

Online Marketing Strategy for Agricultural Supply Chain and Regional Economic Growth based on E-commerce Perspective

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Abstract

With the popularization of internet, agricultural e-commerce has become a new business model. Electronic commerce increases the flow rate of both sides of the transaction, improves the transparency of the market, and reduces the negative effect caused by asymmetric information. In this paper, we make an empirical analysis of online marketing strategy for agricultural supply chain, especially in economic terms. The result shows that product quality, variety, freshness, safety and price are important factors that affect customer satisfaction. And the distribution speed, convenience, customer service which related to the logistics service will also influence customer satisfaction. At the same time, we find that there are some shortcomings of the e-commerce supply chain in procurement, logistics, warehousing, and information management. In order to solve these problems, we put forward some improvement measures.

Keywords: *Agricultural Supply Chain, E-commerce, Regional Economy, Marketing Strategy*

1. Introduction

In recent years, the rapid rise of e-commerce industry in our country, home appliances digital, shoes, bags of clothing and even travel tickets are able to quickly and easily complete the transaction through the electronic commerce platform. Along with the people of electricity supplier of agricultural products accepted gradually strengthened, each big electric business platform have opened a fresh plate, by increasing fruit, meat, aquatic products, eggs, frozen and the category of goods, enrich and perfect the platform of varieties of goods, attract the eyes of customers[1]. Because consumers have a daily demand for vegetables and meat, resulting in the conversion rate is much higher than the general merchandise, consumers in the purchase of fresh agricultural products can also drive the sales of other products. Fresh agricultural products in the business have brought new ideas, but also to consumers with benefits, so that consumers can avoid geographical restrictions, the purchase of agricultural products to the right. The emergence of e-commerce in agricultural products makes the competition between fresh retail market and e-commerce platform increasingly fierce, in order to deal with this situation, most e-commerce platforms have established their own agricultural supply chain[2]. To the more well-known fresh e-commerce platform originally life network, for example, their fresh agricultural products supply chain around its own fresh e-commerce platform, buyer, production and processing, simple packaging, logistics, transportation, warehousing, processing and distribution, sales and other links connected into a whole. The supply chain will be a functional network of farmers, agricultural products processing plants, electronic commerce platform and the user. Such a supply chain network is far more than the agricultural supply chain, eliminating the need for the middle of the process of distribution costs, but also to make the product more competitive.

However, due to the fresh agricultural products supply chain has just started, there are still many problems to be solved in the process of operation. For example, fresh products due to

its own characteristics, the requirements of the aging, the existing supply chain of fresh agricultural products is difficult to meet the requirements of consumers "fresh". Due to the shortage of supply chain, consumers are very difficult to enjoy the quality products and services, product quality is poor, the supply chain is slow, and the product price advantage is not prominent[3]. Existing business platform for the sale of fresh agricultural product prices high, fewer species, usually to organic, green and other gimmicks sold high priced fresh, the fresh agricultural product electronic commerce highbrow, difficult and farmers' markets and super competition. Agricultural products e-commerce supply chain has many problems in practice. For example, the purchase of subjective consciousness is strong, the channel level, the logistics service is not required, the inventory is poor, the inventory strategy is optimized, the information is not smooth, and consumers are not satisfied. The rise of e-commerce has brought new changes to China's fresh agricultural products market, fresh agricultural products e-commerce has begun to develop. As an emerging industry, the supply chain of fresh agricultural products is still more need to be improved. This thesis takes the consumer as the main body, studies the satisfaction degree of consumers on the terminal product of the fresh agricultural products, and analyzes and optimizes the supply chain.

2. Literature Review

2.1. Agricultural Supply Chain

For the concept of supply chain, many experts and scholars have different definitions. Stevens earlier proposed the definition of supply chain, he believes that supply chain is a system of raw material producers, processing factories, logistics and distribution and customer connection, in this system, the raw materials, goods, etc. from the supplier down the supply chain flows to the hands of customers, and information is the supply chain of the two party two-way flow[4]. The supply chain of agricultural products is the supply chain management in the field of agriculture, the procurement, processing, warehousing, distribution, sales and other links into a whole, the supply chain management of all aspects of the operation to control, to get the optimal operation mode, improve the added value of agricultural products. The supply chain of agricultural products strengthens the industrial chain of agricultural products, and also solves the problems of low efficiency and low competitiveness in the industry, and can effectively improve the comprehensive competitiveness of agricultural products in China [5].

