

China's Rural Logistics Distribution

Guojun Ji and Weiwang Huang

Abstract—Only including agricultural products logistics, agricultural means of production logistics, rural daily consumer goods logistics, as well as rural reverse logistics, it really be considered "rural logistics". This paper analyzes the distribution of agricultural products, and distribution of daily consumer goods, agricultural means of production distribution, rural reverse logistics; states that chain management should be one of its meaning in new rural modern circulation system, and logistics distribution is an effective way to enhance effectiveness of chain, therefore this article attempts to integrate the 4 kinds of logistics to a distribution center. In building a rural distribution network, we should consider the original network, but also should pay attention to the needs of new rural construction.

Key Words—chain management, distribution, new rural construction, rural logistics.

I. INTRODUCTION

In 2006, "the central authorities to promote a new socialist countryside construction of a number of opinions" clearly pointed out: "To reinforce the construction of rural modern circulation system, and actively push forward the upgrading of agricultural products wholesale market, and promote the quality and grade of the market of agricultural products, packaging standardized", "establish a centralized purchasing, unified distribution at the core of new marketing system and improve the rural market environment." This fully demonstrates the central attach great importance to rural areas. This is a rare historical opportunity. Construction of rural modern circulation system is expected to improve rural generally poor status quo of production and living conditions, so that let modern circulation into the rural.

The article structure is organized as follows, the first part is a literature review of rural logistics; the second part is the rural distribution chain profit model analysis; rural logistics and distribution analysis of the specific business model in the third part; next is Logistics distribution network construction in rural areas to be taken into account factors; the last is the conclusion.

II. A LITERATURE REVIEW OF RURAL LOGISTICS

A. Agri-food Logistics

China's agricultural and sideline products such as fruits and vegetables, the loss rate in the picking, transportation, storage

and other logistics areas is around 25%~30%, that is to say there are over 1/4 of agricultural products during the logistics have been consumed, and developed countries, the loss rate of fruits and vegetables are controlled at below 5%. According to statistics, every year 37,000 tons of vegetables, fruit rot in transit on the road, So many agricultural products sufficient to support 200 million people's lives (Rural Economy Research Center of the Ministry of Agriculture Research Group, 2005).

Compared with developed countries, Ding Junfa (2005) pointed out that the logistics of agricultural products in China mainly depends on organizations such as the traditional food business enterprises, individual transport operators, individual farmers, as well as the wholesale market, while new forms of organization such as third-party logistics enterprise of agricultural products, agricultural products distribution center, logistics alliance of agricultural products and agricultural products virtual logistics organization develop slowly, which has become a constraining agricultural logistics industry development. At the same time, Rural Economy Research Center of the Ministry of Agriculture Research Group (2005) thought, China's current agricultural logistics theory is mainly on the macro-level research, mostly around the concept, Circulation, the necessity, feasibility and policy regime to carry out a descriptive introduction, belonging to low-level phase of theoretical research.

B. The Plight of Rural Logistics

Agricultural means of production, the present situation of circulation is worrying. The original established service system in the rural areas of agricultural means of production is gradually withdraw from or change, In a "net-breaking, line break, people loose" state (Gao Pingjun, 2004). Because the supply channels of daily consumer goods in rural areas was almost controlled by Individual operator, irregular operation of the market, fake products to get a chance to step in. In rural areas, "daily food to find the individual operator, daily necessities, in time for large sets, bulky goods running the county", the farmers to become an undisputed hard reality. The supply of consumer goods in rural areas, there are also many problems. The survival and development of Supply and Marketing Cooperative system in rural areas is also very difficult (Chen Yao, 2004). Zhao Yuguo (2007) pointed out that the rural market often become a dumping and wholesale ground of fake and shoddy goods. With the further liberalization of the market of the agricultural means of production, fake seeds, fake pesticides, fake fertilizers and other false occurrence, which greatly damage framer's interests. Zhou Jianqin and Ju Songdong (2006) pointed out that rural logistics have their own characteristics. It covers a wide range of geographical, unit

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demand for a smaller area of logistics, disperse logistics demand, difficulty in logistics services; Rural logistics seasonally strong, large differences in logistics demand with seasonality (including the agricultural means of production, agricultural products, daily consumer goods in rural areas). Rural logistics directional prominent, return empty transport vehicles serious, there is an urgent need to distribution together to reduce the logistics cost; low degree of organization of agricultural production, high difficulty rural logistics operation; Logistics requirements of agricultural products is high and operation is very difficult.

