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The Analysis of Consumer Behavior of Fresh- products

E-Business—Based on Research in Chengdu

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Abstract: Experts were not optimistic about the sale of fresh products on internet a few years ago, because their prices are low while logistic costs are high. But according to the statistics in recent 2 years, the growth rate of sales of the fresh products on internet is amazing. After making an investigation of consumer behavior of fresh products E-business platforms in Chengdu city, the authors analyze the consumers' behavior of fresh-products E-business and find the key factors affecting their purchase behavior via internet.

Keywords: fresh-products e-business, consumer behavior, cold-chain logistics, service

1. INTRODUCTION OF BACKGROUND

With more agricultural standardization and informatization supportive policies of our government and more demand for ecological, fresh agricultural products by the consumers, it seems there are vast opportunities for e-business in rural area.

According to the statistics in 2014, there were over 31 thousand agricultural e-business enterprises in China. The reasons why there were so many enterprises involved can be seen from three perspectives: firstly, the consumption for the agricultural goods belongs to high frequency behavior and the traditional offline channels cannot satisfy the consumers who wish to buy ecological, fresh agricultural products completely. Secondly, the implementation scheduling of cold-chain logistics is improving with the support of government policies. Thirdly, the exploration in O2O mode by enterprises partially solves problems existed in the transportation speed and loss on the way, which reduce the cost of e-business in rural area.

Among the numerous agricultural e-business enterprises, only 1% of them could make profit, 7% faced drastic losses, 88% suffered slightly losses and 4% could make both ends meet. Two giants such as Ali series and Jingdong series occupies the major market share. Ali series including Tmall, Juhuasuan and 1688 achieved 28.4 billion RMB ¥ of agricultural products sales in 2013 and ¥48.3 billion RMB ¥ in 2014 which annual growth rate of sales was 70%. In 2015, the sales of agricultural products of Ali series was 69.55 billion RMB ¥ (annual growth rate of 44%). While the other tycoon Jingdong series, achieved over 10 billion RMB ¥ of agricultural products sales in 2013. Besides, there are still many vertical-type and small-sized agricultural e-business enterprises such as sfbest, benlai and Fruit day etc. According to the statistics, there were over 4000 e-business enterprises involving in agricultural commodity transaction among the 31 thousand agricultural e-business enterprises in 2014.

Categories selection must be firstly be taken into consideration in marketing strategy by agricultural e-business enterprises. Three categories agricultural products sold in E-business platforms nowadays are: grain and oil products, leisure food and fresh agricultural products. According to the statistics in Ali series platform (figure1, figure2, figure3 and figure4), on which distinctive agricultural products and fresh foods are sold. According to the data in 2014 and 2015, nut products sold best, followed by tea drinks and fresh-products. A few years ago most agricultural experts were not optimistic about the sale

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of fresh product on internet, because their prices are low while logistic costs are high. But according to the statistics from Ali series in recent 2 years, the growth rate of the sales of fresh products is amazing.

In 2015 the market share of flowers and green plants ranked first and meat, vegetables and fruits followed, which surpassed nuts and snacks. In addition to that, on the top 20 of the sales of single agricultural products in 2015, except isaria cicadae miq which ranked the first place, the remaining 19 categories belongs to fresh-products. Our research group is interested in the skyrocketing growth rate of sales in fresh-products. What the features of fresh-products consumers are and what factors will affect their purchase behavior via internet confuses us. So we make this research based on investigations in Chengdu market.

