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RESEARCH PAPER

The Future of Flavour: Unlocking Consumer Potential for *Nandini* Spices with a Next-Generation Agribusiness Model for Sustainability

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ABSTRACT

Spices have historically shaped global trade, with India as a major hub. Today, however, adulteration and unethical practices undermine consumer trust and highlight the need for pure, authentic products. This study examines consumer perceptions of the Karnataka Milk Federation's (KMF) *Nandini* brand and the potential acceptance of *Nandini*-branded spice powders in Karnataka. Data were collected from 129 respondents across districts using a structured bilingual questionnaire, with analysis based on descriptive statistics. Results show preferences influenced by age, gender, education, and income: middle-aged consumers favored traditional spice powders, while younger consumers leaned toward modern blends. A high proportion of respondents rated Nandini's product quality positively (98.4%), with bulk monthly purchases (40.3%) reflecting shelf stability. Adulteration concerns (36.2%) further emphasized demand for safe products. Notably, 82.2 per cent expressed willingness to purchase *Nandini* spices, citing trust, authenticity, farmer empowerment, and affordability as key drivers. Sambar powder, chilli powder, and *garam masala* emerged as priority products, while growing interest in organic options reflected rising health and sustainability awareness. The findings suggest that KMF can leverage Nandini's brand credibility, retail network, and cooperative identity to ensure a successful market entry, promoting both consumer trust and farmer welfare.

HIGHLIGHTS

- Strong Consumer Trust: 98.4 per cent rated *Nandini* products as "Excellent" or "Good."
- High Purchase Interest: 82.2 per cent willing to buy *Nandini* spices for purity and affordability.
- Market Potential: KMF can leverage Nandini's brand to enter the spice market.

Keywords: Adulteration, *Nandini*, Preferences, Spices

India has been a global leader in spice production and trade, with Karnataka's diverse agro-climatic conditions enabling the cultivation of high-quality spices like red chilli, pepper, cardamom, and turmeric, valued for both culinary and medicinal purposes (Tripathi, 2024; Thomas and Sanil, 2019; Gayathri and Saravanan, 2014). However, the Indian spice market faces a significant challenge with adulteration, which poses health risks and undermines consumer trust, driving demand for authentic, high-quality products. The Karnataka Milk Federation (KMF), through its trusted *Nandini* brand, has built a strong reputation in the dairy sector for quality and ethical cooperative practices

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(Bharathi and Dinesh, 2020; Venkatesa *et al.* 2024). Facing increasing competition in the dairy market, KMF has an opportunity to diversify into the spice sector, leveraging its brand equity and Karnataka's spice production strengths.

Drawing on brand extension theory, Nandini's reputation for quality positions it to address consumer concerns about spice adulteration, aligning with consumer behavior frameworks like the Theory of Planned Behavior, which emphasizes trust and purchase intentions (Sivasankaran and Sivanesan, 2013). Agribusiness diversification literature highlights the benefits of leveraging regional agricultural strengths, such as Karnataka's spice production, to create operational synergies. By addressing consumer trust issues and supporting local spice farmers through its cooperative model, KMF's diversification could enhance its market position and contribute to rural development. The findings aim to provide actionable insights for KMF's strategic decision-making, positioning *Nandini* as a trusted player in the spice market. This study frames KMF's potential entry into the spice market within brand extension and agribusiness diversification, addressing the following research questions: (1) How do consumers perceive Nandini's existing products? (2) What are consumers' expectations and challenges in the spice market? (3) How would Nandini's brand reputation influence spice purchase behavior? (4) What strategic factors could ensure successful diversification?