In order to change this situation, the Ministry of Commerce launched the "Thousands of Villages and Towns Market Project", in the rural areas through the progressive implementation of chain operations, build a shop in urban areas as a leader, as the backbone of township shop, village shop-based rural modern circulation network, to meet farmers' consumer demand, improve the consumption environment in rural areas, and promote the development of agricultural industrialization. Strive to use a three-year period, so that standardized farm shops cover the country 50% of administrative villages and 70% of township. The task of implementation of " thousands of villages and towns rural market project" is to Build logistics system matching for the rural, Zhou Jianqin and Ju Songdong (2007) stated that Without smooth and efficient rural logistics system, it is difficult to commercialize agricultural products, to raise the economic efficiency of agriculture, to increase farmers revenue, to have a fundamental change of the backwardness of the rural; it is difficult to ensure agricultural means of production quality and quantity, the reasonable price access to the vast rural areas, to guarantee the security of agricultural production; it is difficult to ensure farmers get real, and cheap manufactured goods, to narrow the gap between urban and rural areas. Meanwhile also pointed out that, objectively, there is a demand for rural logistics (agricultural products, agricultural means of production and rural consumer goods), the subjective desire (the common aspiration of farmers and logistics enterprises), external conditions have a certain basis (traffic conditions and transport vehicles), so development of rural logistics is not only necessary but also feasible.

C. hypothesis

From the above analysis, we know that awareness of domestic rural logistics, from the simple agricultural products circulation, extended to the agricultural means of production, daily consumer goods in rural areas and rural reverse logistics (renewable resources and returns), and truly embodies the "rural logistics." But to really solve the problem, we must resort to chain management thinking, planning and establishing the logistics to improve the rural distribution network.

III. ANALYSIS OF RURAL CHAIN DISTRIBUTION PROFIT PATTERNS

Chain distribution, it can reduce the move back to transport, maximize the effectiveness of various means of logistics, and

reduce costs, sent commodities rationally and effectively to consumers. In the rural logistics, the distribution center occupies an important position as a hub. In the rural logistics, the distribution center occupies an important position as a hub. Distribution is in the reasonable economic regional level, based on consumers' requirements, the selection of items, processing, packaging, partition, group allocation and other operations, and delivered to the designated location on time and logistics activities. Distribution center accept variety of large quantities of goods from agricultural means producers, and consumer goods manufacturers, through packaging, storage and information processing operations, and then in accordance with in the vicinity of the chain outlets and other needs and sent to chain outlets or the rural population concentration areas. Agricultural products purchased by chain outlets from Farmers, which are concentrated to the distribution center, after the flow of processing, push to urban residents.

A. Functions

The distribution center has the following functions:

Procurement function. Distribution Center pools units order plan, combined with distribution center inventory and market availability, then develop procurement plans, unified procurement of goods to suppliers. Accurate ordering system can help shorten the exchange process with the supplier, reduce transaction costs.

Processing function. Simple processing of agricultural and sideline products, such as vegetables, sorting, cleaning, metrology, and preservation treatment. At the same time, according to the request of the chain outlets selling the pack goods.

Storage function. Distribution center, in addition to centralize storage of forthwith agricultural use commodity, for deal with emergency situations, emergencies, natural disasters, agricultural, should maintain a certain inventory of its reserves to emergency disaster relief and reduce losses.

Information function. Distribution center is also the relevant business information center, the actual operating experience and exposure problems could be reflected in the distribution center. According to the ordering information obtained from the computer network, Reasonable arranges for transportation capacity, Thereby enhance the real loading rate of vehicles.

Filtering function. Tested in the distribution center, the food safety of agricultural products can be controlled from the source. Meanwhile, distribution center can be good control means for the procurement of agricultural goods and daily consumer goods to ensure that the inflow into the rural market quality products, fair prices.