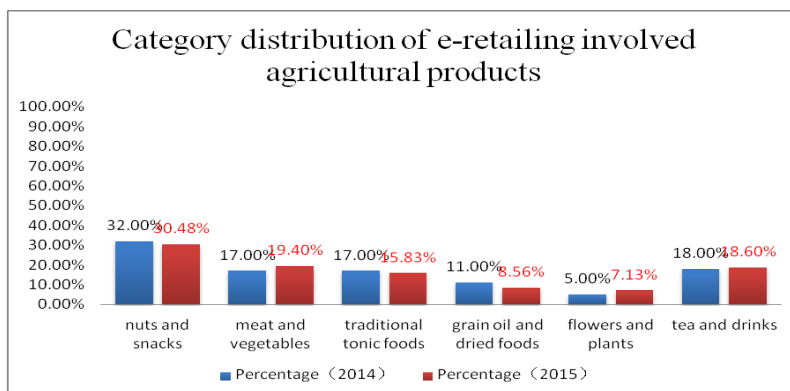


Figure 1. Category distribution of e-retailing involved agricultural products

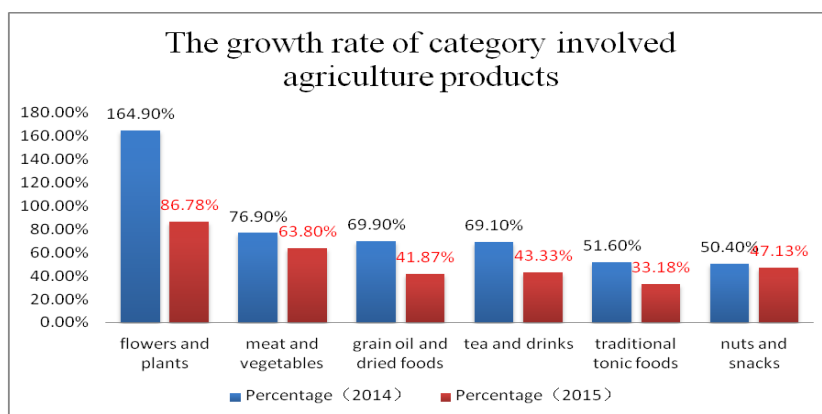


Figure 2. Comparison of the growth rate of agricultural category on Ali platform in 2014 and 2015

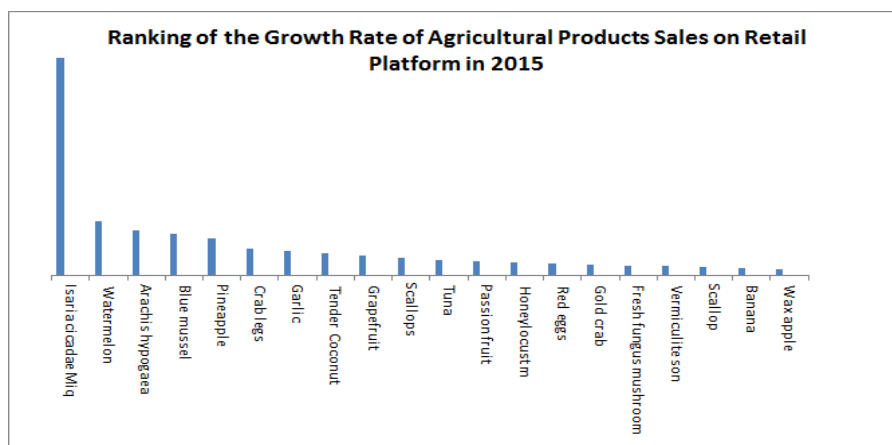


Figure 3. Ranking the growth rate of single agricultural item sales on Ali retail platform

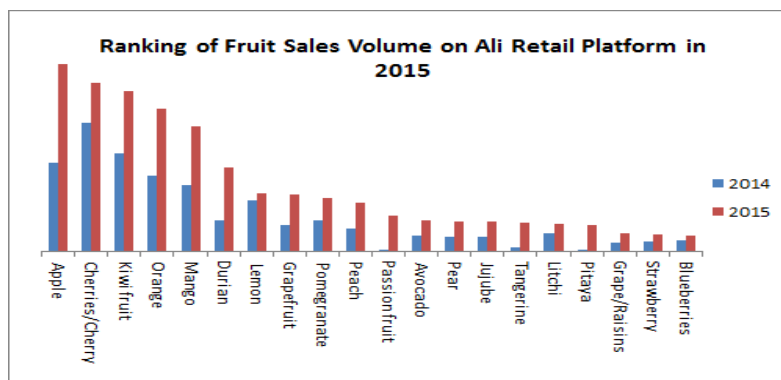


Figure 4. Ranking of fruits Sales Volume on Ali retail platform in 2015

2. INVESTIGATION IN CHENGDU CITY

2.1 Investigation samples characteristics

Our research group made an investigation from April 5th to April 25th in 2016, and received 1000 effective questionnaires. The followings are the characteristics of the sample:

Firstly, as for the gender structure of the sample, there are more female consumers involved than the male. Female consumers account for 62.55% and male consumers account for 37.5%.

