Research on the Countermeasures of Sichuan Agricultural Products E-commerce Precise Poverty Alleviation Branding

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Abstract: Sichuan Province is a natural province with high-quality and characteristic agricultural products. It is also one of the provinces in the precision poverty alleviation in New China. How to promote the characteristic agricultural products to all parts of the country and effectively solve the problem of rural poverty is very important. With the advent of the era of big data and web3.0, rural e-commerce has brought new vitality to precision poverty alleviation everywhere, but there are inevitably many problems to be solved. Through a large number of literature reading and data research, it can be seen that the development of rural e-commerce branding is an effective development strategy. Therefore, this article will conduct in-depth research and discussion on how to build Sichuan e-commerce brand based on the Internet.

1. Introduction

According to Alibaba's report on the development of e-commerce in Sichuan province in 2018, Sichuan's e-commerce spending has topped the top 10 nationwide, indicating that the rapid development of e-commerce in China has also driven the rapid growth of e-commerce transactions in Sichuan. In addition, state leaders and well-known enterprises have also expressed a high degree of concern and attention to the poverty alleviation of agricultural products with Sichuan characteristics. In 2018, General Secretary Xi Jinping visited Sichuan and went deep into Daliang Yi Autonomous Prefecture, proposing to introduce Sichuan characteristic agricultural products into the e-commerce market. JD.com also helps e-commerce to help the poor "break through three barriers". It can be seen that seeing the business opportunities and advantages of e-commerce in agricultural products, combined with policy support and government help, can enable rural e-commerce to go out and develop.

It can be seen that poverty alleviation through e-commerce of agricultural products will be one of the effective and feasible development ways, and branding of products is the only way to promote the development of regional e-commerce of agricultural products. For rural e-commerce of Sichuan Province, it is necessary to introduce "Internet+agriculture" and "agricultural products+brands" to go out.

Therefore, based on Sichuan's agricultural products, this paper will conduct in-depth research and discussion by exploring the influencing factors of Sichuan's agricultural product brands on e-commerce consumers' satisfaction, and provide a reasonable and valuable suggestion for e-commerce branding in Sichuan province, which can effectively promote the development of e-commerce in Sichuan and even in rural areas across the country, implement the precise poverty alleviation policy, "develop rural e-commerce and build a new socialist countryside" is the realization of the farmers' dream of poverty alleviation and prosperity and the Chinese dream, and is the common and beautiful expectation of all Chinese people.

2. Research Methods

According to the data of Ariel Consulting Report, the transaction scale of China's online shopping market will reach 240 million in 2019, becoming an important engine for the growth of

the consumer market. According to the "China Taobao Village Research Report" released by Ali Research Institute in 2018, there are more than 3200 Taobao villages nationwide, which are widely distributed in more than 330 counties (districts and county-level cities) in 24 provinces (urban areas). Obviously, Taobao has great influence on villages. In 2019, the three big e-commerce giants Ali, jingdong and pinto all achieved higher-than-expected revenue and profit growth, and more than 70% of the new annual purchase users of the two giants Ali and jingdong all came from low-line cities.

Based on this, this paper selects Jingdong and Taobao, which are currently the two platforms of e-commerce giants, to collect and process data on the related contents of Sichuan agricultural product brands, and discusses how to build Sichuan agricultural product brands by analyzing the satisfaction index of consumers.

2.1 Data Collection and Preprocessing

The data collection method of this research is to use python3.6 software third-party collection library scrapy to collect online data on the two major e-commerce platforms of Taobao and JD.com, which are currently the two largest e-commerce companies in China. The data volume above covers a wide range, a large user base, and is highly authentic, safe, and reliable.

For the research on agricultural product brands in rural e-commerce poverty alleviation in Sichuan Province, the data we collected is related to the online sales of agricultural product brands by all enterprises of Sichuan origin, mainly for consumers' post-purchase evaluation content. A total of more than 280,000 online reviews have been obtained. The content of these obtained reviews is the latest data, which has the characteristics of authenticity, reliability and timeliness. The deep learning algorithm is used to analyze the characteristics of poverty alleviation brand building while ensuring the timeliness and authenticity of the data. Unsupervised intelligent classification of data classification is performed by using the word2vector neural network model and kmeans mean clustering analysis. At the same time human intervention to remove data noise. After performing natural language processing, a total of 2665 high-frequency words were extracted. These high-frequency words were screened to remove useless words and refined at the same time. Based on the 'elbow method' to determine the best classification cluster, 4 major categories were obtained A total of 19 aspects of data indicators, as shown in Table 1.