B. Economic Benefits

Distribution center through processing, packaging, sorting and assembling operating activities, increase the value-added goods, especially agricultural products becomes more apparent. In addition, the distribution center can also generate economic benefits as follows:

Reduce the purchase price of goods. Distribution Center purchase wholesale, access to purchase large quantities of low

purchase price; unified distribution, can save the cost of circulation, so that rural consumers get affordable and inexpensive.

Reduce logistics costs. Distribution center use computers, unified examination of goods, code registration and storage, unified purchase, unified distribution, saves cost. Agricultural production distribution center helps the realization of Production and marketing docking, reduce the flow of intermediate links and shorten the distribution channels, improve circulation efficiency, reduce the logistics cost of agricultural products.

Effective control quality. Distribution centers often do Procurement directly with manufacturers, along with distribution centers have a long-term and fixed procurement, suppliers are not daring to provide counterfeit and inferior goods to distribution center lest lost the "big customer", and so the product quality can be effectively controlled. At the same time, it has rigorous testing for agricultural products, those can't meet standard will be timely processed, to ensure that the interests of consumers.

Improve customers' satisfaction. Rural residents did not receive appropriate cost-effective or inferior products. The question, they want to return, but because the channels are sluggish and high cost of returns. Rural reverse logistics construction and development can be rationalized to a large extent of the return channel for farmers to reduce the cost of return.

IV. ANALYSIS OF THE SPECIFIC OPERATION MODEL OF LOGISTIC DISTRIBUTION IN RURAL AREA

A. Logistics Distribution of Agricultural products

Take the main enterprise, which deal with agricultural production, processing, distribution, as the principal part and further establish and improve the purchase and sale network system of agricultural products. Strongly support agricultural production and processing enterprises and construction of wholesale distribution, organically integrates its construction with professional cooperatives to promote the specialization of production, large-scale cultivation, circulation network. Give full play to the leading enterprises in the wholesale market driven and radiation role in promoting processing enterprises, and various kinds of supermarket docking, invigorate circulation. Guide the wholesale and processing enterprises of agricultural products directly to supermarkets, community markets, convenience stores, such as product distribution. The supermarkets and convenience stores can purchase goods directly from the producing areas or they can establish the long-term marketing alliance with the producing base of farm produce, making efforts to enhance the marketing rate of farm produce in the new retail industry like the chain supermarket and convenience stores.

The basic model Agricultural products distribution center is the "three distribution, one cold-chain, two connection," namely, the three distribution of agricultural products, technology, implementation of two-way information

distribution; one cold-chain, is to build their own cold storage and warehousing center, from production to marketing ,keep the food flesh in the whole storage; two connection, one is the members (including farmers, the professional farmers cooperatives, the high-quality agricultural products base), the other end to connect the demand (including wholesalers, major companies canteens, supermarkets, hotels, and agri-food markets), accomplishes the rapid circulation of agricultural products. Zhejiang Taizhou Huangyan agricultural products distribution center is the case of the model, according to market demand conditions, by adoption of orders to concentrate good quality agricultural and sideline products such as fruits and vegetables, carry out scientific operations, marketing, distribution, agricultural information and technology counseling, branding and other services.

B. Logistic distribution of daily consumer goods

In accordance with the diversity in aspects like consumption environment, consumption level, consumption group of the market of county, countryside, village as well as the features of rural market like wide scope and decentralization, the new modes of circulation like chain operation, logistic distribution and franchising should be cultivated strongly. The emphasis should be attached to the development of chain supermarket, storage-style supermarket and franchised store. Quick action should be taken to form and develop the new type of retail network of rural commodities which is supported by the city, attach importance to the county and take the countryside and village as backbone and base respectively. The channel of introducing the commodities into the rural market should be dredged, which can guarantee that the commodities of good quality and reasonable price can be sold in the rural market. This is a way to offer the farmers the richer and safer commodities and more comfortable consumption environment and better service. Once the farmers can enjoy the commodities and service of the same quality as the urban citizens, their consumption desire will be raised and the rural consumption market will be stimulated in turn.

It is feasible to establish large-scale logistic distribution centers in bigger cities and direct sales centers and area distribution centers in counties and the market towns. The small stores of the peripheral area of the centers will become their league members through the distribution, training and demonstration of the centers. It is possible to popularize the safe chain stores in the market towns and villages via the chain operation network.

