose small farmer consciousness and information shortage often make them at a disadvantage in the process of transaction, easy to destroy the sale orders. The major Dujiangyan City kiwi fruit production mode is "Base + Cooperative + Company". In the survey, 53% of farmers in the production base express that they will sell when the price is high; 47% of the farmers express that they will fulfil the contract. In terms of the buyers, 68% of the buyers express that they will make adjustments according to market prices; 20% of the buyers express that they will buy by order; 12% of the buyers express that they have the behaviors of breaching contract. This transaction process reduces the fulfillment rate of order, and at the same time, exerts adverse affect on further cooperation.

## 3 Countermeasures and recommendations

**3.1 Shortening circulation channel and improving circulation efficiency** As people pay more and more attention to food safety, and tend to consume pollution-free agricultural products, we must strengthen the development of short-channel circulation, in order to meet the consumer's demand for fresh agricultural products. We should improve the efficiency of circulation channel, reduce circulation costs, shorten circulation channel, and reduce links in the process of circulation. As for the optimization of circulation channel of Dujiangyan kiwi fruit, we need to shorten circulation channel, increase the proportion of short-channel circulation and direct marketing of fresh fruits, improve the effectiveness and timeliness of sale information, and reduce the unnecessary time lag in the process of circulation. At the same time, in mature season of the fruit, the relevant departments need to ensure that the road is clear, and promote efficiency of circulation channel. We should also strengthen cooperation in inter-provincial "green channel", to reduce inter-provincial circulation cost.

**3.2 Improving deep processing capacity and increasing added value of fruits** There are two reasons for improving deep processing capacity of kiwi fruit. First, according to the quality of the fruit, the fruit is graded in the world. According to fruit shape, weight, and quality, the kiwi fruit fruits are divided into five levels, so in order to improve the economic value of the fruits, we need to conduct deep processing of the secondary fruits. Second, because the kiwi fruit suffers from a certain amount of loss in the process of storage and circulation, we need to conduct deep processing of the kiwi fruit, which will be conducive to the reduction of economic losses.

**3.3 Strengthening the use of cold chain logistics technology and equipments** In order to ensure the quality safety of fresh fruits, we need to carry out cold chain logistics management of the entire circulation process. We should carry out quality safety production standards supervision on the production process of agricultural products; establish modern fresh storage, strengthen the preservation work after the fruits are picked; introduce cold chain logistics, improve the level of preservation of fruits in the circulation process; use modern logistics technology to effectively extend the shelf life of fresh fruits, improve the quality safety of fresh fruits in the circulation process; reduce the loss of fresh fruits in the circulation process.

**3.4 Establishing rational interest distribution mechanism and consolidating cooperation between the circulation subjects** In order to strengthen cooperation between the circulation subjects, we should pay attention to the following three aspects. First, we should enhance the fruit farmers' awareness of acquiring market information, and reduce the risks to the fruit farmers arising from information asymmetry. Second, we should regulate unfair trading in the sales process, strengthen management of the sales order, and improve the fulfillment rate of orders. Third, we should nurture cooperation-oriented circulation channel, organize the fruit farmers to carry out large-scale production, promote the internal cooperation of the circulation channel, cultivate cooperative relationship or partnership between the participators of circulation channel, and rationally allocate the interests of participating subjects of the circulation channel.

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