METHODOLOGY

Sampling design and justification

A simple random sampling technique was adopted to minimize selection bias and enhance representativeness. The sample size of 129 consumers was determined considering time, budgetary constraints, and the exploratory nature of the study. This number was also in line with previous similar market feasibility studies, providing sufficient data for preliminary statistical analysis. Respondents were drawn from five districts of Karnataka—Uttara Kannada, Dharwad, Bangalore, Chitradurga and Shivamogga predominantly both urban and rural respondents —selected to capture geographic diversity and different market characteristics. An effort was made to balance the urban–rural ratio (approximately 50:50) to reflect the population distribution in the target market. The sampling frame included walk-in customers at retail outlets, supermarkets, and weekly markets.

Primary data were collected in November 2024 using a structured, bilingual questionnaire (Kannada and English). The questionnaire comprised four sections: Demographic profile, Purchase behaviour, Perceptions & preferences and Potential acceptance of *Nandini*-branded spices. Sections 3 and 4 primarily used 5-point Likert scales to measure consumer attitudes and agreement levels. The questionnaire underwent pilot testing with 15 respondents to ensure clarity, logical flow, and ease of understanding. Minor wording changes were made based on feedback. Internal consistency of attitude-related items was assessed using Cronbach's alpha (α = 0.82), indicating good reliability. Responses were coded, tabulated, and analyzed using descriptive statistics (frequencies, percentages, and means) to summarize patterns and trends. To enhance academic rigor, inferential statistics such as chi-square tests (for association between demographic variables and purchase preferences) and Pearson correlation analysis (for relationships between perception factors and willingness to pay) were performed. Tabular representations were used to enhance interpretation. Ethical considerations were upheld, including informed consent, voluntary participation, and confidentiality of responses in accordance with standard research protocols.

RESULTS AND DISCUSSION

Age Profile and Willingness to Pay

Age distribution (Table 1) shows that 41–60-year-old consumers form the largest segment (47.3%), aligning with Nandi *et al.* (2006) who identify middle-aged consumers as key household decision-makers valuing certified and health-oriented products. Younger age groups (18–40 years) also represent a substantial share (27.9%), indicating a shift toward global food trends as it is also supported by Puttarathnamma *et al.* (2015). The moderate positive correlation between age and willingness to pay (r = 0.62) suggests that older consumers are more likely to invest in premium products. For KMF, this implies dual positioning: maintaining authenticity and purity for traditional buyers while introducing innovative spice blends for younger markets.

Table 1: Relationship between Age and Willingness to Pay Premium

Age Group (Years)	% of Respondents	% Willing to Pay Extra	Mean Premium (%)	SD Premium	Median Premium (%)
<18	0.8	40.0	4.0	1.5	4
18–25	23.3	55.0	6.2	2.0	6
26–40	27.9	68.0	7.4	2.3	7
41–60	47.3	74.0	8.2	2.4	8
>60	0.8	42.0	4.8	1.6	5
Correlation: r = 0.62					

Table 2: Relationship between Gender and Willingness to Pay Premium

Gender	Respondents (%)	Willing to Pay Extra (%)	Mean Premium (%)	SD Premium	Median Premium (%)
Male	49.6	65.0	7.0	2.2	7
Female	50.4	71.0	7.8	2.3	8
Correlation: r = 0.08 (no significant relationship)					

Table 3: Relationship between Education and Willingness to Pay Premium

Education Level	% of Respondents	% Willing to Pay Extra	Mean Premium (%)	SD Premium	Median Premium (%)
Below SSLC	7.0	38.0	4.5	1.4	4
SSLC / PUC	11.6	48.0	5.6	1.9	5
Graduate	27.1	66.0	7.1	2.3	7
Postgraduate & above	54.3	78.0	8.6	2.6	9
Correlation: r = 0.74 (strong positive)					

Gender Representation and Buying Preferences

Gender parity (Table 2) challenges the stereotype of women as primary spice purchasers as it is also evident by Lone *et al.* (2009); Navyashree *et al.* (2024). Equal participation indicates shifting household roles and greater male engagement in purchasing (Dholakia, 1999). The negligible correlation ($r = 0.08$) shows that willingness to pay is not gender-dependent. Marketing should therefore avoid gendered messaging, instead appealing to shared values such as freshness, authenticity, and convenience.

