Study on Optimization Strategy of Kiwifruit Distribution in Dujiangyan

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Abstract. Kiwi fruit industry in Dujiangyan has a certain size and influence after decades of development. But due to the lack of distribution management, the backward logistics technology, and the complex distribution channel links, the fruit loss rate is high, the efficiency is low, the household income is affected, and the quality and flavor can’t be guaranteed, so there has a great significance to develop the logistics distribution of the Kiwi fruit of Dujiangyan. This thesis, starting from the basic concept of logistics and distribution of agricultural products, analyzes the current situation of distribution, points out the complex distribution channel links, lack of cold-chain technology, low degree of distribution information, and lack of high-end logistics talents, which affect the distribution efficiency. Combining with the actual situation of Dujiangyan, from optimizing logistics distribution channels, developing cold-chain logistics technology, strengthening the construction of logistics information, cultivating high-end logistics talents, this thesis proposes some countermeasures to accelerate the development of kiwi fruit logistics distribution of Dujiangyan.

Introduction

Dujiangyan is a typical County with the subtropical monsoon climate. It has the appropriate temperature, sufficient sunlight and rainfall, quantity of heat, warm climate and adequate water source. The climate is suitable for kiwi fruit growth. The planting area of kiwi fruit is developed nearly to 130000 acres by the initial trial area of less than 1.4 acres. This planting scale expands rapidly in a short few decades and the total output is rapidly rising, the fresh fruit total output is 23000 tons in 2010, and the annual capacity of kiwi fruits is 30000 tons in 2015. But due to low management concept of logistics and distribution, lack of distribution channels and complicated links, the fruits attrition rate is high, the efficiency is low, quality and flavor of the kiwi fruit are not guaranteed, which seriously impact the farmers' income.

The Situation of Kiwi Fruit Logistics Distribution in Dujiangyan

The Situation of Kiwi Fruit Distribution Channels Construction

The kiwi fruit cultivation in Dujiangyan has a long history; so far, it has developed into a large-scale and high-tech plantation. It has developed to the status of the individual farmers and small landscapes coexist. Most of the self-employed business dispersed, planting area is scattered. Among them, the retail business accounts for the vast majority.

(1) Logistics distribution channels under decentralized management. The growers are lack of relevant professional knowledge and most of the Kiwi fruit is sold by retail, for a long time, it formed the channel as shown in figure 1: growers- bidders-wholesale market-sales wholesale market-the secondary market- consumers.
(2) Logistics distribution channel under the cooperative complement. Through the long-term efforts of the government and relevant departments of the Dujiangyan, there are a number of enterprises enter into Dujiangyan. There has set up several kiwi fruit agricultural cooperatives and sales companies which have formed the channel as shown in figure 2: growers-agricultural professional cooperatives/agents-wholesale market-wholesalers at all levels-consumers. The main disadvantage is the distribution links are a little more and the advantage is the business channels are relatively concentrated.

(3) Other models. Besides the above two kinds of distribution channels, there are a few direct shipping or directly on kiwifruit processing models: growers-consumers; growers-processing-consumers. Such as the hot farm experience, for example, consumers can directly go to the kiwi fruit origin for consumption while picking, but this way will increase the difficulty of management, especially is not suitable for a large number of farmer’s retail management. Deep processing of agricultural products is the development of agricultural logistics in the future, which can solve part of the problems in the process of agricultural products distribution, also can increase added value of agricultural products, through processing to improve operators benefit and increasing farmer’s income. So far, kiwi fruit processing enterprises are insufficient and kiwi fruit processing capacity accounted for only a small proportion.

(4) Comparison of models. The merits and demerits of the three models are shown in table 1, which can be seen by comparing the dispersion management logistics distribution channels under dispersed farmers mastered the circulation channels, but extended the delivery cycle, breakage rate is very high; the logistics distribution channel under the cooperative management shortens the circulation cycle, but still has a long circulation; the mode of the experience consumption and deep processing of agricultural products has a high added value, but it is difficult for management and distribution. So it is difficult to become the main mode of circulation in the future.