Secondly, as for the age structure of the sample, young consumers varying from 18 to 35 years old are mainly involved in this investigation. The ratio of age from 18 to 25 is the highest (58.3%) and age from 25 to 35 accounts for 26.38%. Consumers varying from 35 to 45 years old are 9.79%. People older than 45 only account for 4.68%. In conclusion, young consumers take up great part in the investigation.

Thirdly, as for the educational background structure of the sample, consumers with different educational level are involved. Consumers with bachelor degree account for 64.68%, which ranks the first place. Then consumers with college degree (15.32%) rank second. Consumers with master degree account for 8.94% and consumers with doctoral degree account for 0.43%. So consumers with bachelor degree or over occupy 74.05%. The higher educational level the consumers have, the more they are willing to purchase through internet channel.

Fourthly, as for the structure of average household monthly income of the sample, households with average income from ¥5000 to ¥10000 account for 37.45%, which is the biggest part among the total sample; Households with average income below ¥5000 account for 32.34% and those between ¥10000 and ¥16000 account for 15.74% and households between ¥16000 and ¥25000 account for 8.09%. Households with average income over ¥25000 represent 6.38%, which is the smallest part. Generally speaking, households with average income over ¥10000 are the majority.

2.2 The basic consuming behavior analysis of consumers who purchase fresh fruits

2.2.1 Purchase frequency analysis

The frequency of fresh fruits purchase between 2 and 3 times in a week account for the largest percentage, which accounts for 51.06%. About 29.79% consumers say they buy one time or less in a week; Only 3.4% consumers buy 7 times or over in a week. The conclusion can be drawn that most consumers buy fresh fruits 2 or 3 times each week. Consumers who buy fruits each day are rare and still a lot of consumers do not buy fruits once a week. Generally speaking, nearly all consumers have the need for fresh fruits with 2 or 3 times per week.

2.2.2 Cross-over analysis of relationship between average monthly earnings and weekly consumption frequency

According to the analysis, 50% of the households with average monthly earnings ¥50000 or more purchase fruits 7 times or more each week and only 16.67% of them buy fruits 6 times or less per week; Most consumers

at this income stage are white collars who are sensitive to new things and pursue high quality of life; 11.11% of the households with average monthly earnings from ¥25000 to ¥50000 purchase fruits over 7 times in a week; Households with average monthly income below ¥25000 seldom purchase fruits over 7 times in a week; Only 2.7% of the households with average monthly income from ¥10000 to ¥16000 buy fruits over 7 times in a week.

2.2.3 Analysis of purchase channel selection

The frequency of purchase in supermarket is the highest, which is 54.89%; Then frequency of purchase in agricultural markets is 41.7%; Thirdly, the purchase frequency in fruit store accounts for 37.45%; purchase frequency by internet (12.34%) is the lowest. Traditional channels are still the main place for people to buy fresh food and the number of consumers purchasing fresh-products via internet currently is very small.

2.2.4 Relationship between consumer's education background and purchase channels selection

Participants with doctoral degree purchase fruits in supermarket and via internet; Percentage of consumers with master degree who purchase fruits via internet is 19.05%; Percentage of consumers with bachelor degree who purchase fruits via internet is 12.5%. Participants with senior high school or less degree accounts for least part. There is relationship between purchase channel and educational level-----the higher educational level the consumers have, the more possibility of they will buy fruits via internet.

2.2.5 Analysis of the amount of single purchase of fresh fruits by consumers

In terms of single purchase of consumption, the percentage of spending between ¥10 to ¥30 is the highest each time, which is 44.68%; the spending between ¥30 and ¥60 follows up with 27.23%; the percentage (0.85%) is the lowest for single consumption at ¥200 or over. In conclusion, for most consumers, the consumption amount each time is between ¥10 and ¥60. There are over half of consumers whose single consumption amount is below ¥30.

2.3 Analysis of consumers behavior of fresh fruits purchase via internet channel

45.11% of participants in samples have experienced purchasing fresh fruits via internet. The analysis shows that the percentage of fresh fruits purchase in Chengdu is higher than that in other areas of our country. However, the rate of households purchasing fresh fruits is not over half. It shows that the fresh-products E-business in Chengdu region needs penetrate more and continuously cultivate consumption habit of the consumers and there is still a long way for fresh-products E-business to go. There are total 113 participants choosing to purchase fresh-products via internet, thus the number of sample is 113 in the following analysis.