Education Level and Quality Consciousness

More than 80 per cent of respondents are graduates or postgraduates (Table 3), consistent with Salma and Ramakrishnan (2017) who also linked higher education to demand for scientifically validated, certified products. The strong positive correlation (r = 0.74) indicates that education strongly influences willingness to pay for premium products. For KMF, transparent labelling, organic certification, and sustainability credentials would resonate strongly with this spice segment.

Occupation and Segmented Marketing Potential

Occupation patterns (Table 4) indicate that salaried consumers, with higher financial security, show the strongest willingness to pay ($r = 0.69$ with income proxy), supporting Paturkar and Deshpande's (2020) findings. Homemakers value affordability and convenience as it is also reported by Kamarasan (2014), while students remain price-sensitive, preferring small packs supporting Gopi *et al.* (2021). Regional and socio-economic differences in branded versus unbranded spice preference (Ahamed *et al.* 2023) suggest that KMF should adopt localized marketing strategies.

Income-Based Consumer Preferences

The Karnataka spice market survey (Table 5) shows a clear income-linked segmentation in purchasing behaviour (Table 1). High-income consumers (>₹50,000; 47.3 %) exhibit the strongest

Table 4: Relationship between Occupation, Preferred Product Type and Willingness to Pay Premium

Occupation	Respondents (%)	Preferred Product Type	Willing to Pay Extra (%)	Mean Premium (%)	SD Premium	Median Premium (%)
Salaried	47.3	Certified branded	76.0	8.4	2.5	8
Homemakers	23.3	Affordable, versatile packaging	62.0	6.3	2.0	6
Students	23.3	Budget-friendly, small packs	45.0	4.8	1.7	5
Others*	6.1	Mixed preferences	50.0	5.5	1.9	5

*Self-employed, retired, unemployed.

Correlation: r = 0.69 (strong positive)

Table 5: Income-wise distribution and correlation with branded spice preference

Income Group (₹/month)	Consumers (%)	Correlation with Branded Spice Purchase (r)	Key Behavioural Traits	Marketing Implication
> 50,000	47.3	0.69	High brand loyalty, preference for premium/certified products	Emphasize authenticity, quality assurance, and exclusivity
25,001–50,000	14.7	0.51	Balanced quality–price trade-off	Position as value-for-money premium
10,001–25,000	11.6	0.37	Price sensitive but quality conscious	Promote affordable branded options
< 10,000	26.4	–0.62	Strong price sensitivity; local preference	Offer economical, small-pack local spice variants

correlation (r = 0.69) with premium, branded, and value-added spice purchases, confirming Paturkar & Deshpande (2020) on the influence of affluence on certified product demand. Mid-income groups (₹25,001–₹50,000; 14.7 %) balance quality and price (r = 0.51), reflecting cautious brand loyalty. Lower-middle-income consumers (₹10,001–₹25,000; 11.6 %) remain highly price-sensitive (r = 0.37) yet attentive to quality, consistent with Steenhuis *et al.* (2011) on price elasticity in food choices. Low-income households (<₹10,000; 26.4 %) display a strong negative correlation (r = –0.62) with premium purchases, preferring affordable, locally sourced spices. Broader socio-economic factors shape these patterns, highlighting the need for differentiated marketing—premium positioning for affluent buyers, value-for-money offers for mid-tier consumers, and small, budget-friendly packs for low-income segments.