The supply chain of agricultural products in the domestic and foreign academic community has been a high value, the major research institutions and scholars have carried out their research. In the world, the research on the supply chain of agricultural products is generally concentrated in reducing the cost of food safety, improving the quality of agricultural products, quality management and so on. Many foreign organizations have carried out research on it, and published research results and experience, to improve the corresponding speed and operating efficiency of agricultural products supply chain. Domestic academic research on the supply chain of agricultural products has a late start, and there is still a big gap between the hardware facilities and the developed countries, so the research on the supply chain of agricultural products is very low [6-7]. According to the literature research, we find that we can manage the customer demand by using the demand chain management, classify and use this information to design the supply chain. Demand management can bring about the supply chain of fresh agricultural products e-commerce: demand information can coordinate each member in the supply chain, and create more value by studying the demand information [8]. In the supply chain of fresh agricultural products, consumer demand management should be introduced in the process of purchasing, inventory, sales, and distribution and so on. To determine the impact of consumer demand is the primary task of demand management, consumers in the use of fresh agricultural products e-commerce platform will be influenced by many factors: the number of goods, type, price, fresh goods, e-commerce platform, the degree of competition, and so on. Consumer demand survey can be

through the following ways, through the fresh agricultural products e-commerce platform customer information, investigate the best selling category, seasonal influence, consumer personal preference, consumer credit and other information; fresh agricultural products e-commerce platform for consumers to sample survey, analysis of consumer demand changes; carry out the target population of random sample survey, identify consumer groups and shopping habits.

2.2. E-commerce Marketing

Agricultural products e-commerce gradually becomes a new business model with the increasing popularity of the Internet. Electronic commerce increases the flow speed of transaction information, improve the transparency of the market, reduces the information asymmetry caused by adverse; electronic commerce can directly to do from the farm to the consumer the transfer and decreasing the high logistics cost of agricultural products; e-commerce can effectively broaden the sales channels of agricultural products, eliminate caused by time and space constraints, to break the regional difference of market segmentation [9]. At present our country still lacks a unified agricultural information network platform, which leads to the lack of balance between supply and demand of agricultural products, and the high cost of market monitoring and management. In addition, the storage, transportation, processing and sale of agricultural products, product loss, high cost, and these reasons lead to the high cost of agricultural products, consumer's burden. Fresh agricultural products e-commerce to improve the degree of industrialization of agriculture, increase the agricultural market, reduce the cost of agricultural products sales, increase the income of farmers, is an advanced business operation mode[10].

The main purpose of agricultural e-commerce supply chain is to develop an electronic information system, so that consumers can buy agricultural products directly and effectively, it is equivalent to a special information service site, can provide technical support and service for agricultural products enterprises, and each part can form a dynamic supply chain. The supply chain of agricultural products can also be made into a system, which is composed of the interaction and mutual dependence of the organic whole, with a specific function. E-commerce supply chain of agricultural products should consider the market supply and demand information for procurement, contract, agricultural production, delivery, delivery, service [11]. It is a network structure of supply chain. The sharing of agricultural information in the supply chain of e-commerce can further control the cost of agricultural logistics, optimize the agricultural production and improve the overall competitiveness of agriculture in China. Agricultural e-commerce platform can choose the right way according to their needs. When the platform needs long-term planning and decision-making, the forecasting method is usually more than three years, can provide enough time for fresh agricultural products e-commerce platform, the platform needs to adjust the medium term forecasting; when the platform needs to plan for short-term business procurement, short-term forecasting can use the short-term data, and the platform's procurement and management to make more practical forecast[12]. Fresh agricultural products e-commerce platform based on the forecast results to develop the supply chain procurement operation plan, the product line can be a full range of adjustment, so as to meet consumer demand.

3. Research Design

3.1. Research Variables

Studies have shown that supply chain terminal goods can show the running status of supply chain, a good operation of the supply chain, the terminal product will become the high quality and low price; the poor functioning of the supply chain, the end product will appear high prices, poor quality, etc., competitiveness is relatively low. And customer satisfaction can reflect the quality of supply chain terminal products: if the consumer satisfaction is high,

it shows that the supply chain terminal products have advantages in all aspects, if the other hand, it is difficult to obtain the supply chain terminal products market. This study analyzes the operation of the supply chain through the investigation of consumer satisfaction, and also provides the possibility for the supply chain optimization from the consumer satisfaction. Based on the research of domestic famous fresh e-commerce platform, the customer satisfaction and the factors affecting the satisfaction degree of the supply chain terminal products of fresh e-commerce are analyzed.