2.3.1 Analysis of the selection of E-business platforms to purchase fresh-fruits

In terms of choosing platforms, 41.9% of consumers place orders via app. 30.97% of them choose websites and 27.43% of them choose Wechat. The mobile terminal becomes the battle field for sale under the "internet+" circumstances. The growth rate of the sale channels in mobile terminal outdistances that of PC terminal. There have been great changes in consumption habits with the development of mobile terminal.

In order to study fresh-fruits e-business platforms chosen by consumers, the author list five fresh-products E-business platforms. Among them, there are two comprehensive E-business platforms ("Jingdong Fresh-products" and "Tmall Fresh-products"), one vertical type E-business platform (fruit day), one logistic type E-business platform (sfbest), one community O2O type E-business platform (bee quick) and one local area type E-business platform ("Health Direct"). According to the analysis of investigation data, two large comprehensive E-business platforms like "Jingdong Fresh-products" and "Tmall Fresh-products" account for the largest part, which is 28.32%; "Fruit Day" follows up with 23.89%; 13.27% refers to "Health Direct" (a local platform). Other options are available for gap filling. Of all gap filling information collected, four persons fill in the option "Wolaiye Fruits", three fill in "Sunyuki", three fill in "Pinhaohuo", two fill in "Xiaoqukuaidian" and one fill in "Xuxian", "Kale Mao" and "Xian 800" respectively. Consumers are still accustomed to purchasing fresh-products via comprehensive platforms, but vertical type platforms are also competitive and there are more selection ranges for consumers.

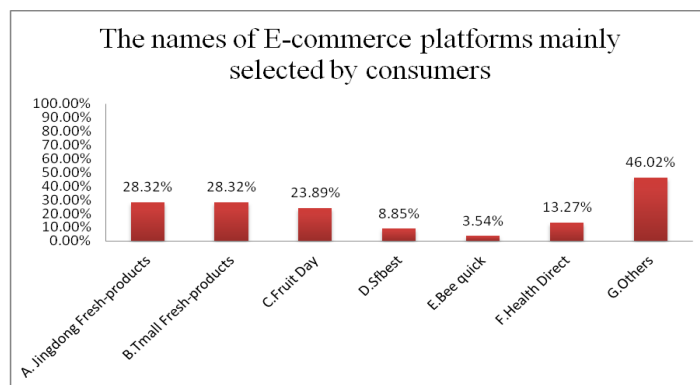


Figure 5. The names of E-business platforms mainly selected by consumers

2.3.2 Analysis of ordering time by consumers

An analysis of the line chart shows that most people place orders during 19pm to 23pm, which is 46.9%; then is that of 14-16pm, reaching 22.12%. However the percentage of ordering time before 9am is lowest, reaching 2.65%. The analysis signifies that peak period occurs in afternoon and at night, which means the enterprises should make promotion at that time.

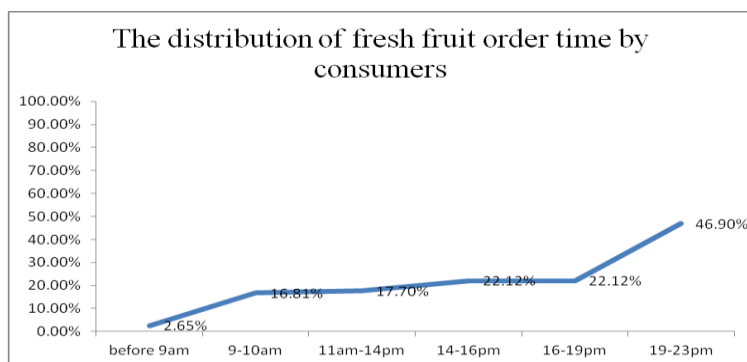


Figure 6. The distribution of fresh fruit order time by consumers

2.3.3 The reasons for purchasing fresh fruits via internet channel by consumers

76.99% of the customers think the reasons for purchasing fresh fruits via Internet should be convenience and rapidness. 50.44% of the customers think the reasons for purchasing fresh fruits via Internet should be the lower price. 43.36% of the customers think the reasons for purchasing fresh fruits via Internet should be the strong promotion power the selling platform, while the freshness and flavor are not the main reason for consumers to buy fresh-products online. Consumers suspect the freshness and flavor of products which can not be touched and seen on Internet.