The successful role model is the "Suguo" chain enterprise in Jiangsu province. The company clones the model of supermarket in cities to the market towns in counties and villages by transforming the rural traditional supply and marketing cooperative systems. At the same time, the company combines the chain operation of the cooperative system with the agricultural industrialization and integrates the extending of both of the consumption market with the farm produce market. On one hand, it sells the farm produce of good qualities to the cities, on the other hand it offers the farmer the commodities of cheaper price by establishing the supermarkets of consumer

goods supported by the chain distribution system. In this way both of the problems of farmer's buying and selling can be tackled.

C. Logistics Distribution of Agricultural Means of Production

The agricultural means of production mainly include seeds, fertilizer, pesticide, plastic film, farm implements and so on. Great efforts should be made to establish the circulation pattern of agricultural means of production with large scale, various levels, network and good competition order, but the supply and marketing cooperative system still seat as the main channel.

It is feasible to establish large-scale logistic distribution centers of agricultural means of production in bigger cities and supermarkets of agricultural means of production in counties and the market towns. The present business outlets of agricultural means of production could be transformed into several league members of chain stores or the direct sales chain stores. In this way the city-wide modern chain distribution system of agricultural means of production is to be developed.

In operation, great efforts should be taken to establish the new operation system of agricultural means of production which is based on the large scale joint purchase and supported by the distribution service. The new operation system with the strong radiation capacities could put the factories and farmers in good connection. Efforts should also take to cultivate and establish the nation-wide or area-wide chain groups of agricultural means of production. The companies of producing agricultural means of production should get the permission of establishing the marketing network. The companies dealing in the circulation of agricultural means of production should combine the sales of agricultural means of production with the service closely. It should offer the various services at the same time, such as distribution, processing, purchasing, offering technology, leasing farm implements. In this way the farmers can get technology service in the whole process of production. The new type of agricultural means of production should be promoted, which can protect the eco-environment, raise the quality of farm production and consist of high contents of science and technology. We should expediting the establishment of market access system of means of production such as seeds, pesticide, fertilizer and farm implements and the improvement of compensation mechanism of the damages of agricultural means of production. This is a way to offer the farmer with the guarantee of system. The severe enforcement of regulation and inspection and severely striking of producing counterfeit and poor quality agricultural means of production should be carried out.

D. Rural Reverse Logistics

Rural reverse logistics, it refers that, in the rural (areas below the county level), valuable materials which rural residents once used to live, to produce, characteristics by returns and waste products, was gathered in averse direction of marketing channel to re-manufacture, reuse or recycle. It mainly aims at the three types of products:

The first one is the reusable packages and containers

employed in agricultural means of production and fertilizer industry, such as glass bottles, plastic bottles, jars, cases and plates. These packages can be used repeatedly. The second one is the articles which can be re-produced, including the main parts of farm implements and instruments. After collection, these parts can be inspected and classified to reproduce new products. The third one is the return commodities and the unused articles of farmers. These articles can be returned to the processing enterprises of recycling ability or be resold.

We should insist on the principles: the combination of local condition, wills of peasants, government guidance and market operation, the advocate of saving, safe, clean, and convenience simultaneously, and the integration of economic effect, social effect and eco-effect, in the development and utilization of rural renewable resources.

A range of standardized recycle bins affiliated with all the chain outlets can be established by transforming the present recycle bins of renewable resources. The distribution center is responsible for processing the recycling articles and delivering the resources simply classified and processed to the renewable resource company. The "Trinity" of recycle bins, distribution center and renewable resource company can form the network system of recycling and utilization of renewable resource.

V. FACTORS IN CONSTRUCTING RURAL LOGISTICS DISTRIBUTION NETWORK

We can clearly draw a two-way flow of rural logistics and distribution map by the analysis in the third part (see Figure 1). Through the establishment of distribution centers in rural areas, facing the vast number of rural users, according to rural customs and consumption characteristics, carry out seeing sample orders, reservation orders, telephone orders, distribution of door-to-door; opening "Fast Track" and "Direct car" for delivering the agricultural means of production to the countryside, to reduce intermediate channel, making use of size advantage of chain commercials, to reduce the purchase cost of goods in rural areas as much as possible; acquire agricultural and sideline products, and deliver them to the distribution by center network, redeliver to wholesales and supermarkets after processing; recovery renewable resources characteristics by returns, to complete the two-way flow circulation.

