International Conference on Advances in Economics and Management Science (AEMS 2025)

Study on the Factors Influencing the Purchasing Intention of Lintong Pomegranate

Xinyang Yi, Yali Kang, Tiantian Kou, Leni Wu, Bei Qiao*
Xi'an Polytechnic University, Xi'an, Shaanxi, China
**Corresponding Author*

Abstract: The State Council's Circular on the 14th Five-Year Plan for Promoting Agricultural and Rural Modernization emphasizes strengthening the construction of advantageous zones for characteristic agricultural products. Lintong pomegranate, a specialty of Lintong District, Xi'an City, Shaanxi Province, generates an annual direct output value of 640 million yuan and a comprehensive value of 1.5 billion yuan, serving as a key economic pillar. However, studies indicate bottlenecks in sales channels, marketing awareness, and market influence that hinder its development. This study investigates the key factors affecting consumers' purchase intention for Lintong pomegranates from their perspective to enhance sales and optimize marketing strategies. Using text mining, consumer reviews from e-commerce platforms are analyzed with Chinese word splitting and LDA topic modeling to extract evaluation data. Based on TPB theory, a model framed by SOR theory is constructed, with attitude, subjective norms, and perceived behavioral control as antecedent variables (S), perceived value and pleasantness as mediators (O), and purchase intention as the outcome (R). Through stratified and multi-stage sampling, 577 valid questionnaires were collected, and logistic regression and cluster analysis were applied to profile consumers for precision marketing. Structural equation modeling assessed causality and variable importance, identifying critical factors and mechanisms influencing purchase intention, thus providing a scientific basis for optimizing product strategies, enhancing market competitiveness, and supporting the sustainable development of the Lintong pomegranate industry.

Keywords: Lintong Pomegranate; PPS Sampling; Text Mining Method; TPB Theory; Cluster Analysis; Structural Equation Modeling

1. Introduction

1.1 Background of the Study

1.1.1 Lintong pomegranate has become a local specialty pillar industry

Lintong pomegranate, a treasure of Lintong District, Xi'an City, Shaanxi Province, boasts a history of over 2,000 years and includes more than 100 locally bred varieties. The industry has grown rapidly, with a planting area exceeding 80,000 mu and an annual output of over 80,000 tons of premium fruit. The district features 15 high-standard pomegranate demonstration gardens and 5 standardized production bases, employing over 50,000 people, including nearly 8,900 growers. In 2024, it achieved a direct output value of 640 million yuan and a comprehensive value of 1.5 billion yuan, making it a cornerstone of local rural revitalization. The industry now spans planting, sales, and tourism, supported by events like the "Pomegranate Culture Festival," transitioning to a "modern agriculture + culture" model through a strategy of enhancing primary, optimizing secondary, and revitalizing tertiary industries. Lintong District has been recognized by the Ministry of Agriculture and Rural Development as a "national rural one, two, three industries integrated development pioneering unit" [1].

1.1.2 Problems in sales in the development of Lintong pomegranate

Though Lintong pomegranate is prized for its quality, juiciness, and sweetness, its development is hampered by inefficient, traditional sales channels despite e-commerce efforts. It struggles with limited market share in major cities, weak brand cohesion, and low visibility. Yang Jianbin (2018) criticized its outdated marketing, advocating modern channels and concepts [2]. Our research found little presence on Taobao and Pinduoduo. This study

examines consumer evaluations to pinpoint purchase intention factors and profile consumers.

1.2 Literature Review

Research on Lintong pomegranate purchase intention underscores branding and marketing's pivotal roles. Li et al. (2022) showed brand image drives decisions, necessitating strong branding [4]. Wang Hui (2024) highlighted lagging branding despite advantages [5]. Zhang Huan et al. (2022) emphasized industrialized management's role in linking farmers to markets efficiently [6], a point echoed by Li et al. (2022) [4]. However, these studies overlook consumer psychology and factor interactions, requiring further investigation for marketing guidance.

1.3 Content and Significance of the Study

This study uses diverse methods to assess consumer evaluations and purchase intention factors for Lintong pomegranate. Literature analysis sets the model, word cloud mining captures feedback, logistic regression links characteristics to intention, and K-means clustering groups consumers. SEM, blending TPB and SOR, evaluates factor impacts via mediators, refined by fit tests. It provides actionable insights for the industry's sustainable growth.

1.4 Research Features and Innovations

1.4.1 Comprehensive application of multiple methods: comprehensive analysis of consumer behavior

This study comprehensively analyzes the influencing factors of pomegranate purchase intention in Lintong from different perspectives by integrating text mining, questionnaire survey, logistic regression analysis, cluster analysis and structural equation modeling.

1.4.2 Combining theory and practice: providing new on purchase intention analysis

Using a model integrating TPB and SOR theories, this study systematically examines how consumer attitude, subjective norms, perceived behavioral control, and other factors influence purchase intention. Empirical validation confirms the model's effectiveness, highlighting consumer attitude and perceived pleasantness as pivotal in shaping purchase intention.

1.4.3 Data-driven conclusions: solving real

Data analysis yields actionable conclusions addressing Lintong pomegranate's challenges in brand building, marketing, and consumer experience, while offering innovative strategies for its sustainable development and valuable insights for rural revitalization and local economic growth.

2. Model Construction based on SOR and TPB Theory

2.1 Stimulus-Organism-Response (SOR) Theory

The SOR theory posits that environmental stimuli influence individuals' emotional states, subsequently shaping their behavioral responses. In the model shown in Figure 1, consumer purchasing behavior arises from stimuli-both physiological and psychological-originating internally and from the external environment. These factors generate motivation, driving consumers to decide and execute purchases.

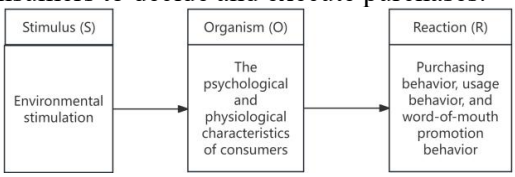

Figure 1. SOR Model

We developed a model with stimuli as the antecedent variable, Perceived Value and perceived pleasantness as indicators of consumers' internal emotional responses, and Purchase Intention as the outcome variable, to investigate the factors influencing consumers' intention to purchase Lintong pomegranates.

2.2 Theory of Planned Behavior (TPB) Theory

The Theory of Planned Behavior (TPB) by Icek Ajzen (1988, 1991) builds on the Theory of Reasoned Action (TRA) by Fishbein & Ajzen (1975), adding Perceived Behavioral Control (PBC) to address non-volitional behaviors.

This study uses TPB's attitude, subjective norms, and perceived behavioral control as stimulus variables, influencing perceived emotions and purchase intention for Lintong pomegranates. The final model is shown in Figure 2.