After field operations research, we can find that the consumer is most concerned about the quality of the product and the price, followed by the supply chain distribution of the speed, accuracy, convenience and other factors. In addition, consumers in the network consumption will be subject to customer service and online store decoration. To further the above attributes, and the relevant experts to consult, and ultimately determine the attributes of a sudden: product quality, product variety, product freshness, product safety, price competitiveness, distribution of the speed, distribution of convenience, customer service, and shop environment.

3.2. Questionnaire

Survey questionnaire sent to the object of the consumer, the consumer experience of fresh e-commerce platform, and is about to try fresh e-commerce consumers, survey through the interview, the network questionnaire and other forms of questionnaire, a total of 1050 questionnaires were issued, and 880 valid questionnaires, the effective rate of 83.81%. From the questionnaire of personal information can be seen, the women were surveyed more than men, the total number of survey 60.2%, education level is generally high, there is a university and higher education survey of the total of 18, the respondents aged between 35 to 86.4% years old, accounting for 68.2% of the total number of employees, the total number of 52.3%. Descriptive analysis of the impact factors of the questionnaire, the results are shown in table 1. Can be seen, these data suggest that consumers of fresh e-commerce supply chain terminal product satisfaction are not high. Among them, in addition to the price competitiveness is 3.61 high, product quality, product variety, product freshness, delivery speed, convenience, customer service, shop decoration are between 3 to 3.5 points, while the product safety score is lowest, only 2.81 points. Overall, the larger the standard deviation, the consumer for the fresh e - commerce supply chain to provide the end of the property of the terminal is not consistent.

Table 1. Descriptive Analysis

factor	Minimal value	Maximum value	Mean value	Stand. dev.
quality	1.00	5.00	3.3636	.87338
variety	2.00	5.00	3.4205	.82659
freshness	1.00	4.00	3.1364	.83297
safety	1.00	4.00	2.8182	1.07794
Price	1.00	5.00	3.0682	.70785
Distribution	1.00	5.00	3.6136	.86346
convenience	1.00	5.00	3.3523	1.08320
service	2.00	5.00	3.2159	.86368
decoration	2.00	4.00	3.4318	.67459
intention	1.00	5.00	3.3864	1.10829

3.3. Agricultural Products Logistics Platform

The main purpose of agricultural e-commerce supply chain is to develop an electronic information system, so that consumers can buy agricultural products directly and effectively, it is equivalent to a special information service site, can provide technical support and service

for agricultural products enterprises, and each part can form a dynamic supply chain. The supply chain of agricultural products can also be made into a system, which is composed of the interaction and mutual dependence of the organic whole, with a specific function. E-commerce supply chain of agricultural products through the market supply and demand information for procurement, contract, agricultural production, delivery, delivery, service, etc., is a network structure of supply chain. The sharing of agricultural information in the supply chain of e-commerce can further control the cost of agricultural logistics, optimize the agricultural production and improve the overall competitiveness of agriculture in China. Agricultural products e-commerce supply chain operation at this stage, the main need to pay attention to the following points:

- 1) ***Grasp the consumer demand:*** consumer demand in the agricultural e-commerce supply chain needs to be extremely seriously. Consumers in the electronic commerce operation process, a lot of electronic commerce enterprises because of the lack of a breakdown of the consumer into the operating difficulties. Only to consumer segmentation, the target consumers for differentiated services, in order to meet the needs of consumers in e-commerce supply chain of agricultural products.
- 2) ***The combination of management value:*** the most powerful means of competition in the supply chain of agricultural products is to improve the management ability and share information with the partners. A successful e-commerce supply chain of agricultural products not only need to understand the advantages of their own products, understand the direct needs of consumers, but also need to understand the mutual needs of partners. In the supply chain of agricultural products, enterprises and their partners need to understand their target market needs and their respective functions, so as to be able to trust each other, to ensure that information and data in the supply chain is fast and efficient transmission.
- 3) ***Complex things processing power:*** the supply chain of electronic commerce is flexible, sometimes there are individual enterprises temporarily out of the supply chain, the supply chain, product change to improve the situation, which makes the supply chain becomes more complex. The changing product business can create more opportunities to succeed in the changing supply chain structure. The members of the supply chain of agricultural products e-commerce must adapt to the changing business environment and complex business environment, and can respond to the change of supply chain.
- 4) ***To achieve standardization:*** a healthy and efficient agricultural e-commerce supply chain requires smooth connectivity, a high degree of trust and cooperation between enterprises. Information can be passed through the protocol or standard of supply chain, so as to realize the speed and accuracy of information transmission. At the same time, each individual in the supply chain needs to maintain the same level of operation speed and efficiency can not appear a large gap, so as to ensure the smooth operation of supply chain.