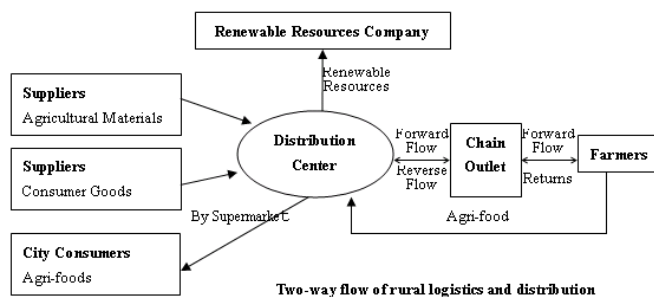


Fig. 1 Two-way flow of rural logistics and distribution

China use modern circulation methods to transform traditional service network operators to adapt to the needs of a new socialist countryside construction, such as "Thousands of Villages and Towns Market Project" and the "New Network

Project", which includes four modern circulation service system--agricultural means of goods, daily consumer goods, agricultural products and renewable resources. In building a rural distribution network, we should consider the original network, but also should pay attention to the needs of new rural construction. Specific need to consider:

- 1) Fully play the role of grass-roots supply and marketing cooperatives, speed up the construction of new network infrastructure. Establish daily necessities, agricultural production materials and agricultural products distribution center timely, making it the hub of communication between the urban and rural commodity circulation. Participate in and lead the community in commercial outlets adjusted operating Format, promoting chain operations. In accordance with the needs of farmers and operators will, get operating items such as communications, medicine, books, farm machinery and agency business such as services, technology gradually into the network. Integrate resources, strengthen the agricultural means of production of IT services business networks function, to realize the integration of agricultural management and technology. Base on agri-food production, rely on professional cooperative economic organizations, exert the role of daily necessities and agricultural materials and related processing enterprises' circulation network to promote the standardization of agricultural production, building new business networks of agricultural products. According to the requirements of the development of recycling economy, construct business networks, including recovery, processing and utilization of renewable resources.
- 2) According to the village, population distribution and characteristics of rural communities in economic activity, distribute the site rationally; to county business leader for the support, to township resident supermarket based on speeding up the new layout and construction of commercial outlets, and form a chain network and enhance the flow of services function; around standard production of key agricultural production in this area, make good use of cooperatives to play a grass-roots advantage, to attract and stimulate the development of professional farmers cooperative economic organizations, credit co-operation as the core, and build production platform for services to farmers.
- 3) In line with state's policies to encourage a variety of product delivery to countryside. Because these products not only enlarge the rural purchasing power, but also expand domestic demand and stimulate economic growth. From New Year's Day to mid-January, around the countryside more than 160,000 set products, 90% of total sales volume in December 2008, have been sold, of which the number of washing machine is more 4 times than December in 2008.¹ Circulation enterprises sent products to rural areas through stringent tender, highlighting

¹ Selling Appliances to the countryside enlarges nearly 7 times the rural purchasing power. China Daily, 2009-1-28.

products, energy saving, environmental protection, durability, security, performance, adapt to the requirements of rural consumption; Using farmers-subsiding accounts, fiscal subsidies are sent into the funds directly, which can effectively prevent the misappropriation, interception, also prevent the occurrence of fraud, deception behavior; through the information management system, the entire process, from production, circulation, sales to fund subsidies, are completed seamless regulation, to prevent the infiltration of fake and shoddy products.

VI. CONCLUSIONS

Two-way distribution network, such as the delivery of agricultural products, and daily distribution of consumer goods, agricultural goods and materials distribution, reverse logistics, can make use of the completion of a distribution center, that is, taking into account the distribution center station, logistics facilities, distribution networks and information, which can be completely shared through integration. "Thousands of Villages and Towns Market Project" and the "New Network Project" have greatly improved the system of commodities in rural areas since their introduction. But we should also see that the standardization of logistics in rural areas is very low, logistics equipment and logistics technology is relatively backward, lacking participation of large chain enterprises and third-party logistics, the application of computer and information technology are also undeveloped. All these imply that logistics distributions in rural areas also need a long way to go.

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