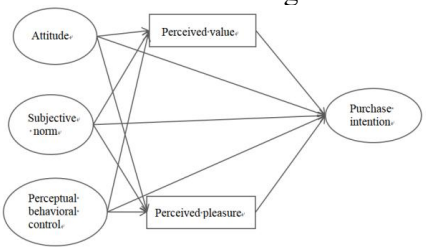

Figure 2. Theoretical Modeling Framework

3. Design of Variable Indicators and Research Hypotheses

3.1 Questionnaire Indicator Design and Categorization

3.1.1 Extraction of indicators from the text of comments

Review text analysis from e-commerce platforms yielded 27 indicators of Lintong pomegranate purchase intention-taste, nutrition, appearance, quality, packaging, local traits, brand, recommendations, promotions, social evaluation, convenience, cost-effectiveness, perceived value, and pleasantness-forming the questionnaire's indicator bank.

Table 1. Table of Indicators Selected by Influencing Factors of Pomegranate Purchase Willingness in Lintong

main category	Conceptual attributes	conceptual
Attitude	a1-a7	Lintong pomegranate has a very good taste
		Lintong pomegranate has high nutritional value
		The appearance of Lintong pomegranate is attractive
		Excellent quality of Lintong pomegranate
		The packaging of Lintong pomegranate is beautifully designed
		Lintong pomegranate can make consumers feel the local characteristics
		Lintong pomegranate has high brand awareness
Subjective norms	a8-a13	Recommended by friends/family
		Push on e-commerce platforms (e.g. Jitterbug, Taobao, etc.)
		Positive social evaluation of Lintong pomegranate
		Merchants promoting Lintong pomegranates
		Friends/family often buy Lintong pomegranates
		Local tourism promotes Lintong pomegranates
Perceived Behavioral Control	a14-a18	It's easy to buy Lintong pomegranates.
		Lintong pomegranates can be easily bought at regular shopping places.
		Consumers know how to select quality Lintong pomegranates
		Prices are within the reach of consumers.
		Consumers have enough time to find and buy Lintong pomegranates
Perceived Value	a19-a23	Lintong pomegranate is more cost-effective
		Pomegranates in Lintong are affordable
		Trusted Pomegranate in Lintong
		Lintong pomegranate has a high value in the gift market and is suitable for gifting to others.
		Pomegranate cultivation in Lintong drives local farmers to increase income
Perceptual Enjoyment	a24-a27	Buying Lintong pomegranates makes consumers feel satisfied.
		Buy Lintong pomegranate consumers are in a good mood.
		Buying Lintong pomegranate brings pleasure to consumers.
		Tasting Lintong pomegranate consumers feel enjoyable.

3.1.2 Determination of questionnaire indicators

Using TPB and SOR theories, indicators were organized into five categories: attitude, subjective norms, perceived behavioral control, perceived value, and perceived pleasantness, see table 1 for details.

3.2 Definition of Variables and Formulation of Hypotheses

By integrating review-derived questionnaire items with established literature scales, this study defines final variables, designs questions, and formulates hypotheses.

3.2.1 Attitude

Attitude is consumers' overall evaluation of buying Lintong pomegranates, reflecting preference and attraction. The product's quality, taste, and appearance boost positive attitudes, enhancing purchase intention.

Based on the above research, this paper makes the following assumptions:

H1a: Attitudes positively affect Perceived Value

H1b: Attitude positively affects perceived pleasantness

H1c: Positive attitudes influence purchase intentions

In this paper, Ajzen's attitude scale based on (Ajzen, 1991) [7] and Fishbein, M., & Ajzen, I. (1975) [8] , was selected and adapted to obtain the specific topics shown in the table 2:

Table 2. Theme Study of Attitude Variables

variant	subject	Presentation of the topic	Scale source
Attitude	AT1	I bought the Lintong pomegranate because I thought it tasted great!	Ajzen, I. (1991) and Fishbein, M., & Ajzen, I. (1975)
	AT2	I purchased the Lintong pomegranate because I thought it was highly nutritious.	
	AT3	I purchased the Lintong pomegranate because I thought it looked appealing.	
	AT4	I purchased the Lintong pomegranate because I thought it was of excellent quality.	
	AT5	I purchased the Lintong pomegranate because I thought it was beautifully packaged and designed.	
	AT6	I bought the Lintong pomegranate because I thought it would give me a sense of local flavor.	
	AT7	I purchased the Lintong pomegranate because I thought it had better brand recognition.	

3.2.2 Subjective norms

Subjective norms are perceived expectations from others (e.g., family, friends) influencing purchase decisions, directly affecting Lintong pomegranate purchases. This study explores impacts from family encouragement or friend recommendations, leading to the hypotheses below.

H2a: Subjective norms positively influence Perceived Value

H2b: Subjective norms positively influence perceived pleasantness

H2c: Subjective norms positively influence purchase intentions

Table 3. A Scale of Subjective Norms

variant	subject	Presentation of the topic	Scale source
Subjective norms	SN1	I purchased the Lintong pomegranate on the recommendation of a friend/family member.	Ajzen, I. (1991) and Taylor, S., & Todd, P. A. (1995).
	SN2	I purchased Lintong pomegranates because I was influenced by the push from e-commerce platforms (e.g. Jitterbug, Taobao, etc.).	
	SN3	I purchased the Lintong pomegranate because I was influenced by the positive social comments about it.	
	SN4	I purchased the Lintong pomegranate because I was influenced by the merchant's sales pitch.	
	SN5	I purchased the Lintong pomegranate because my friends/family buy it all the time.	
	SN6	My purchase of the Lintong pomegranate was influenced by its introduction in the local tourist promotion.	

In this paper, Ajzen's Attitude Scale (Ajzen, 1991) [7] and Taylor, S., & Todd, P. A. (1995) [9] were selected and adapted to obtain the specific topics shown in the table 3:3.2.3 Perceived behavioral control

Perceived behavioral control reflects consumers' belief in their ability and resources to purchase. Here, it measures how easily consumers think they can buy Lintong pomegranates.

Based on the above research, this paper makes the following assumptions:

H3a: Perceived behavioral control positively affects Perceived Value

H3b: Perceived behavioral control positively affects perceived pleasantness

H3c: Perceived behavioral control positively influences purchase intentions

In this paper, Ajzen's Attitude Scale (Ajzen, 1991) [7] and Venkatesh, V., et al. (2003) [10] were selected and adapted to get the specific topics as shown in table 4:

Table 4. Attitude Scale of Perceived Behavioral Control

variant	subject	Presentation of the topic	Scale source
Perceived Behavioral	PBC1	I purchased the Lintong pomegranate because it was easy to buy it.	Ajzen, I. (1991) and
	PBC2	I purchased the Lintong pomegranate because it was readily available	

Control		at the shopping places I frequent.	Venkatesh, V., et al. (2003)
	PBC3	I buy Lintong pomegranates because I know how to pick good quality Lintong pomegranates.	
	PBC4	I purchased the Lintong pomegranate because it was within my price range.	
	PBC5	I purchased the Lintong pomegranate because I had enough time to find and purchase it.	