<table>
<thead>
<tr>
<th>Merits</th>
<th>Demerits</th>
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<tr>
<td>Distribution circulation channel exists in most of the retail selling</td>
<td>Extended the delivery cycle, the damage rate is as high as 28%</td>
</tr>
<tr>
<td>more concentrated than retail business</td>
<td>Distribution circulation links are too much</td>
</tr>
<tr>
<td>experience consumption and deep processing of agricultural products and high added value</td>
<td>Increased the management difficulty, small amount of distribution</td>
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</table>
The Situation of Kiwi Fruit Distribution Technologies

(1) Packaging technology. This kind of activity is adapted to the fruit, from the origin to the fruit consumption market. The growers of kiwi fruit first base the simple plastic turnover box as the unit packaging. The plastic turnover box has a strong compression deformation; it is not easily affected by damp. Turn over box is paved with the hemp paper in order to avoid the direct contact with the plastic tray which will cause the abrasion of the fruit. The ventilation effect of this kind of hemp paper is good, but it has not a good preservation effect, and no good to be shock and mould proof during the embalming process. The direct selling kiwi fruit directly use carton packaging with certain shock technology. After different circulation, kiwi fruit freshness is decreased, cargo damage rate is increased, quality is dropped and the sale of kiwi fruit is affected.

(2) The cold-chain technology. The cold-chain technology has been advocated by the country and the products logistics technology professionals. Due to various reasons, it is difficult for the actual promotion in the process of agricultural products logistics distribution. In pursuit of economic efficiency, most of the areas in China, including Dujiangyan, use the simple preservation technology, but it can’t achieve the desired effect. In each link of kiwi fruit distribution, the kiwi fruit quality and the flavor are not guaranteed, and attrition rate is nearly 30%, causing tremendous waste, and reducing the efficiency.

Problems of Kiwi Fruit Logistics Distribution

Excessive Links of Distribution Channels

At present, the main distribution of circulation of the kiwi fruit in Dujiangyan has two kinds of distribution modes: One is growers-bidders-wholesale market-sales wholesale market-secondary market-consumers; and the other model is growers-agricultural professional cooperatives/rural brokers-wholesale market- wholesalers at all levels consumers. Kiwi fruit distribution roughly experiences five or six links. Kiwi fruit realizes distribution and circulation in different areas. In the process of distribution, the kiwi fruit is transported from Chengdu to other provinces, coastal, and even abroad, which will spend a lot of time. In addition, the complex logistics links and long delivery cycle increase the processing activities of loading and unloading, increase the attrition rate and the cost of kiwi fruit, and reduce the distribution efficiency.

Lack of the Cold-chain Technology

As a key technology, the cold-chain technology is the core of agricultural products. High cost of the cold-chain technology raises the cost of agricultural products and affects the market sales [6]. Transportation from Chengdu to Beijing, for example, the transportation cost is 700-800 yuan/t, and the cost of refrigerator is 1200-1400 yuan/t. This means that the wholesale price of kiwi fruit in Beijing is rose from 5 to 6 yuan/kg to 5.6-7 yuan/kg, accessional range is up to 10% -15%, but the transport loss rate only can be reached 8%-10%.

Low Level of Distribution Information

The Kiwi fruit logistics still stays on the traditional distribution model. The logistics information consciousness is not strong. Currently, the kiwi fruit market information transmission between each main body is not unobstructed, agricultural products instant information is not accessed in time. There are many problems, such as lack of information management in the process of logistics distribution; the low degree of network information, low degree of commerce sales, low level of information management. In addition, the Kiwi fruit distribution information regulation is weak, and the information distortion and lag are not timely processed [7].

Lack of High-end Distribution Talents

In an electronic commerce environment of economic boom, the domestic senior talents with certain electric business knowledge and rich management experience are scarce. In actual steps of logistics distribution, such as packaging, storage, loading and unloading, the logistics professionals are
usually just skilled on the equipment using, but their universal degree is low. They are lack of knowledge about logistics management which influences the overall efficiency of kiwi fruit logistics distribution. In addition, the planting base of local management of kiwi fruit and logistics experience and knowledge are insufficient, affecting the development of kiwi fruit logistics distribution.

**Countermeasures to Optimize Kiwi Fruit Distribution in Dujiangyan**

**Optimizing Logistics Distribution Channels**

Scattered and small-scale production can’t be adapted to modern logistics development; intensive production and agricultural production are the development trend of fruit and vegetable production in the future. The government of Dujiangyan should encourage the development of business cooperation. The kiwi fruit cooperation organization association will unite dispersed farmers organizations and the regional planting form external scale of production to improve production efficiency. On this basis, developing agricultural market docking with the base model \(^8\), optimizing kiwi fruit distribution channels, and improving the efficiency of distribution, increasing product added value and increasing farmers' income are very important.