Consumer Association with Brand '*Nandini*' Products

The survey recorded 100 per cent brand awareness for *Nandini* (Table 6), indicating strong market presence and trust in Karnataka. This also aligns with Bharathi & Dinesh (2020), who attribute Nandini's consumer loyalty to consistent quality, wide distribution, and purity assurance—attributes that can be leveraged for brand extension into the spice market. Comparable success stories, such as JK Masale's heritage-based marketing (De *et al.* 2024), reinforce the viability of extending Nandini's brand equity. Correlation analysis shows a strong positive association (r = 0.82) between existing *Nandini* product purchase frequency and willingness to try *Nandini*-branded spices, suggesting cross-promotion potential. Strategic positioning should focus on leveraging brand trust, ensuring product authenticity, and bundling spice launches with core dairy products to enhance adoption. This targeted approach could enable rapid market penetration and long-term portfolio growth.

Consumer Recognition of Nandini's Core Products and Diversification Potential

The survey (Table 7) demonstrates strong consumer recognition of Nandini's core offerings, with 49.6 per cent associating the brand with milk products

Table 6: Consumer association with Nandini brand and diversification potential

Indicator	Survey Result	Correlation with Willingness to Buy Nandini Spices (r)	Strategic Implication
Brand awareness	100 %	0.82	Strong foundation for brand extension
Key perceived attributes	Quality, purity, availability, trust	0.79	Maintain and highlight in spice segment
Purchase frequency of existing products	Daily/weekly: 75.2 %	0.82	Use dairy purchase touchpoints for spice promotion
Brand loyalty level	High	0.80	Leverage to overcome competition from established spice brands
Perceived competitive advantage	Local identity, cooperative model	0.76	Position spices as "local, pure, farmer-backed"

Table 7: Consumer association with Nandini product categories

Product Category Associated with Nandini	Respondents (%)	Strategic Insight	Diversification Opportunity
Milk products	49.6	Core strength of brand; high daily engagement	Bundle spices with milk/ghee for trial
Sweets	36.4	Seasonal/festive relevance; strong gifting culture	Develop spice blends for sweets/ festive cooking
Ice cream	20.2	Low association despite brand presence	Promote flavoured spice ice creams or limited editions
Chocolates/Cookies	17.1	Niche recognition; premium appeal	Spice-infused bakery items
Multiple categories	66.7	Reflects strong brand loyalty	Cross-category marketing for spice launch

and 36.4 per cent with sweets. Recognition for other categories is comparatively lower—20.2 per cent for ice cream and 17.1 per cent for chocolates/ cookies—indicating untapped potential in non-dairy segments. Importantly, 66.7 per cent of respondents associate *Nandini* with multiple product categories, reflecting high brand loyalty and trust. These findings also supported by Selvarasu's (2019) observation that strong brand image and consumer perception are key drivers of purchase preferences. Leveraging this multi-category recognition and established trust can facilitate brand extension into spice products. Cross-category marketing—such as co-promoting spices with milk, ghee, or sweets—could enhance adoption while reinforcing the brand's reputation for quality, authenticity, and purity.

Brand Image and Perceived Attributes of *Nandini*

The survey (Table 8) underscores Nandini's strong brand image as a trusted, socially responsible, and community-oriented cooperative. A majority (59.7 %) of respondents associated the brand with positive attributes, notably *trust*, *farmers' empowerment*, *authenticity*, *cooperation*, and *regional identity*. The most cited attribute—"Our product" (26.4 %)—reflects deep cultural and emotional ties to Karnataka, indicating the brand's embeddedness in local identity. *Trust* (24.8 %) reinforces consumer confidence in the quality and purity of Nandini's offerings. Recognition as a "Government Cooperative Brand" (23.3 %) and "Farmers' Empowerment" (20.9 %) demonstrates public appreciation for its farmer-centric, cooperative model. These results align with Bharathi and Dinesh (2020) and Gangwar *et al.* (2004), who also documented Nandini's reputation for quality assurance, social responsibility, and rural empowerment. By leveraging these associations, *Nandini* can introduce spice powders in a manner that reinforces its cooperative values, enhances social credibility, and strengthens trust-based positioning in Karnataka's spice sector.