3.2.4 Perceived Value

Perceived value is the consumer's assessment of a product's utility, balancing perceived benefits against costs. It directly influences purchase intention for Lintong pomegranates; greater benefits enhance value perception, boosting intention.

Based on the above research, this paper makes the following assumptions:

H4: Perceived Value positively influences purchase intentions

In this paper, Zeithaml, V. A. (1988) [11] and Sweeney, J. C., & Soutar, G. N. (2001) [12] , were selected and adapted to obtain the specific topics shown in the table 5:

Table 5. Item Analysis of Perceptual Value Themes

variant	subject	Presentation of the topic	Scale source
Perceived Value	PV1	I think Lintong pomegranates are better value for money.	Zeithaml, V. A. (1988) and Sweeney, J. C., & Soutar, G. N. (2001).
	PV2	I think Lintong pomegranates are economical.	
	PV3	I think Lintong Pomegranate is trustworthy.	
	PV4	I think Lintong pomegranate has a high value in the gift market and is suitable for gifting to others.	
	PV5	I think the cultivation of pomegranates in Lintong has driven local farmers to increase their income and has some social value.	

3.2.5 Perceived pleasantness

Perceived pleasantness is the pleasure and satisfaction consumers experience when buying or using a product. Enjoying Lintong pomegranate enhances positive emotions, increasing purchase intention.

Based on the above research, this paper makes the following assumptions:

H5: Perceived pleasantness positively influences purchase intention

In this paper, Davis, F. D., et al. (1992) [13] and Van der Heijden, H. (2004) [14] , were selected and adapted to obtain the specific topics shown in Table 6:

Table 6. Analysis of the Scale of Perceived Pleasure

variant	entry (in a dictionary)	Presentation of the topic	Scale source
Perceptual Enjoyment	PE1	I feel satisfied by purchasing Lintong pomegranates.	Davis, F. D., et al. (1992), and Van der Heijden, H. (2004).
	PE2	I feel like I'm in a good mood by purchasing Lintong pomegranates.	
	PE3	By purchasing the Lintong pomegranate, it gave me pleasure.	
	PE4	By tasting the Lintong pomegranate, I feel enjoyable.	
	PE5	Seeing Lintong pomegranates displayed in my home, their vibrant color decorates the environment and puts me in a cheerful mood.	

3.2.6 Purchase intention to umbrella

Purchase intention reflects consumers' likelihood of buying Lintong pomegranates, a key indicator of purchasing behavior; higher intention increases purchase probability. This study examines Lintong pomegranate consumption, where consumer preference drives intention, selected as the dependent variable[15].

Table 7. Analysis of Purchase Intention Variables Driven by Consumer Preference

variant	subject	Presentation of the topic	Scale source
Purchase Intention to umbrella	PI1	I would be happy to buy a Lintong pomegranate.	Dodds, W. B., et al. (1991) and Spears, N., & Singh, S. N. (2004)
	PI2	I would recommend Lintong pomegranates to family and friends.	
	PI3	I will most likely continue to buy Lintong pomegranates in the future.	
	PI4	I plan to buy more Lintong pomegranates in the future.	
	PI5	I will increase my purchases because of the promotions held by Lintong Pomegranate.	
	PI6	I will increase my purchases because of the Lintong pomegranate offline	

		picking event.	

Therefore, a total of 11 hypotheses are proposed in this paper, and the total model and hypotheses are shown in figure 3:

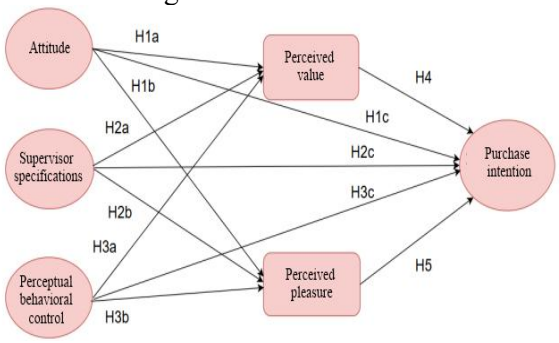

Figure 3. Theoretical Modeling Framework

4. Investigation Program and Implementation

4.1 Survey Respondents

Survey respondents: Xi'an residents in general
Survey unit: every individual resident of Xi'an

4.2 Sampling Method

This study used stratified and multi-stage sampling for representativeness, dividing Xi'an into focus (Lintong, high purchase rate) and non-focus areas. PPS sampling selected five non-focus districts (Beilin, Gaoling, Weiyang, Yanta, Lantian) by population, plus Lintong, then sampled 20% of 79 streets. Systematic sampling is carried out every 5 minutes for pedestrians, and the sampling frame is shown in Table 8.

Table 8. Analysis of Framework of Multilevel and Multistage Sampling Method

General stratification	First stage sampling frame	selected unit	Second stage sampling frame	selected unit	Third stage sampling frame
key layer	All residents of the focus layer	Lin Tong suburban district of Chongqing municipality, formerly in Sichuan	23 streets in Lintong District	Lishan Street Daiwang Street Diagonal Mouth Street Yujin Street Xiquan Street	All residents of each street
unfocused level	All residents of non-focused strata	Beilin district of Beijing, formerly Beilin county	8 streets in Beilin District	Nanyuanmen neighborhood of Beijing Wenyi Road Street	
		Gaoleung district of Ling county, Hainan	7 streets in Gaoling District	Tongyuan Street	
		Weiyang district of central Chongqing municipality, formerly in Sichuan	12 streets in Weiyang District	Hancheng district of Seoul, capital of Korea Liucunbao Street	
		Yanta district in southeast Zhejiang	10 streets in Yanta District	Giant Wild Goose Pagoda Street Qujiang street	
		Lantian county in Hubei province	19 Streets in Bluefield County	Ranguan street Leak Lake township Huaxu town (various places in Beijing) Qianwei township, Jiangsu	

Pre-sampling collected 105 samples, with 72 valid questionnaires passing tests, guiding the formal survey's design and sampling. Sample size (673) was set considering confidence, error, design effect, and pre-survey recovery, split 60% to Lintong District and 40% elsewhere by population. The formal survey recovered 577 valid responses from 673 distributed, with an 85.737% rate.

4.3 Survey Implementation

A three-stage PPS sampling with a design effect of 1.83 ensured effectiveness. Quality control involved pre-research preparation (objectives,

questionnaire, training), in-process oversight, and post-research data auditing (outlier removal, reliability checks), ensuring authentic, accurate results[16].

5. Survey Data Processing and Testing

5.1 Pre-Survey Reliability Tests

In the pre-survey, 115 questionnaires were distributed, with 72 valid responses (from Lintong pomegranate buyers) returned and processed for reliability testing. The Cronbach's alpha coefficient was calculated for each variable in the questionnaire scale, with results are shown in Table 9.