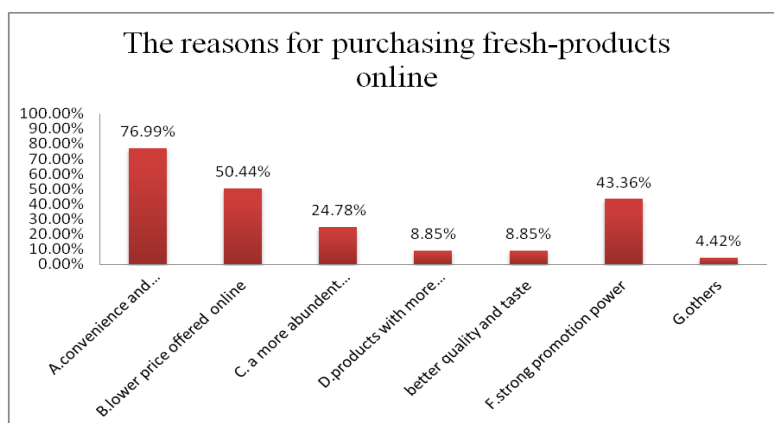


Figure7. The reasons for purchasing fresh-products online of consumers

2.3.4 The satisfaction analysis of fruits purchase of consumers

Most choose “general satisfaction”, which is 53.98%; the percentage of “great satisfaction” is 21.24%, and that of dissatisfaction is only 0.88%. Generally speaking, the consumers are generally satisfied with fresh-products purchased online, which means that the fresh-products E-business in Chengdu city does a great job in service.

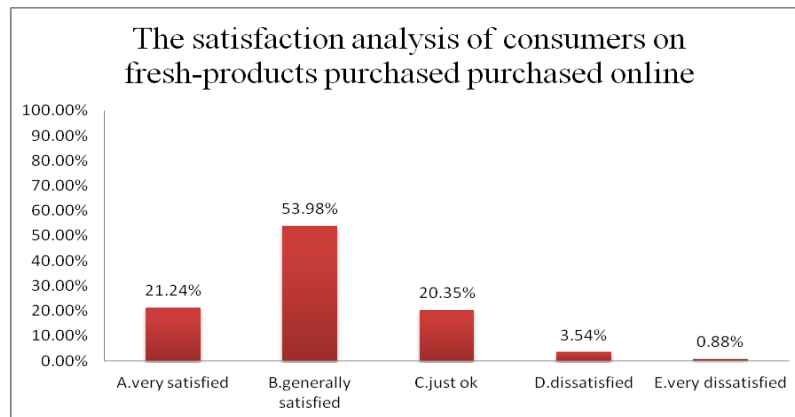


Figure 8. The satisfaction analysis of consumers on fresh-products online

2.3.5 Analysis of main problems in fresh-products purchased online confronted by consumers

In terms of online shopping, most consumers choose the option of non-fresh products, which accounts for 43.26%; percentage of transportation damage in logistic transportation is 39.82%; the percentage of dissatisfaction with slow distribution is 39.84%. We can see that one key factor affecting the development of fresh-products E-business is distribution efficiency. As the consumption of fresh-products belongs to instant consumption and consumers want to eat them at any time, which require the fresh-products E-business can provide instant distribution service. The poor flavor ranks fourth of all complaints with the percentage of 27.43%. The fault problem of network platform ranks the last. The vulnerability is still existed in computer technology under mobile network conditions. Overall, the main problems affecting the development of fresh-products E-business are products problems and logistic problems