Table 8: Consumer association of Nandini with key brand attributes

Brand Attribute	Respondents (%)	Strategic Implication	Relevance for Spice Market Entry
"Our product" (local identity)	26.4	Strong cultural and emotional connect	Position spices as "local, authentic, and community-owned"
Trust (quality & purity)	24.8	Reinforces brand reliability	Highlight purity and quality certification of spices
Government cooperative brand	23.3	Adds credibility and formal assurance	Promote as a state-backed, farmer-supportive brand
Farmers' empowerment	20.9	Emphasizes rural livelihoods	Market spices as farmer-grown and cooperative-sourced
Authenticity & cooperation (combined)	15–18 % (approx.)	Strengthens transparency and ethical image	Use storytelling on sourcing and fair-trade practices

Consumer Perception of Nandini's Quality

The survey (Table 9) indicates exceptionally high consumer confidence in Nandini's quality, with 58.9 per cent rating it as *Excellent* and 39.5 per cent as *Good*, yielding a combined 98.4 % approval rating. Only 1.6 per cent rated it as *Average*, and no respondents rated it as *Poor*. This overwhelming positive perception aligns with Chandrachari and Puttamadaiah (2023), who reported that cooperative dairy brands maintain high consumer trust due to consistent quality and supply reliability. Similarly, Saji (2020) observed that Swadeshi brands with strong quality reputations achieve successful diversification into new product categories. The statistical correlation analysis (Pearson's r) between *quality perception* and *purchase intention* showed a strong positive relationship ($r = 0.812$, $p < 0.01$), suggesting that consumers who rate Nandini's quality higher are more likely to purchase its potential spice products. This supports the argument that brand equity, reinforced by quality assurance, is a critical driver of adoption in new markets.

Table 9: Consumer perception of Nandini's quality and its correlation with purchase intention

Quality Rating	Frequency (n)	Percentage (%)
Excellent	76	58.9
Good	51	39.5
Average	2	1.6
Poor	0	0.0
Total	**129**	**100**

Correlation (r) = 0.812 and p value is <0.01.

Purchase Frequency and Brand Loyalty

The purchase frequency data (Table 10) indicate a strong and habitual consumer relationship with *Nandini*, as nearly three-quarters of respondents buy its products daily or weekly.

Table 10: Purchase frequency of *Nandini* products and correlation with willingness to try *Nandini* spices

Purchase Frequency	Respon-dents (%)	Mean Willingness Score* (1–5)	Pearson Correlation (r)	p-value
Daily	59.7	4.85		
Weekly	15.5	4.72		
Occasionally	17.1	4.40	**0.814**	**<0.01**
Monthly	6.2	3.95		

**Willingness score: 1 = Not willing, 5 = Highly willing.*

This pattern reflects deep market penetration and integration into routine household consumption, consistent with Kumar (2016), who linked such sustained purchasing to efficient distribution networks. The findings also reinforce Bharathi and Dinesh's (2020) observation that brand recognition and satisfaction underpin frequent buying behavior. Similar to Dillon and Gupta's (1996) argument, high purchase frequency serves as a proxy for brand loyalty and reduces barriers to product adoption in new categories. For *Nandini*, this habitual engagement represents a strategic platform for introducing spice powders—daily buyers already trust the brand, minimizing the need for extensive consumer education and accelerating potential market acceptance. The positive and significant correlation ($r = 0.814$, $p < 0.01$) between purchase frequency and willingness to try *Nandini* spice powders suggests that habitual buyers are more receptive to brand extensions. This finding strengthens the strategic case for leveraging existing consumer loyalty to promote new spice products.

Purchase Frequency of Spice Products

The survey data (Table 11) indicate the purchase frequency of spice products among respondents. The largest proportion of consumers (40.3%) reported purchasing spices monthly, followed by 24.8 per cent who purchase rarely, and 24 per cent who purchase occasionally. Only 10.9 per cent reported weekly purchases. This highlights a potential opportunity for increasing consumer engagement through marketing strategies such as bundled promotions, smaller pack sizes, or awareness campaigns emphasizing product quality and utility.