Table 9. Lin Tong Pomegranate Purchaser Questionnaire

norm	Cronbach's alpha coefficient	item count (of a consignment etc)	reliability assessment
Attitude	0.775	5	rather or relatively good
Subjective norms	0.727	4	rather or relatively good
Perceived Behavioral Control	0.739	4	rather or relatively good
Perceptual Enjoyment	0.751	3	rather or relatively good
Perceived Value	0.827	3	your (honorific)
Purchase Intention to umbrella	0.824	4	your (honorific)
	0.939	23	your (honorific)

Table 10. KMO Suitability Measure

KMO suitability measure		0.836
Bartlett's test of sphericity	approximate chi-square test	1110.376
	(number of) degrees of freedom (physics)	253
	Significance P-value	.000

Cronbach's alpha exceeded 0.7 for all levels and reached 0.939 overall, confirming the questionnaire's high reliability. Validity tests, including KMO (0.836) and Bartlett's spherical test (p=0.000), shown in the table 10, indicate a well-designed scale structure.

5.2 Formal Survey Reliability Tests

The pre-survey validated the questionnaire's feasibility, leading to slight adjustments. The official survey distributed 673 questionnaires, recovering 577 valid ones (85.7% rate). Reliability tests showed Cronbach's alpha above 0.7 per level and 0.950 overall, confirming reliability, as shown in table 11.

Table 11. Reliability Assessment of Project Count

norm	Cronbach's alpha coefficient	item count (of a consignment etc)	reliability assessment
Attitude	0.800	7	your (honorific)
Subjective norms	0.754	6	rather or relatively good
Perceived Behavioral Control	0.726	5	rather or relatively good
Perceptual Enjoyment	0.769	5	rather or relatively good
Perceived Value	0.746	5	rather or relatively good
Purchase Intention to umbrella	0.769	6	rather or relatively good
population (statistics)	0.950	34	your (honorific)

Table 12. Sphericity Test Analysis of Questionnaire Data

KMO suitability measure		0.957
Bartlett's test of sphericity	approximate chi-square test	10001.042
	(number of) degrees of freedom (physics)	561
	Significance P-value	.000

The questionnaire data underwent KMO and Bartlett's sphere tests, yielding a KMO of 0.957, ideal for factor analysis, and a Bartlett's P-value of 0.000, confirming the scale's structural validity. Factor analysis then assigned question items to distinct factors, as shown in table 12.

5.3 Factor Analysis of Formal Research

5.3.1 Factor analysis of impact factors

A KMO value of 0.924 and a significance level of 0.000 for the Bartlett's test of sphericity, confirmed the applicability of factor analysis, as shown in table 13.

Table 13. Applicability Analysis of Influencing Factor KMO

KMO suitability quantities		0.924
Bartlett's test of	approximate chi-square test	4031.582
	(number of) degrees of	153

sphericity	freedom (physics)	
	Significance P-value	.000

All question items showed high factor loadings on at least one component and were retained, forming three principal components named Attitude (AT1-AT8), Subjective Norms (SN1-SN6), and Perceived Behavioral Control (PBC1-PBC5), as shown in table 14.

Table 14. Rotated Component Matrix

	assemblies		
	1	2	3
AT1	.539	.214	.414
AT2	.548	.173	.482
AT3	.767	.210	.146
AT4	.789	.231	.052
AT5	.777	.126	.194
AT6	.717	.088	.219
AT7	.539	.210	.095
SN1	.136	.655	.291
SN2	.088	.518	.400
SN3	.213	.720	.152
SN4	.147	.505	.411
SN5	.221	.715	.043
SN6	.056	.669	.276
PBC1	.374	.226	.526
PBC2	.335	.280	.478
PBC3	.238	.141	.717
PBC4	.133	.212	.676
PBC5	.325	.043	.678

5.3.2 Factor analysis of mediating variables

Table 15. Factor Analysis of Mediating Variables

KMO and Bartlett's test		
KMO		.892
Bartlett's test of sphericity	approximate chi-square (math.)	2092.058
	(number of) degrees of freedom (physics)	45
	significance	.000

The KMO value of 0.892 and Bartlett's test of sphericity significance level of 0.000 confirmed the suitability of the data for factor analysis as shown in table 15.

All items with factor loadings above 0.4 appeared uniquely in two principal components, named Perceived Value (PV1-PV5) and perceived pleasantness (PE1-PE5), as shown in table 16.

Table 16. Component Matrix after Rotation of Mediator Variables

	assemblies	
	1	2
PV1	.749	.247
PV2	.723	.100
PV3	.693	.289
PV4	.760	.217
PV5	.751	.242
PE1	.219	.734
PE2	.180	.732
PE3	.173	.744
PE4	.140	.777
PE5	.199	.732

Extraction method: principal component analysis.

Rotation method: Kaiser standardized maximum variance method.

5.3.3 Factor analysis of dependent variables

The KMO value is 0.811 and the significance level of Bartlett's test of sphericity is 0.000, which is less than 0.01, so this data is suitable for factor analysis, as shown in Table 17.

Table 17. KMO and Bartlett's Test

KMO and Bartlett's test		
KMO		.811
Bartlett's test of sphericity	approximate chi-square (math.)	675.447
	(number of) degrees of freedom (physics)	10
	significance	.000

The five topics of the dependent variable were analyzed by principal component analysis to extract one factor with an initial eigenvalue greater than 1. The cumulative explained variance variance of these factors reached 75.874%. This indicates that this factor can be more desirable, so the Purchase Intention to umbrella variable was retained, as shown in table 18.

Table 18. Total Variance Explained

assemblies	Initial eigenvalue			Extract the sum of the squares of the loads		
	(grand) total	Percentage of variance	Cumulative %	(grand)total	Percentage of variance	Cumulative %
1	2.594	75.874	75.874	2.594	75.874	75.874
2	.838	16.768	79.952			
3	.565	11.310	82.496			
4	.529	10.577	90.529			
5	.474	9.471	100.000			

Extraction method: Principal Component Analysis

In summary, the items were correctly attributed with good validity.

6. Consumer Evaluation Analysis based on Text Mining Method

This study examined 1,000 pomegranate reviews from Taobao and Jingdong via text mining, using word segmentation, word clouds, sentiment analysis, and LDA modeling. Consumer priorities differ: "thin, juicy skin" for Mengzi, "cost-effectiveness" for Kashgar, and "appearance" for Lintong. Sentiment analysis shows 62.4% positive views for Lintong, with some neutral or negative opinions on quality or price, per table 19.

LDA thematic analysis identified five key themes affecting consumers' willingness to purchase Lintong pomegranates: taste, social influence, price and convenience, satisfaction, and brand and cultural values. These findings enhance understanding of consumer behavior and support data-driven marketing strategies for pomegranates, as shown in table 20.