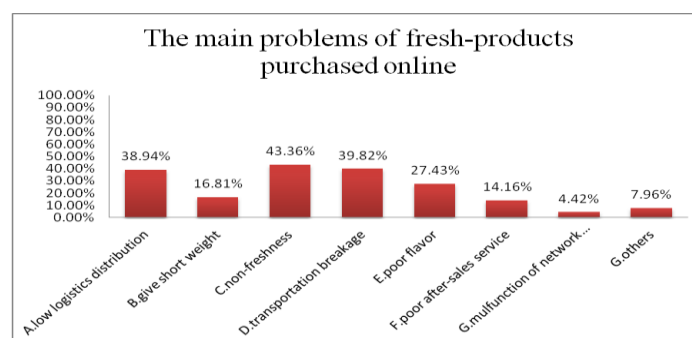


Figure 9. The main problems confronted in fresh-products purchase online

2.3.6 The analysis of factors affecting the selection of fresh-products E-business platform of consumers

In terms of factors affecting consumers' selection of fresh-products E-business platforms, the most important factors are the freshness and flavor of products, Which account for 82.3%; the price factor follows up with 60.18%; while consumers pay a general attention to the brand culture of sellers and products species. Since the flavors of same batch of fruits are different and the factors such as transport distance and storage loss play the key role in the freshness of products, so good quality and excellent flavor are the essential factors for consumers to choose a certain platform; In addition to that ,selling price will be greatly reduced as the fresh-products E-business enterprises provide the goods from the origins to the terminal, which is also the key factor for consumers to select a certain E-business platform.

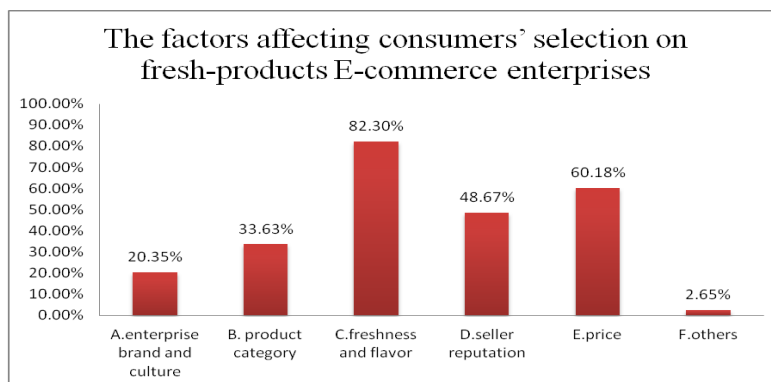


Figure 10. The factors affecting consumers' selection on fresh-products E-business enterprises

Through research, 92.92% of participants in the samples would like to recommend the fresh-products E-business platforms approved by themselves to their relatives and friends and only 7.08% of that will not do. In terms of guiding flow, the fresh-products E-business platforms should pay attention to excellent public reputation in addition to carrying out corresponding advertisement strategy. The majority consumers will recommend platforms they recognized to others. They will also tell others the bad platforms and if they think the platforms are unreliable. It can be known from the analysis that the word of mouth is essential for the development of fresh-products E-business.

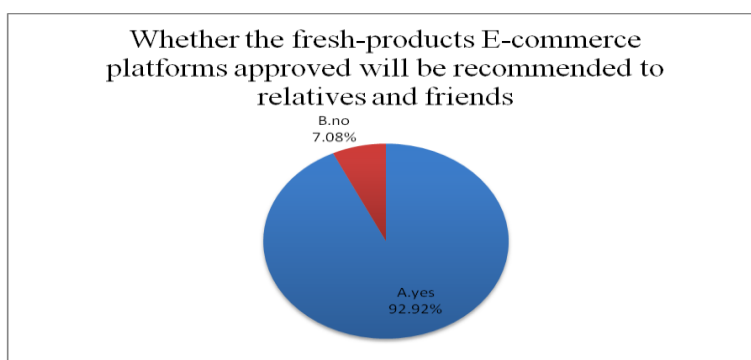


Figure 11. Whether or not the fresh-products E-business platforms approved will be recommended to the consumers' relatives and friends

2.3.7 Analysis of the attitude of consumers that whether to accept predetermined mode of fresh-products

In the samples, 85.11% of participants accept the predetermined mode of fresh-products and only 14.89% of them disagree the pattern. Through an analysis on research, there is still large market space for fresh-products predetermined mode and they are consistent with consumers' willing to some extent. The acceptance of predetermined mode shows that consumers are highly demanding for the freshness of products. The reservation can guarantee the products preparation according to demand and send them with freshness. The group knocking predetermined modes, immediately hot in 2015 summer like "pinhaohuo" and "pinduoduo" become another innovative operation pattern in fresh-products E-business field. Greatly hot in various famous universities in Beijing in 2014, "xuxian" survives by the predetermined mode of ordering on the day and arriving the next day. The order quantity is calculated at night to purchase the corresponding products in markets or surrounding orchards, and in this way, the loss in inventory is reduced and the freshness of products are guaranteed. The reservation pattern will be the mainstream of fresh-products E-business in the future.