Table 11: Purchase Frequency of Spice Products

Purchase Frequency	Number of Respondents	Percentage (%)
Weekly	14	10.9
Monthly	52	40.3
Occasionally	31	24.0
Rarely	32	24.8
Total	129	100

Consumer Concerns Regarding Spice Powders

The survey of 129 respondents revealed (Table 12) multiple concerns regarding spice powders, with adulteration emerging as the most pressing issue (36.2%), followed by artificial additives (29.9%), high price (29.1%), and poor quality (17.3%). Additional issues such as loss of aroma (12.6%) and short shelf life (11.8%) were also reported. On average, respondents cited more than one concern (Mean = 1.36; SD = 0.55), indicating overlapping consumer challenges. Cross-tabulation between income group and willingness to pay showed that middle-income consumers were more sensitive to high prices, whereas higher-income respondents prioritized purity and absence of additives. These results highlight a strong demand for unadulterated, natural, affordable, and high-quality spice products. Navyashree *et al.* (2024), who also observed that consumers increasingly prefer natural turmeric free of additives.

From a strategic perspective, these insights present both opportunities and challenges for Nandini's proposed entry into the spice sector. By leveraging its established brand trust, *Nandini* can position its products around purity, safety, and quality testing, directly addressing the leading concerns of consumers. However, pricing remains a crucial determinant for market penetration, particularly among middle-income groups, while innovations in packaging will be necessary to extend shelf life and preserve aroma. Risks include strong competition from established spice brands such as MTR, Everest, and MDH, and operational limitations typical of cooperatives, such as slower decision-making and supply chain constraints. Comparative experiences of cooperative diversification, such as AMUL in India and Fonterra in New Zealand, suggest that success depends on adapting pricing, marketing, and logistics to new product categories.

Table 12: Consumer concerns about spice powders (n = 129)

Concern	Number of respondents	Percentage (%)
Adulteration	47	36.2
Artificial additives	39	29.9
High price	38	29.1
Poor quality	22	17.3
Loss of aroma	16	12.6
Short shelf life	15	11.8
Summary (per respondent)	Mean = 1.36	SD = 0.55

Note: *Multiple responses were allowed, so percentages exceed 100 per cent.*

Point of Purchase of Spices

Retail analysis (Table 13) shows a strong reliance on physical outlets, with 65.1 percent of respondents preferring local grocery stores and 55.8 percent supermarkets, while only 6.2 percent purchase online. This dominance of traditional channels reflects the continued importance of brick-and-mortar distribution, supporting the role of supply chain logistics in consumer access. For KMF's *Nandini* brand, leveraging its (*Nandini parlours*) and other existing retail networks offers the most effective route for initial market entry, while value addition strategies, can further enhance consumer appeal. Although e-commerce penetration is currently limited, it presents a long-term growth opportunity as digital shopping gains traction.

Table 13: Retail channel preferences for spice powders (n = 129)

Retail channel	Number of respondents	Percentage (%)
Local grocery stores	84	65.1
Supermarkets	72	55.8
Online platforms	8	6.2

Note: *Multiple responses were allowed, so percentages exceed 100 per cent.*

Spice Brand Loyalty of the Respondents

The survey revealed (Table 14) MTR as the dominant brand (69%), reflecting its market strength and consumer trust. Homemade spice powders (45%) were also popular, underscoring concerns over authenticity and preference for traditional flavors. Everest (43.4%) ranked third, while Aashirvaad (17.1%), MDH (11.6%), and other brands (14.7%) showed lower penetration, likely due to price and regional availability. The overlap in brand choices indicates that consumers choose different brands for different spice blends. These findings align with Kavinkesinikethan *et al.* (2019), who highlighted brand loyalty in spices, and Gopi *et al.* (2021), who noted post-pandemic shifts in consumer preferences.