Table 1 Classification dimension division

Dimension	factor		Generated words
Product quality	Quality		Fresh, no bad fruit, no rotten fruit, no bad, spoiled, moldy, rotten
	Safety		Additives, pesticide-free, green organic, nutrition, vitamins
	Portion		The weight is heavy, heavy, several, sufficient, and lacking in weight
	Five senses	colour	Cyan, dark spots, bright colors, green flesh, cooked, overcooked, red, black and yellow
		Fragrance	Aroma, pungent, delicate, smelly
		Taste	Sweet, not greasy, sweet and not sour, orange, delicious, sour, bitter
		Shape	Extra thin, beautiful, large, full, round, thick, multi-core, small skin, good skin, gloss, well-proportioned, strange, too fine, hairy, deflated
		Touch	Smooth, soft, tender, smooth, crisp, medium-soft, juicy, thick, very raw and hard
	Price		Value for money, low price, good value, cheap, economic, fair, money saving, promotional activities, discounts, expensive, slightly expensive, sky-high price, free
Logistics	Keep fresh and moisturize		Cold storage, shrinkage, lack of water
	speed		High efficiency, door-to-door, punctual, fast, express, extreme speed, convenient, slow
	Logistics Enterprises		Zhongtong, Yuantong, Yunda, SF
package	package		Exquisite, intact, sealed, tight, gift box, plastic bag, carton, damaged, large package
Service	Service		Warm and thoughtful, recommended, quality service, trustworthy, will come again, very good, enthusiastic, honest, friendly, trustworthy, caring, labor-saving, service in place, professional

2.2 Data Quantification

The data obtained contains all the emotions of consumer satisfaction. In order to analyze consumer satisfaction more intuitively and visually, in order to better study consumer perception of brands, we will quantify the above data. The specific operation method is to use Likert's 5-level scale method, which is divided into 5 main levels of 5, 4, 3, 2, and 1 according to the emotional intensity of these comments, 5 represents the highest satisfaction, and 1 represents The most dissatisfied situation. The specific description is shown in Table 2.

Table 2 Descriptive statistics

	Number of cases	Minimum	Maximum	Average	Standard deviation
Quality	205	1.00	5.00	3.8537	1.14962
Safety	205	1.00	5.00	3.8293	1.12682
Portion	205	1.00	5.00	3.4537	1.07286
Colour	205	1.00	5.00	3.2000	1.21832
Fragrance	205	1.00	5.00	3.6683	1.24350
Taste	205	1.00	5.00	3.3707	1.30576
Shape	205	1.00	5.00	3.0927	1.31216
Touch	205	1.00	5.00	3.6049	1.07328
Price	205	1.00	5.00	3.7366	.97963
Package	205	1.00	5.00	3.1659	1.04403
Freshness and humidity	205	1.00	5.00	3.2634	1.13711
Delivery and distribution speed	205	1.00	5.00	3.7512	1.08986
Online and after sales service	205	1.00	5.00	3.8049	1.06687
Number of valid cases (in columns)	205				

3. Empirical Analysis

3.1 Correlation Test

Table 3 shows the correlation matrix between items for extracting the dimension dependent variable. It can be seen that the correlation between the two perceived dimension dependent variables of quality and safety is very high.

It can be seen from the data in the table that most of the absolute values of the data are above 0.9, indicating that there is a strong correlation between the variables.

3.2 Model Estimation

Table 4 is a list of coefficients of multiple linear regression. The table shows the partial regression coefficient of the model (B), standard error , constant, standardized partial regression coefficient (Beta), the t-statistic observation value of the regression coefficient test and the corresponding probability p value (Sig.), Collinear statistics show the tolerance and variance expansion factor (VIF) of the variable.

Let x1 be quality, x2 be safe, x3 be serving, x4 be color, x5 be fragrance, x6 be taste, x7 be shape, x8 be touch, x9 be price, x10 be packaging, x11 be freshness and humidity, x12 be The speed of goods and distribution, x13 means online and after-sales service, the multiple linear regression equation established according to the model is:

$$Y=4.029+0.083x_1+0.041x_2-0.018x_3-0.080x_4+0.014x_5-0.023x_6-0.005x_7+0.018x_8+0.036x_9+0.017x_{10}+0.040x_{11}+0.004x_{12}+0.061x_{13}.$$

Table 4 Multiple linear regression coefficient table

model		Unstandardized coefficient		Standardized coefficient	t	Distinctiveness
		B	Standard error	Beta		
1	(constant)	4.095	.015		281.145	.000
	quality	.083	.012	.494	6.779	.000
	Safety	.041	.012	.239	3.446	.001
	Portion	-.018	.009	-.099	-2.051	.042
	colour	-.080	.007	-.503	-11.571	.000
	fragrance	.014	.010	.088	1.410	.160
	Taste	-.023	.009	-.153	-2.640	.009
	shape	-.005	.009	-.033	-.531	.596
	Touch	.018	.012	.100	1.530	.128
	price	.036	.011	.181	3.256	.001
	package	.017	.008	.093	2.051	.042
	Freshness and humidity	.040	.011	.237	3.769	.000
	Delivery and distribution speed	.004	.011	.021	.352	.725
	Online and after sales service	.061	.007	.338	8.789	.000

4. Research Results and Discussion

In this study, 280,000 comments were collected through online data crawling, and they were subjected to natural language segmentation and processing, word cloud screening, emotional dimension analysis and matching, and SPSS22.0 software analysis. The following suggestions can be obtained.