Table 19. Consumer Evaluation Analysis

Estimation	Percentage	In the end
Positive emotions	62.4%	Consumers generally recognized the taste, quality and health value of Lintong pomegranates.
Neutral mood	28.5%	Some consumers are neutral on pomegranate quality, price and other factors.
Negativity	9.1%	A small number of consumers thought that the pomegranates were of poor quality, the fruit was not sweet or had other defects.

Table 20. Analysis of Factors Affecting Consumers' Willingness to Buy Pomegranates in Lintong

Theme 1	Theme 2	Theme 3	Theme 4	Theme 5
texture (of food)	loved ones	prices	joyful	branding
nourishment	Recommended by a friend	favorable	fulfillment	geographical indications
sweetness	give a present	quality-price ratio	buyout	Lin Tong suburban county in Chongqing municipality, formerly in Sichuan
fresh (experience, food etc)	Netflix Recommendations	(euphemism) go to the toilet	favorite	cultural value

7. Consumer Characterization of Lintong Pomegranate

7.1 Descriptive Analysis of Consumers' Personal Information and Purchases

7.1.1 Personal consumer profiling

The survey shows 86% of respondents bought Lintong pomegranates, 14% did not. Consumers are 44% female, 56% male, with ages spanning under 18 (20%, 118), 18-25 (15%, 86), 26-35 (20%, 119), 36-45 (19%, 111), and over 46 (26%, 143). Income ranges include below 3,000 yuan (90), 3,000-5,999 (292), 6,000-8,999 (83), 9,000-12,999 (39), and over 13,000 (17). Regionally, 58% are from Lintong, 8% Beilin, 6% Gaoling, 8% Weiyang, 13% Yanta, and 7% Lantian. Occupations include corporate employees (121), students (88), civil servants (61), freelancers (96), farmers (136), and others (75), indicating diversity.

7.1.2 Purchase preference analysis of lintong pomegranate

Surveyed Lintong pomegranate consumers prefer online e-commerce platforms (388), followed by supermarkets (289), street vendors (263), and orchard picking (115), with e-commerce as the primary channel. For a 300g fruit, 68% favor a 4-7 RMB price range, 15% choose 0-3 RMB, 16% opt for 8-11 RMB, and 1% select 12-15 RMB, showing price sensitivity. Usage varies: 400 buy for self-consumption, 291 for gifting, 234 for gatherings, 93 for cooking, and 83 for health. Purchase frequency peaks at once (192) or 2-3 times (215) monthly, with 11 never buying, 44 exceeding once monthly, and 115 buying for occasions. Reasons include taste (369), health value (264), price (195), and recommendations (201).

7.2 Characterization of Users Influencing Purchasing Behavior based on Logistic Regression Models

Purchasing behavior, a binary choice (buy or not buy Lintong pomegranates), is evaluated with logistic regression. The dependent variable (Y) is coded 1 for purchase and 0 for non-purchase, enabling the model to estimate purchase

probability and factor impacts, as shown in the formula (1).

Table 21. Significant Results of Logistic Regression Model on Whether to Buy Lintong Pomegranate

Variable	Coefficient (B)	Standard Error	Wald	Degrees of Freedom	Significance (P-value)	Exp(B) (Odds Ratio)
Gender (Male)	0.169	0.268	0.400	1	0.527	1.184
Age (18-25)	-0.005	0.090	0.003	1	0.954	0.995
Age (26-35)	0.105	0.110	0.914	1	0.339	1.110
Age (36-45)	-0.055	0.125	0.193	1	0.661	0.947
Age (46+)	0.080	0.131	0.373	1	0.541	1.083
Occupation (Corporate Employee)	0.513	0.150	11.696	1	0.001	1.670
Occupation (Civil Servant)	0.324	0.130	6.212	1	0.024	1.383
Occupation (Freelancer)	-0.421	0.140	9.043	1	0.004	0.656
Occupation (Farmer)	0.453	0.145	9.760	1	0.002	1.573
Occupation (Other)	-0.351	0.135	6.760	1	0.010	0.704
Monthly Income (3000-5999)	0.025	0.120	0.042	1	0.839	1.025
Monthly Income (6000-8999)	-0.065	0.135	0.231	1	0.631	0.937
Monthly Income (9000-12999)	0.110	0.140	0.613	1	0.434	1.116
Monthly Income (13000+)	-0.040	0.130	0.095	1	0.758	0.961
Residence (Beilin)	-0.612	0.160	14.631	1	0.000	0.542
Residence (Gaoling)	0.545	0.150	13.201	1	0.001	1.725
Residence (Weiyang)	-0.424	0.140	9.172	1	0.004	0.654
Residence (Yanta)	0.351	0.135	6.760	1	0.010	1.420
Residence (Lantian)	-0.500	0.150	11.111	1	0.001	0.607
Constant	1.976	0.551	12.861	1	0.000	7.214

$$\ln(\frac{P}{1-P}) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots \beta_k x_k \quad (1)$$

Where $\ln(\frac{P}{1-P})$ is the log-odds, which represents the logarithmic value of the odds ratio of purchasing to not purchasing, β_0 is the constant term (intercept), β_1 , β_2 ,..., β_k are the coefficients of the explanatory variables, which represent the degree of influence of each factor on the probability of purchasing. x_1 , x_2 ,..., x_k are explanatory variables such as gender, age, monthly income, usual residence, etc. The logistic regression model defined purchase behavior (Y) as a binary variable (1 = yes, 0 = no) and included explanatory variables such as gender, age, occupation, income, and residence.

The logistic regression results indicate that specific occupations and residential areas significantly influence Lintong pomegranate purchases, as shown in table 21. Significant occupational categories include corporate employees (p=0.001, OR=1.670), civil servants/public institution workers (p=0.024, OR=1.383), freelancers (p=0.004, OR=0.656), farmers/agricultural workers (p=0.002, OR=1.573), and other occupations (p=0.010, OR=0.704). For residence, significant areas include Beilin (p=0.000, OR=0.542), Gaoling (p=0.001, OR=1.725), Weiyang (p=0.004, OR=0.654), Yanta (p=0.010, OR=1.420), and Lantian (p=0.001, OR=0.607). Gender, age, and income show no significant effects (p>0.05 for all subcategories). To boost sales, tailor marketing strategies by occupation: offer small packs near offices for corporate employees, group purchase options for civil servants, affordable bulk options for farmers, and targeted promotions for freelancers and others. Regionally, focus on high-end gift boxes for Yanta and Gaoling, affordable options for Lantian and Beilin, and enhanced distribution in Weiyang to address diverse consumer needs.

7.3 User Mining and Classification based on K-Means Cluster Analysis

We conducted a cluster analysis of 577 respondents, classified them into groups with different characteristics, and named the different types in order to summarize the types of users and their characteristics in a more intuitive way, and to better serve each type of group.