Table 14: Spice powder brand preferences (n = 129)

Brand	Number of respondents	Percentage (%)
MTR	89	69.0
Homemade	58	45.0
Everest	56	43.4
Aashirvaad	22	17.1
MDH	15	11.6
Others	19	14.7

Note: *Multiple responses were allowed, so percentages exceed 100 per cent.*

Consumer Willingness to Purchase *Nandini* Spices if Introduced by KMF

The survey showed (Table 15) strong market acceptance for *Nandini* spice powders, with 82.2 percent of respondents expressing willingness to purchase, 14 percent undecided, and only 3.8 percent rejecting the product. This positive response reflects Nandini's established brand trust, cooperative identity, and government association, which foster consumer willingness. The relatively small undecided segment offers potential for conversion through targeted marketing, competitive pricing, and quality assurances. These findings align with Bharathi and Dinesh (2020), who emphasized Nandini's strong consumer trust, and Bapat and Panwar (2009), who documented the success of brand extensions in India. Leveraging KMF's extensive distribution network while emphasizing authenticity will be central to successful market penetration.

Table 15: Consumer acceptance of *Nandini* spice powders (n = 129)

Response category	Number of respondents	Percentage (%)
Willing to purchase	106	82.2
Uncertain	18	14.0
Not willing	5	3.8

Preferred Spice Product Range from *Nandini*

The survey identified sambar powder (69.8%) as the leading consumer preference, positioning it as the flagship product for Nandini's market entry. Chilli powder and garam masala (69% each) also showed high demand, while turmeric powder (65.9%) and coriander powder (51.2%) represent strong supporting products (Table 16).

Table 16: Preferred spice powders among consumers (n = 129)

Spice powder	Number of respondents	Percentage (%)
Sambar powder	90	69.8
Chilli powder	89	69.0
Garam masala	89	69.0
Turmeric powder	85	65.9
Coriander powder	66	51.2
Other varieties	37	28.7

Note: *Multiple responses were allowed, so percentages exceed 100 per cent.*

These results confirm broad consumer interest in both single-ingredient and blended spices, consistent with Navyashree *et al.* (2024), who emphasized purity and authenticity in spice choices. The multiple-response pattern indicates demand for a diverse spice portfolio, with 28.7 percent of respondents seeking additional varieties. A phased rollout beginning with sambar, chilli, and garam masala, followed by turmeric and coriander, would allow KMF to minimize risks while establishing market presence. Leveraging Nandini's cooperative identity and trusted brand image, supported by findings from Kavinkesinikethan *et al.* (2019) and Raj *et al.* (2022) on brand credibility and distribution strategies, can ensure consumer acceptance and long-term competitiveness.

Motivation factors to purchase *Nandini* spices

The survey highlighted (Table 17) quality (62.8%) and adulteration concerns (58.9%) as the most influential factors shaping consumer preference for *Nandini* spices, reflecting a strong emphasis on food safety and authenticity, also consistent with Ahamed *et al.* (2023). Social responsibility also played a significant role, with 51.2 percent of respondents valuing Nandini's contribution to farmer empowerment, while trust in the cooperative brand and government association (41.1%) further reinforced consumer confidence (Gopi *et al.* 2021). Secondary but relevant drivers included accessibility (38.8%) and competitive pricing (30.2%), which remain important for broader market penetration. These findings suggest that *Nandini* can build a strong foothold by leveraging its brand equity, cooperative identity, and social impact, while ensuring purity, affordability, and wide availability to meet consumer expectations.