First of all, the most important point is the quality assurance of special agricultural products. When a product has high quality, let consumers trust the product and have a good product experience. For agricultural products, good quality means fresh and healthy, can be effective To improve consumer satisfaction, Sichuan's e-commerce agricultural products must ensure the absolute quality of agricultural products during marketing and promotion.

Second, there is the security dimension. The modern population in the 21st century is completely different from the era when people were required to eat, drink, and live. The modern residents pay more attention to the quality of life, and the diet also pays more attention to safe, healthy, and additive-free green food. Therefore, the safety of e-commerce agricultural products is guaranteed It is also an indispensable important factor.

This is followed by moisture retention. It can be seen that agricultural products can be divided into dried fruits and fresh agricultural products. According to the online shopping survey results, the sales of fresh agricultural products are increasing year by year, and the degree of moisturization and freshness of these agricultural products determines the quality of the product itself to a great extent. Therefore, the improvement of the freshness of fresh e-commerce agricultural products is also conducive to creating a good e-commerce brand image.

Price is also one of the factors that affect consumer satisfaction. It can be known that agricultural products are a necessity of life, and almost everyone in the salary class will buy them. While ensuring quality and safety, if the price is too high, it will affect the consumer's consumption level, which will affect the consumer's purchase rate, and ultimately affect consumer satisfaction. Therefore, cost-effective agricultural products can effectively attract customers, and are more conducive to building better agricultural product brands.

The last point is packaging. Compared with casual packaging, such as pockets, relatively clean, neat, and exquisite packaging can greatly attract consumers, have a good sense of buying experience, and further improve the level of satisfaction, which is conducive to creating a good E-commerce brand.

5. Conclusion

Based on the analysis and discussion of a large number of cases, this paper comes to the conclusion that the effective solution to poverty alleviation in precision rural areas is the use of e-commerce in rural areas. Sichuan Province, as a major agricultural province, has high-quality and characteristic agricultural products and has become the focus of national precision poverty alleviation. Both national leaders and well-known enterprises have attached great importance to it. At the same time, e-commerce branding is an inevitable way to solve the problem of rural e-commerce, but there are few research conclusions that give reasonable reference suggestions for Sichuan agricultural e-commerce brand building. Starting from exploring the factors that affect online consumer satisfaction, we conducted a mining study on the brand perception of Sichuan e-commerce agricultural products and established a multiple regression equation. Empirical analysis verified that enterprises should improve the five dimensions from the five aspects of quality, safety, moisture preservation, price and packaging, which can effectively improve consumer satisfaction and further enhance the brand image of e-commerce.

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Table 3 Correlation matrix

		Zscore: Quality	Zscore: Safety	Zscore: Portion	Zscore: Colour	Zscore: Fragrance	Zscore: Taste	Zscore: Shape	Zscore: Touch	Zscore: Price	Zscore: Package	Zscore: Freshness and humidity	Zscore: Delivery and distribution speed	Zscore: Online and after sales service
Correlation	Zscore: Quality	1.000	.976	.905	.896	.950	.925	.906	.902	.888	.915	.907	.957	.836
	Zscore: Safety	.976	1.000	.904	.911	.956	.923	.889	.921	.905	.908	.904	.951	.845
	Zscore: Portion	.905	.904	1.000	.913	.922	.933	.900	.931	.907	.908	.934	.910	.861
	Zscore: Colour	.896	.911	.913	1.000	.905	.905	.871	.912	.919	.910	.924	.909	.788
	Zscore: Fragrance	.950	.956	.922	.905	1.000	.937	.905	.937	.930	.911	.901	.926	.845
	Zscore: Taste	.925	.923	.933	.905	.937	1.000	.941	.938	.901	.915	.921	.933	.876
	Zscore: Shape	.906	.889	.900	.871	.905	.941	1.000	.865	.843	.933	.946	.894	.822
	Zscore: Touch	.902	.921	.931	.912	.937	.938	.865	1.000	.950	.890	.897	.921	.891
	Zscore: Price	.888	.905	.907	.919	.930	.901	.843	.950	1.000	.882	.899	.912	.795
	Zscore: Package	.915	.908	.908	.910	.911	.915	.933	.890	.882	1.000	.933	.894	.821
	Zscore: Freshness and humidity	.907	.904	.934	.924	.901	.921	.946	.897	.899	.933	1.000	.900	.786
	Zscore: Delivery and distribution speed	.957	.951	.910	.909	.926	.933	.894	.921	.912	.894	.900	1.000	.877
	Zscore: Online and after sales service	.836	.845	.861	.788	.845	.876	.822	.891	.795	.821	.786	.877	1.000