The idea of combined inventory management is applied to the e-commerce supply chain of fresh agricultural products, and the inventory management is the combination of supply chain, and the model of the electronic business supply chain inventory of fresh agricultural products, as shown in Figure 1. Joint inventory for synchronous operation of supply chain provides premise condition, reduce the bullwhip phenomenon, it has provided the condition for zero inventory management.

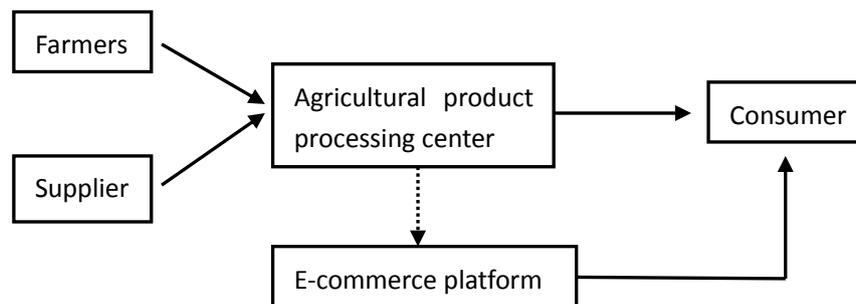


Figure 1. Agricultural Product Supply Chain Management

4. Empirical Analysis

4.1. Factor Analysis

From previous studies, the consumer's satisfaction degree of fresh e-commerce shopping should be influenced by the factors, and the description of the analysis of the side evidence of this conjecture. Descriptive analysis showed that the degree of the total satisfaction of the property is indeed affected, and now, the relationship between the above variables and the degree of the effect of the various attributes of the degree of satisfaction. Factor analysis of the data obtained from the questionnaire survey, the Bartlett and KMO values were 0 and 0.778, respectively, which indicated that the sample is suitable for the analysis of the factors. From the total variance explained, from the table 3 can be found, the first two factors of the characteristic value is greater than 1, explained 71.970% of the variance, the more appropriate to extract two factors.

Table 2. The Result of KMO Statistical Test

Kaiser-Meyer-Olkin		0.778
Bartlett test	Approximate chi-square	106.652
	df	14
	Sig.	0.000

Table 3. Total Variance Explained

Ingredients	Initial eigenvalues			Extracting square and loading			Rotating square and loading		
	Total	Vari.	Cumu.	Total	Vari.%	Cumu.%	Total	Vari.%	Cumu.%
1	5.12	56.89	56.89	5.12	56.89	56.89	3.44	38.25	38.25
2	1.35	15.08	71.97	1.35	15.08	71.97	3.03	33.71	71.97
3	.70	7.88	79.85						
4	.56	6.32	86.17						
5	.52	5.87	92.04						
6	.31	3.47	95.51						
7	.19	2.19	97.71						
8	.11	1.31	99.02						
9	.08	.97	100.0						

It can be found that all nine variables have at least one factor of the load of more than 0.5, the other is the factor load matrix after the maximum orthogonal rotation, table 4 for analysis, the component value is greater than 0.5 of the factor combined into a common factor. We rename the variables of each factor, as shown in table 4. The first factor includes five

variables, such as product quality, product variety, product freshness, product safety and price competitiveness. It is easy to see that these five variables are related to the product itself. The second factors include the delivery speed, convenience, customer service, and store decoration, which are related to the services that consumers enjoy. Therefore, second public factors can be named as additional service satisfaction of goods.

Table 4. Orthogonal Rotation Factor Matrix

Factor	Ingredients	
	1	2
quality	.829	.397
variety	.832	.238
freshness	.944	-.027
safety	.667	.492
Price	.549	.481
Distribution	.430	.534
convenience	.100	.838
service	.125	.886
decoration	.466	.756

4.2 .Regression Analysis

We assume the product satisfaction (f1) and the added service satisfaction (f2) as the independent variable, the consumer's overall satisfaction as the dependent variable (S) regression analysis. Using SPSS software for analysis, the regression equation is well performed, and the regression of the equation and its coefficient is obvious, the probability of the product satisfaction and the satisfaction of the attached service is less than 0.05, see table 6.