7.3.1 Selection of concepts and methods

This time, the second-order cluster analysis and K-means cluster analysis were utilized to cluster the characteristics of the interviewed population.

The 20 variables were subjected to second-order cluster analysis to obtain the number of clustering categories, and finally the clustering results were obtained by using K-means cluster analysis under the condition that the number of appointed clusters was 5, i.e., the division of population characteristics.

7.3.2 Analysis of clustering results

By coding the questions about the respondents' Purchase Intention to umbrella Lintong pomegranates into SPSS software and utilizing the second-order clustering function of the software, the number of clusters recommended by the software is 5, which means that it is more scientific to divide the population into five items, and the quality of clustering can reach a good stage[17].

7.3.3 Determination of clustering variables

Using SPSS software, K-means clustering with five specified categories was conducted, involving iterative clustering and yielding final results with mean values for each category. The F-value confirmed that each variable significantly contributed to the clustering, with notable differences among the five population categories. The number of cases per category was then summarized, as shown in table 22.

K-means clustering divided 577 respondents into five groups, with sample sizes of 164, 157, 162, 88, and 6, respectively.

7.3.4 Categorization of the population

Based on preferences for Lintong pomegranates, respondents were divided into five groups: (1) "Value-oriented consumers" (farmers, over 46, moderate income) are price-sensitive, favoring cost-effectiveness, and likely buyers, targetable via online promotions and sales; (2) "Quality-seeking consumers" (students, low income, 8-11 RMB expectation) prioritize quality and price, requiring enhanced buying experiences; (3) "Premium Experience Consumers" (civil servants, high income) value quality and brand, needing high-end product lines; (4) "Balanced and rational consumers" (corporate staff, higher income, 8-11 RMB expectation) seek quality and value, suited for precise marketing; (5) "Price-sensitive consumers" (freelancers, medium income) are highly price-sensitive, attractive with low-cost promotions or affordable products[18].

8. Analysis of Influencing Factors on Purchase Intention of Lintong Pomegranate Based on Structural Equation Modeling

To explore the key factors influencing Lintong pomegranate purchase intention and their interactions, this study developed a structural equation model (SEM) integrating the Theory of Planned Behavior (TPB) and Stimulus-Organism-Response (SOR) theories, aiming to validate hypothesized variable relationships and analyze their impact pathways on purchase intention.

Table 22. K-Means Clustering Analysis of Variance

	clustering		inaccuracies			
	mean square	(number of) degrees of freedom (physics)	mean square	(number of) degrees of freedom (physics)	F	significance
Q1	5.379	4	.222	574	24.262	.000
Q2	6.410	4	.410	574	15.620	.000
Q3	0.980	4	.735	574	1.332	.263
Q4	162.	4	.658	574	247.570	.000
Q5	835171.	4	.595	574	288.55522	.000
Q6	744151.	4	.629	574	41.419	.000
Q7	736139.	4	.648	574	214.997	.000
Q8	235175.	4	.622	574	282.229	.000
Q9	440153.	4	.572	574	269.104	.000
Q10	843153.	4	.520	574	294.278	.000
Q11	098180.	4	.533	574	338.196	.000
Q12	405137.	4	.718	574	192.040	.000
Q13	852192.	4	.646	574	297.651	.000
Q14	185257.	4	.617	574	417.925	.000
Q15	953262.	4	.637	574	412.522	.000
Q16	851323.	4	.518	574	624.829	.000
Q17	801151.	4	.718	574	211.378	.000

Q18	742145.	4	.584	574	249.116	.000
Q19	391144.	4	.686	574	210.503	.000
Q20	393178.	4	.650	574	274.096	.000

8.1 Structural Equation Modeling

Structural equation modeling was employed to examine the relationships among six variables-attitude, subjective norms, perceived behavioral control, perceived value, perceived pleasantness, and purchase intention-using maximum likelihood estimation. Multiple methods assessed the model's goodness of fit, with the structural equation model diagram presented, as shown in figure 4.

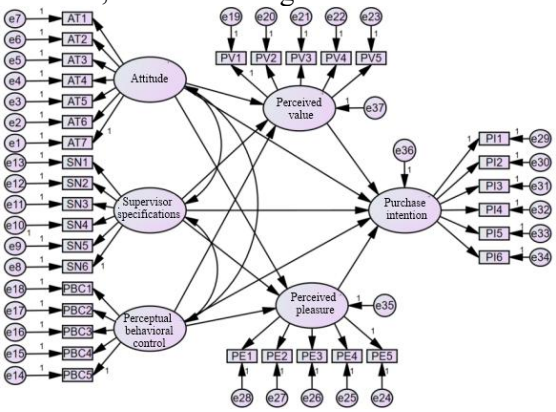

Figure 4. Structural Equation Modeling Assumptions

8.2 Model Fitting and Correction

Goodness of fit measures how well the model aligns with observed data, reflecting consistency between predicted and actual values. Table 23 shows a chi-square to degrees of freedom ratio (CMIN/DF) of 1.658, indicating a good fit; GFI of 0.876, below the threshold; RMSEA of 0.042, meeting the criterion; RMR of 0.037, also meeting the standard; and CFI of 0.919, satisfying the requirement.

Table 23. Structural Equation Fitting Index

fitness index	standard of judgment	numerical value	Analysis of results
CMIN/DF	[1,3]	1.658	in line with
GFI	>0.9	0.876	falling short (of expectations)
RMSEA	<0.05	0.042	in line with
RMR	<0.05	0.037	in line with
CFI	>0.9	0.919	in line with

Table 24 shows that factor loadings for attitude, subjective norms, perceived behavioral control, and perceived value exceed 0.6 and are significant, meeting the criterion, while perceived pleasantness and purchase intention items fall short, requiring data correction. Reference items AT7, SN6, PBC5, PV1, PE4, and PI1 lack P-values.