<table>
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<tr>
<th>Models</th>
<th>Characteristics</th>
<th>Processing requirements</th>
<th>Sphere of circulation</th>
<th>Core body</th>
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<tbody>
<tr>
<td>Direct-docking model</td>
<td>Less circulation links</td>
<td>low</td>
<td>narrow</td>
<td>retail chain</td>
</tr>
<tr>
<td>leading-enterprise model</td>
<td>Emphasis on professional processing and the added value of agricultural products</td>
<td>high</td>
<td>wide</td>
<td>Leading enterprise</td>
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Developing the model of the direct distribution, developing "production base + retail chain" model, mainly through the establishment of cooperation with peripheral supermarkets, signing purchase orders, according to the demands of the supermarket, kiwi fruit production base in accordance with the standards of the supermarket and the demands for agricultural production. This model of logistics distribution as: origin-supermarket-consumers, greatly reduces the logistics distribution links, reduces the logistics cost, ensures the quality and flavor of the kiwi fruit and consumers can be brought to a satisfactory consumer spending.

Vigorously developing the model of "production base + leading enterprises + retail chain", this model is mainly suitable for specialized agricultural products. At present, Kiwi fruit processing enterprises are less, and the workability of the Kiwi fruit is very strong, which can be processed into fruit acid beverage, dine, dried meat and other products. The model regards leading enterprises as the core. The enterprises establish relationship with the production base. The contract shows the reservation of the products and the purchase process. In addition, companies need to establish cooperation relationship with the consumer market, producing and processing according to the market. This model of logistics distribution link is: origin-processing enterprises-consumers. Through deep processing of agricultural products, and then sold the products through a certain sales channels throughout the country, as a result, kiwi fruit logistics link will be significantly reduced, attrition rate is reduced, logistics cost is reduced; The finished products distribution is more convenient. The added value of agricultural products and the income are increased \(^9\).

**Improving Cold-chain Logistics Technology**

It is very important to apply the cold--chain logistics distribution technology. The cold-chain technology \(^10\) plays a vital role in agricultural products logistics distribution. Development of kiwi fruit cold-chain logistics distribution system makes kiwi fruit fresh after picking in the appropriate preservation conditions, it can provide satisfactory service. The cold-chain logistics is a logistics process under low temperature by mean of cooling technology and on the basis of the freezing
process. The demand for technology and management is high, so it is not easy to promote. Governments and relevant departments should advocate coordinate development and increase cold-chain logistics infrastructure investment and technology R&D; and learn to Europe and the United States and other developed countries at the same time and develop domestic agricultural products logistics system and management.

**Strengthening the Construction of Distribution Information**

The Internet technology plays a very important role in today's world; logistics information affects the distribution efficiency and the cost. Information technology is also more and more widely applied in the field of agricultural products logistics distribution, information network as a platform, integrating the distribution link, establishing efficient agricultural products logistics information system, enhancing information among farmers, enterprises and agricultural cooperation organizations realize information sharing, making all kinds of main bodies form community of interests. Promoting EDI, GPS, GIS and other advanced logistics information technologies, real-time monitoring and recording the logistics information and traffic information in the process of agricultural products logistics distribution, guarantying the timeliness of emergency measures to reduce the risk of agricultural products logistics distribution, enhancing the controllability of agricultural products distribution. It will energetically develop e-commerce, develop specialized agricultural products trading platforms, and develop modern agricultural products logistics and distribution.

**Cultivating High-end Logistics Talents**

The successful experience of agricultural products logistics distribution in developed countries shows that the highly educated talents with comprehensive knowledge has an irreplaceable role, but the understanding of the logistics industry in our country generally is that the operational logistics industry is very strong. There is transportation equipment; people who do not possess a degree level can do well. The development of modern logistics is inseparable from the use of modern information technology, because the logistics industry development in our country is still in the growth stage; especially the fresh agricultural products such as kiwi fruit logistics distribution, higher requirements are needed by the logistics personnel. The introduction of high-level personnel of the modern logistics management idea, to a certain extent, reduces the unnecessary loss in the process of logistics distribution, eventually greatly increases the efficiency of logistics distribution. Therefore, cultivating the high-quality talents is an important mean to promote agricultural products logistics distribution efficiency, to reduce logistics cost, and to improve the agricultural product logistics economy.

**Conclusion**

The thesis studies on the kiwi fruit logistics in Dujiangyan. Based on the status analysis of the kiwi fruit logistics distribution, this thesis raises problems and bottlenecks of kiwi fruit logistics distribution on the channel link, cold-chain support, information level and the talents supply. Combining with the characteristics of other regions and according with the trend of the development of modern logistics distribution. This thesis also puts forward the countermeasures of optimizing kiwi fruit logistics development, for example, optimizing logistics distribution channels, enhancing cold-chain technology, strengthening the construction of information and cultivating high-end logistics talents.

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References