Table 5. Summary of Models

model	R	R ²	Adjusted R ²	Stand. err.
1	0.851a	0.724	0.717	0.58935

Table 6. The Results of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	3.386	.063		53.902	.000
Product satisfaction	.736	.063	.664	11.645	.000
Additional service	.590	.063	.532	9.331	.000

As shown in Table 6, the overall regression equation is adjusted for R² is 0.717, and the impact of consumer satisfaction on the overall purchase intention is shown below:

$$S = 3.386 + 0.736f_1 + 0.590f_2$$

The results of regression analysis showed that the two factors had significant positive effect on consumer purchase intention. By the formula, consumer satisfaction of goods can affect the overall purchase intention of consumers, and the satisfaction degree of customer satisfaction also has a certain influence on the overall purchase intention of consumers. Through the analysis of the questionnaire data, we can know: the operation of the supply chain of fresh agricultural products in our country still needs to be strengthened, and the consumer has not enjoyed a good product and service, which needs to be improved.

5. Conclusion

In this paper, we make the research of consumer's satisfaction in the terminal product of the fresh agricultural products; the research puts forward the existing problems of the electronic commerce supply chain of fresh agricultural products, and optimizes the existing problems. In this paper, we can draw these conclusions: the actual operation of the supply chain of fresh agricultural products is not satisfactory, the overall competitiveness of the goods is not outstanding, the supply chain response efficiency is low, and service level needs to be improved. Through analysis, it is found that consumers are not satisfied with the supply chain supply chain for fresh agricultural products. The reason is that the supply chain of fresh agricultural products is not satisfactory. According to these problems, some improving measures are put forward.

5.1. Optimize Procurement Channels

Fresh agricultural products e-commerce supply chain procurement management can establish direct procurement channels, with large-scale farms or agricultural cooperatives signed, directly to the acquisition of fresh agricultural products, reduce intermediate links. Direct purchase has a very clear advantage: first, direct purchase to ensure supply can also reduce intermediate links, reduce costs; second, direct purchase of e-commerce platform for fresh agricultural products to ensure the quality of goods, to ensure food safety of fresh agricultural products, once again, to adjust agricultural products based on seasonal changes to solve the problem of a single category. Fresh agricultural products e-commerce platform in China procurement has begun to direct purchase, a lot of e-commerce platform is established his own farm, part of self-produced self marketing. Fresh agricultural products e-commerce platform and farmers' cooperative mode, fresh agricultural products e-commerce platform can be directly with a number of farmers contracted to build their own production base, to the greatest extent to control the quality and variety of fresh agricultural products

5.2. Strengthen Agricultural Supplier Management

Fresh agricultural products e-commerce platform for suppliers to manage, evaluate the cooperation of enterprises or individuals, select the appropriate business for long-term cooperation. This will be able to establish stable cooperative relations, not only conducive to the stability of the platform supply, but also to reduce the cost due to changes in the cost of suppliers. Fresh agricultural e-commerce supply chain supplier selection can be divided into the following several steps, the establishment of assessment team, the assessment team is mainly responsible for the assessment of the need to set up the evaluation criteria, and its continuous improvement; the establishment of evaluation system, the evaluation system is not only to consider the quality, price and product category from the supplier, but also to consider the various aspects of the supplier's ability.

5.3. Construction of Third-party Logistics Platform

Information delivery in the supply chain has a vital significance, the establishment of a unified information platform for fresh agricultural products e-commerce supply chain is very important, a supply chain will be all the members of the seamless docking of the information chain will be positive for the development of the supply chain. First, the establishment of new agricultural products integrated information service platform expands the supply chain of fresh agricultural products related functions and services. A complete e-commerce information chain of fresh agricultural products should include: supply information system, information system, online communication system, online trading system, information inquiry system, enterprise background query system, supplier management system, order processing system, customer management system, logistics information system, inventory management system, etc. According to the actual operation situation of the supply chain of

fresh agricultural products, the development of the relevant software, which is suitable for China's national conditions, provides a better platform for the supply chain management and supply chain management.

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