Table 24. Factor Load Factor

(math.) factor	variant	Non-standard load factors	Standard load factor	S.E.	C.R.	P
Attitude	AT1	1.081	0.671	0.094	0.094	***
	AT2	1.068	0.692	0.091	0.091	***
	AT3	1.04	0.625	0.095	0.095	***
	AT4	1.057	0.631	0.095	0.095	**
	AT5	0.986	0.694	0.092	0.092	***
	AT6	0.932	0.623	0.092	0.092	***
	AT7	1	0.712			
Subjective norms	SN1	1.178	0.602	0.111	0.111	***
	SN2	1.197	0.794	0.118	0.118	***
	SN3	1.15	0.638	0.107	0.107	***
	SN4	1.203	0.653	0.114	0.114	**
	SN5	0.961	0.699	0.102	0.102	***
	SN6	1	0.649			
Perceived Behavioral Control	PBC1	1.185	0.618	0.104	11.399	**
	PBC2	1.149	0.715	0.103	11.17	***
	PBC3	1.299	0.645	0.113	11.463	***
	PBC4	1.034	0.611	0.102	10.133	***
	PBC5	1	0.638			
Perceived Value	PV1	1	0.61			
	PV2	0.866	0.716	0.061	14.155	***
	PV3	0.974	0.864	0.059	16.466	***

	PV4	0.874	0.863	0.067	12.991	***
	PV5	0.866	0.737	0.066	13.038	**
Perceptual Enjoyment	PE1	1.213	0.615	0.098	12.357	***
	PE2	1.184	0.643	0.099	11.967	***
	PE3	1.128	0.667	0.096	11.71	***
	PE4	1	0.701			
	PE5	0.964	0.507	0.093	10.328	**
Purchase Intention to umbrella	PI1	1	0.655			
	PI2	0.978	0.684	0.063	15.588	***
	PI3	0.932	0.636	0.069	13.432	***
	PI4	0.953	0.654	0.069	13.818	***
	PI5	0.798	0.503	0.073	10.97	**
	PI6	0.834	0.439	0.076	11.009	*

Note: * * *, * *, * represent 1%, 5%, and 10% significance levels, respectively.

8.2.1 Path checking

In this paper, the hypothesized paths are tested using AMOS28.0 software, and although the fit is good, it does not mean that all hypothesized paths are valid, as shown in the table 25:

Table 25. Initial Model Standardized Path Regression Coefficients and Their Significance Tests

latent variable	→	phanero-variable (math.)	Estimate	p	Test results
Attitude	→	Perceived Value	0.219	0.05**	be in favor of
Attitude	→	Perceptual Enjoyment	0.347	0.08*	be in favor of
Attitude	→	Purchase Intention to umbrella	0.134	0.61	unsupported
Subjective norms	→	Perceived Value	0.436	0.001***	be in favor of
Subjective norms	→	Perceptual Enjoyment	0.328	0.031**	be in favor of
Subjective norms	→	Purchase Intention to umbrella	0.283	0.73	unsupported
Perceived Behavioral Control	→	Perceived Value	0.539	0.029**	be in favor of
Perceived Behavioral Control	→	Perceptual Enjoyment	0.438	0.04***	be in favor of
Perceived Behavioral Control	→	Purchase Intention to umbrella	0.329	0.39	unsupported
Perceived Value	→	Purchase Intention to umbrella	0.435	0.022**	be in favor of
Perceptual Enjoyment	→	Purchase Intention to umbrella	0.237	0.000***	be in favor of

Note: ***,**,* represent 1%, 5%, and 10% significance levels, respectively.

8.2.2 Model revision

In this paper, the paths are reasonably deleted according to the correction suggestions in the AMOS software, i.e., the three paths from the influencing factor to the dependent variable are deleted, and the modified structural equation model is as follows in figure 5.

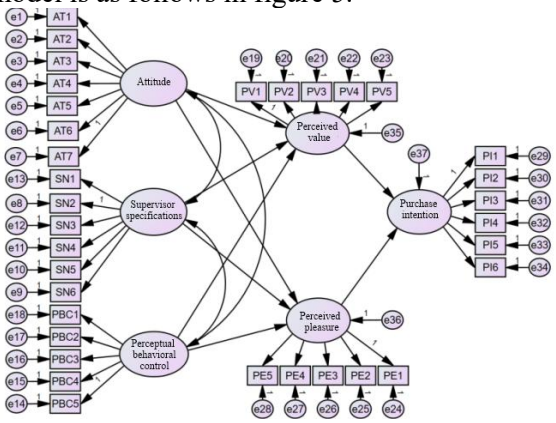

Figure 5. Modified Resultant Equation Model Plot

The corrected model fit is shown in the table 26:

Table 26. Model-Corrected Goodness-of-Fit Indices

CMIN/DF	GFI	RMSEA	RMR	CFI
1.337	0.982	0.038	0.031	0.986

Comparison with the previous data reveals that CMIN/DF, GFIRMSEA, RMR, and CFI have been significantly improved and passed the significance test, as shown in the following figure 6:

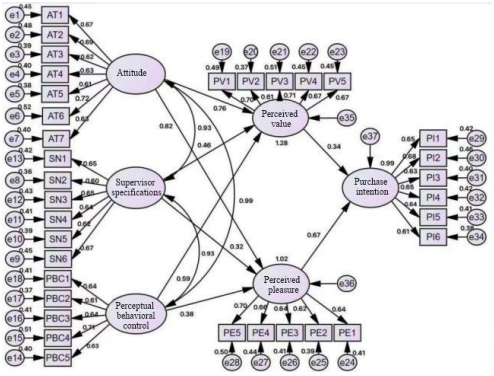

Figure 6. Modified Structural Equation Modeling

8.3 Results of Hypothesis Testing

Structural equation modeling reveals causal links and linear correlations between variables. The analysis shows that, except for three unsupported paths from influencing factors to the dependent variable, all proposed hypotheses are supported with positive effects.

8.4 Analysis of model results

Attitude (path coefficients 0.82 and 0.76), subjective norms (0.32 and 0.46), and perceived behavioral control (0.38 and 0.59) positively affect perceived pleasantness and value, indirectly enhancing purchase intention for Lintong pomegranates, with attitude showing the strongest influence. Perceived pleasantness (0.67) and perceived value (0.34) directly boost purchase intention, driven by pleasure factors like satisfaction and cost-effectiveness perceptions, respectively, suggesting merchants emphasize emotional experiences and value to increase sales.

9. Conclusions and Recommendations

9.1 Findings

9.1.1 Lintong pomegranate consumer evaluation

(1) Word cloud analysis highlights "good taste," "juicy and sweet," "good quality," and "nutritional value" as key consumer priorities for Lintong pomegranates, reflecting positive image and acceptance. (2) Emotional analysis shows 62.4% positive emotions for taste and quality, 28.5% neutral, and 9.1% negative (quality/price issues), indicating a strong reputation. (3) LDA identifies quality, nutrition, price, convenience, packaging, and culture as concerns; quality and nutrition shine, but price and convenience lag.

9.1.2 Characterization of pomegranate consumption in Lintong

Lintong pomegranate consumers, diverse in gender, age, and income, are mainly middle-aged, young, and middle-income, with strong local acceptance and some external reach. They buy through e-commerce and supermarkets for self-use or gifts, preferring 4-7 yuan prices, purchasing 1-3 times monthly. Cluster analysis reveals five types: value-oriented (older, moderate-income, price-sensitive); quality-seeking (young, low-income, quality-driven); premium-experience (civil servants, high-income, experience-focused); balanced-rational (employees, high-income, quality- and convenience-focused); and price-sensitive (freelancers, medium-income, cost-driven). Tailored marketing can enhance competitiveness.