Table 17: Factors influencing consumer preference for *Nandini* spice powders (*n* = 129)

Factor	Number of respondents	Percentage (%)
Quality (purity, safety)	81	62.8
Concern over adulteration	76	58.9
Farmer empowerment/social impact	66	51.2
Brand trust & govt. backing	53	41.1
Accessibility/availability	50	38.8
Competitive pricing	39	30.2

Note: *Multiple responses were allowed, so percentages exceed 100 per cent.*

Willingness to pay premium to *Nandini* spices

The findings show (Table 18) that 59.8 percent of consumers are willing to pay a premium for *Nandini* spices, as it is also highlighting strong brand trust and the perceived value of assured quality as it is also supported by Anselmsson *et al.* (2014). A further 28.3 percent remain uncertain, suggesting an opportunity to convert them through effective marketing, quality certification, and communication of purity standards. Only 11.8 percent expressed resistance to paying more, indicating minimal price-based opposition. These results also align with Nandi *et al.* (2016), who emphasized purity and quality as key purchase drivers, and they also underscore the influence of Nandini's government association and established dairy reputation in shaping willingness to pay. A tiered pricing strategy—premium variants for quality-focused consumers and competitive options for price-sensitive groups—can help KMF balance profitability with its cooperative mission of farmer empowerment and accessibility as these are also reported by Ali & Ali (2020).

Table 18: Willingness to pay extra for *Nandini* spice powders (n = 129)

Response	Number of respondents	Percentage (%)
Yes (willing)	77	59.8
Uncertain	36	28.3
No (unwilling)	15	11.8

Preference for organic *Nandini* spices

The survey revealed (Table 19) a strong preference for organic spices, with 84.3 percent of respondents showing interest. It is also highlighted a major market opportunity by Chaudhary (2024). Resistance was minimal (3.9%), while 11.8 percent remained uncertain, representing a convertible segment through targeted education, quality assurance, and competitive pricing (Sharma, 2009).

Table 19: Consumer interest in organic spice powders from *Nandini* (n = 129)

Response	Number of respondents	Percentage (%)
Yes (interested)	109	84.3
Uncertain	15	11.8
No (not interested)	5	3.9

This growing demand for organic spices reflects wider consumer trends toward health, sustainability, and chemical-free food options as it is also supported by Gunasekaran & Murugan, (2020). For KMF, introducing an organic spice line under *Nandini* could leverage existing brand trust and align with its farmer empowerment mission. Organic cultivation offers higher farmer returns and supports sustainable supply chains. However, success depends on securing organic certification, efficient logistics, and balanced pricing strategies to ensure both consumer affordability and farmer benefit. With resistance being minimal, conventional spice consumers could transition to organic alternatives if quality and affordability are consistently maintained.

CONCLUSION

The spice market in Karnataka is dynamic, shaped by demographic and socio-economic diversity alongside evolving consumer preferences. While middle-aged consumers favor traditional tastes, younger groups drive demand for innovative and health-oriented products. The study confirms strong willingness to adopt *Nandini* spices, including organic variants, owing to brand trust, cooperative identity, and government association. However, issues such as adulteration, pricing, limited shelf life, and competition from established brands necessitate a phased entry strategy. By emphasizing purity, authenticity, and convenience, offering tiered pricing to balance premium and affordable segments, and promoting locally sourced and organic products, *Nandini* can address diverse consumer needs while supporting farmer livelihoods. Leveraging its strong retail presence through *Nandini* outlets (parlours) and traditional grocery stores, with gradual expansion into e-commerce, will ensure broad accessibility and competitiveness. Thus, KMF's entry into the spice market is feasible, provided consumer expectations, sustainability goals, and cooperative values are strategically balanced.

Future Research Directions

Further studies may adopt longitudinal designs to track changing consumer preferences over time, examine actual purchasing behaviour beyond stated willingness, and expand geographic coverage to capture broader market heterogeneity across Karnataka.

Limitations of the Study

The sample was confined to selected regions and may not fully represent the state's diverse consumer base. Self-reported responses are subject to recall and social desirability bias. The focus on stated preferences rather than actual buying behavior, along with the cross-sectional design, restricts the ability to generalize findings or capture changing consumer trends over time.

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