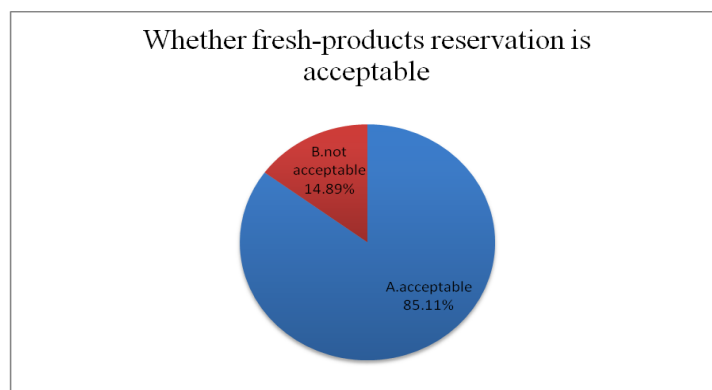


Figure12. The scale drawing of fresh-products reservation accepted whether or not

3. RESEARCH CONCLUSION

3.1 Great changes in consumption habits under the background of mobile Internet

Consumers tended to buy fruits from supermarkets and fruit stores and fruits are most purchased online in the age of Internet, and shopping by mobile phone is widespread in the age of mobile Internet age in particular. The wireless terminal accounts for a large part. More and more consumers would like to buy fresh fruits by wireless terminal tools like mobile phone, and pad, etc. In terms of platforms selection, they tend to place orders and purchase via wireless terminal app and Wechat.

3.2 Perception value of consumers

The perception value refers to the useful perception including time cost and energy cost saved in consumption process for users to gain more resource advantage of information. In our fast-paced life, what office workers concern more is the convenient、fast shopping experience and lower price. The proper sales promotion form can attract consumers and boost their enthusiasm.

3.3 Consumers pay great attentions to the freshness and flavor of the fresh fruits

As the special agricultural products, the fresh fruits are perishable and easily damaged. Fresh fruits need special transportation and storage. The reason why consumers purchase fresh fruits via internet is freshness mainly. Nearly all consumers hope that the products they purchase via E-business platforms are fresh. Flavor is another factor which consumers pay great attention to. Consumers will be greatly loyal to platforms on which the fruits sold are both fresh and delicious. Otherwise, platforms shall face risks of losing consumers forever if consumers have bad shopping experience on them.

3.4 Importance of the service provided by fresh-products E-business enterprises

In addition to delicious products, consumers also want to get good service. The efficiency of handling complaints of consumers and service quality will decide whether consumers continue to choose the fresh-products E-business platform. As for fresh-products, it is inevitable that there are losses during transportation and different flavors. If enterprises can handle such problems and make compensation immediately, consumers will be more loyal to a certain platforms.

3.5 Satisfaction of consumers is proportional to the logistics distribution efficiency

Both debris consumption and instant consumption are induced by mobile internet. During scattered time, consumers will glance over web information and go shopping at websites. Impulsive type consumption will be formed once they feel for some products. Therefore there are instant consumptions in fresh-products which allure consumers' appetites. Consumers' satisfaction degree can be improved if fruits can be purchased in short time online. In another words, after long time transportation, consumers may lose interest in purchasing fruits the moment they see them on spot, therefore distribution efficiency is the main factor attached by consumers.

3.6 Perception risks of consumers

As there are varieties of products in M-Commerce, there will be great risks in consumers' purchase behavior, if there is no same exhibition way for the different products. Because consumers can not directly see and touch products on internet, there will be deviation between consumers' perceived value and expected value. So they may find the goods delivered are not the goods they are really interested in. Secondly as some information safety problems still exists, consumers are worried about the security flaws in mobile payment process, which is also an essential factor constraining consumers' purchase behavior.

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