9.1.3 Influencing factors of Lintong pomegranate purchase intention

This study, grounded in TPB and SOR theories, uses attitude, subjective norms, and perceived behavioral control as antecedents, and perceived value and pleasantness as mediators to explain purchase intention. (1) The structural equation model shows these factors positively influence intention, with attitude strongest (0.82, 0.76), improvable via quality and packaging. (2) Perceived pleasantness (0.67) and value enhance intention, with pleasantness more impactful, driven by satisfaction and cost-effectiveness perceptions.

9.2 Recommendations

9.2.1 Brand out of the circle: expanding the influence of Lintong pomegranate in the field market

Research indicates high local purchase rates for Lintong pomegranate but low external awareness. To enhance its influence: (1) Build a regional brand story linking its history and culture with the Terracotta Warriors for a "Millennium Culture Gift Pomegranate" concept; (2) Boost online marketing via short videos, live broadcasts, and social media to elevate national recognition; (3) Pursue cross-border collaborations with food, tea, and tourism brands to create derivatives like "Lintong Pomegranate Juice" and "Pomegranate Flavored Snacks" to attract consumers.

9.2.2 Precise positioning: market segmentation to meet different consumer needs

Research highlights strong gift-giving demand, enabling market segmentation and tailored strategies: (1) Gift market: Offer premium gift boxes for festivals and weddings, emphasizing "good luck"; (2) Affordable market: Promote cost-effective "family" and "light" packs with discounts on supermarkets and e-commerce to boost repurchasing; (3) Enterprise market: Provide customized group purchase gift boxes featuring corporate branding.

9.2.3 Precise reach: develop marketing strategies for different user groups

Logistic regression highlights that occupation and residence significantly influence Lintong pomegranate purchases, suggesting tailored marketing strategies:

(1) Corporate Employees: Offer "Office Energy

Station" mini fruit box subscriptions and "Red Energy Afternoon Tea" with potted plants to appeal to their workplace needs;
(2) Civil Servants: Design "red governmental gifts" with themed packaging and derivatives like pomegranate tea for official gifting;
(3) Freelancers: Host short video contests and offer live broadcast promotions or B&B packages to leverage their flexible schedules;
(4) Farmers: Create a growers' club, tech exchange app, and "fruit-for-technology" system to enhance local engagement;
(5) Other Occupations: Develop affordable "family packs" and promotions to attract diverse consumers.
Although students are not significant in logistic regression, cluster analysis identifies them as "quality-seeking consumers," suggesting promotion of "healthy snacks" like pomegranate dried fruits and juices via online and campus channels to capture their quality-driven preferences.
Regionally, target Yanta and Gaoling with premium gift boxes, Beilin and Lantian with cost-effective options, and Weiyang with enhanced distribution to meet varied preferences.
9.2.4 Immersion experience: enhance the user experience to enhance the Purchase Intention to umbrella
Structural equation modeling indicates consumer attitudes and experiences drive purchase decisions, supporting the "Pomegranate +" model: (1) Pomegranate + Culture: Introduce cultural products like pomegranate ornaments and host the "Lintong Pomegranate Cultural Festival" for identity; (2) Pomegranate + Technology: Use NFC and QR codes for traceable planting-to-picking transparency, boosting trust, and enhance taste via tech; (3) Pomegranate + Rural Tourism: Offer picking tours with agro-tainment and DIY experiences (e.g., pomegranate jam) to create an immersive tourism-sales chain.

References

[1] Ministry of Agriculture and Rural Affairs. Notice of the Ministry of Agriculture and Rural Affairs on announcing the list of the fifth batch of China's important agricultural cultural heritage[J]. Guangming, 2020, (1): 1-2.
[2] Yang Jianbin. Status quo and development countermeasures of pomegranate industry in Lintong District, Xi'an[J]. Guizhou Agricultural Science,2018,46(06):161-163.
[3] Jia Zhiyan,Dong Panjie. On the Possibility of Implementing Pomegranate Fruit Culture Farms in Lintong, Shaanxi-A Practice of Innovative Entrepreneurship Program for College Students[J]. Farm Economic Management,2021,(09):26-28.
[4] LI Xiaomin,HE Jingjing,YAN Mouchun. Brand marketing strategy of Lintong pomegranate[J]. Agricultural Engineering,2022,12(10):156-159.
[5]Wang Hui. Challenges and Countermeasures for the Development of Pomegranate Industry in Lintong District, Xi'an City under the Background of Rural Revitalization[J]. Rural Economy and Science and Technology,2024,35(20):95-98.
[6] ZHANG Huan, YAN Mouchun, SU Kemeng. Development status of pomegranate industrialization in Lintong and its problems and countermeasures[J]. Guizhou Agricultural Science,2022,50(03):90-95.
[7] Ajzen I. The theory of planned behavior[J]. Organizational Behavior and Human Decision Processes, 1991, 50(2): 179-211.
[8] Fishbein M, Ajzen I. Belief, attitude, intention, and behavior: an introduction to theory and research[M]. Reading, MA: Addison-Wesley, 1975.
[9] Taylor S, Todd P A. Understanding information technology usage: a test of competing models[J]. Information Systems Research, 1995, 6(2): 144-176.
[10] Venkatesh V, Morris M G, Davis G B, et al. User acceptance of information technology: towards a unified view[J]. MIS Quarterly, 2003, 27(3): 425-478.
[11] Zeithaml V A. Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence[J]. Journal of Marketing, 1988, 52(3): 2-22.
[12] Sweeney J C, Soutar G N. Consumer Perceived Value: the development of a multiple item scale[J]. Journal of Retailing, 2001, 77(2): 203-220.
[13] Davis F D, Bagozzi R P, Warshaw P R. Extrinsic and intrinsic motivation to use computers in the workplace[J]. Journal of Applied Social Psychology, 1992, 22(14): 1111-1132.
[14] Van der Heijden H. User acceptance of hedonic information systems[J]. MIS Quarterly, 2004, 28(4): 695-704.

[15] Tang Hongtao, Yu Jiapeng, Chen Jie. Quantitative Research on Digital Rural Policies from a Textual Analysis Perspective —— Based on FastText and Text Mining Methods [J]. Journal of Knowledge Management Forum, 2024,9(03):237-252.
[16] Mu Yu. The Impact of Brand Attitude-Based Perceived Product Innovation on Consumer Purchase Intention [D]. Tianjin University of Commerce, 2023.
[17] Lin Jiayu. The Influence of "Three Same" Food Perceived Value on Purchase Intention-Taking Consumer Food Safety Attitude as an Example [J]. Guangdong Economic, 2025, (10):7-9.
[18] Zong Yi, Yu Xinxin, Tian Rong, et al. A Study on Customer Perceived Value Evaluation in Online Shopping Based on T-FAHP: A Case Study of Platform A [J]. Mathematics Practice and Understanding, 2023,53(03):127-135.