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Global perspectives on socio-economic dynamics, marketing practices and challenges in jasmine trade: Evidence from a prominent Indian flower market

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Abstract

Jasmine, renowned for its fragrance and economic significance, is a vital commercial flower crop with extensive cultural and industrial applications. Despite its global demand, jasmine marketing faces persistent challenges, particularly in ensuring profitability and sustainability. This study investigates the socio-economic dynamics, marketing practices and challenges jasmine marketers face in the Madurai flower market, one of the largest flower trading hubs in southern India. Using a structured interview schedule, data were collected from 60 randomly selected marketers, focusing on their profiles, decision-making processes, packaging methods and trade strategies. Key findings reveal that most marketers are experienced professionals whose marketing behavior is significantly influenced by age, education and decision-making abilities. Grading, packaging and transportation practices were assessed, highlighting inefficiencies contributing to post-harvest losses. Critical constraints were identified as price volatility, perishability and inadequate infrastructure. Respondents emphasized the need for price stabilization mechanisms, advanced storage facilities and access to real-time market intelligence. This research provides actionable insights for enhancing jasmine market efficiency and profitability. The findings are particularly relevant to global markets, as jasmine is a key ingredient in the fragrance, essential oil and traditional medicine industries, with an estimated annual global market value of over USD 500 million. Addressing the constraints identified could reduce post-harvest losses by up to 20 %, significantly increasing stakeholder economic returns. These insights have commercial and environmental implications, offering a roadmap for sustainable flower trade practices and supporting the livelihoods of farmers and marketers globally.

Keywords

flower market; grading; jasmine marketers; packaging methods

Introduction

Jasmine (*Jasminum* spp.) is among the most valued commercial flowers globally, celebrated for its enchanting fragrance and multifaceted applications, including ornamental, therapeutic and cultural purposes (1). The global jasmine market, encompassing production, trade and consumption, has experienced significant growth due to increasing demand for essential oils, perfumes and natural products. For instance, the global market for jasmine essential oils alone was valued at approximately USD 2.3

billion in 2022 and is projected to grow at a Compound Annual Growth Rate of 5.8 % over the next decade. Major producers such as India, China, Egypt and Morocco play critical roles in meeting global demand. At the same time, key importers include the United States, Europe and Japan, reflecting the flower's expansive international significance (2). Tamil Nadu, often called the "land of flowers," is a prominent contributor to jasmine production in India, with Madurai renowned for its iconic Madurai Malli variety (3). However, the dynamics of jasmine marketing extends beyond national borders, encompassing global trade networks that link producers in developing regions to high-value markets worldwide.

The Madurai Flower Market at Mattuthavani is a microcosm of these broader phenomena, serving as a pivotal node in both local and international jasmine trade. This market attracts diverse stakeholders- farmers, traders, exporters and buyers, each integral to the jasmine value chain. Jasmine marketers, including wholesalers, retailers and intermediaries, act as vital conduits, ensuring the flow of flowers from production hubs to consumers across various geographies. Recent advancements in plant cultivation practices further underscore the potential for enhancing jasmine production and quality. A noteworthy study, “Silica nanoparticles from coir pith synthesized by acidic sol-gel method improve germination economics,” exemplifies how innovative techniques can improve plant health, yield and economic efficiency. When integrated into jasmine cultivation, such approaches could address critical challenges such as yield variability and quality consistency, thereby boosting the flower's competitiveness in global markets. The study aims to analyze the socio-economic attributes, marketing practices and challenges jasmine marketers operating in the Madurai Flower Market face. Factors such as age, education, marketing experience, market intelligence and decision-making behavior will be examined to identify patterns influencing market performance.

Additionally, the research will explore packaging innovations and logistical solutions to mitigate constraints such as price volatility and perishability. The research hypothesis is as follows: “Improving the socio-economic understanding, marketing practices and packaging solutions of jasmine marketers can significantly enhance the efficiency and sustainability of the jasmine trade in India, with broader implications for global flower markets.” The urgency of this investigation lies in addressing the economic vulnerabilities marketers face due to increasing competition, supply chain disruptions and evolving consumer preferences. By contributing actionable insights to optimize jasmine marketing, this study seeks to bridge critical gaps in existing research and offer practical applications that benefit stakeholders locally and internationally. In conclusion, this study comprehensively introduces the jasmine trade, connecting local practices with global market trends. By integrating socio-economic analysis, innovative cultivation techniques and practical marketing solutions, it aims to foster the sustainability and growth of jasmine as a key agricultural commodity.

Materials and Methods

This study analyzed the profile, marketing behavior and constraints faced by jasmine marketers. The research was focused on the jasmine trade, which holds significant economic and cultural importance in flower marketing. A total of 60 respondents were selected for the study using a random sampling method. This approach ensured that each member of the population had an equal chance of being included in the study, minimizing selection bias and enhancing the sample's representativeness. The respondents were identified through established lists and direct field observations during active trading. Data collection was carried out using a structured interview schedule specifically designed to capture comprehensive information about the demographic, economic and operational characteristics of jasmine marketers and the challenges they encounter. The interview schedule was pre-tested with a small subset of respondents to ensure the questions' clarity, relevance and reliability. Adjustments were made based on feedback received during the pre-testing phase. The collected data were systematically coded and analyzed using appropriate statistical tools, including percentages, averages and frequency distributions, to ensure precise computation and meaningful interpretation of results. The analysis used widely available statistical software (e.g., SPSS, R and Microsoft Excel) ensuring accurate and reproducible results. This combination of descriptive and inferential statistics enabled a thorough understanding of the trends and relationships inherent in the data.

Results and Discussion

Jasmine marketers' profiles were analyzed and the results are presented in Tables 1, 2 and 3.

Social characteristics

Table 1 shows that the majority of marketers fall into the middle-aged category (35-45 years), representing 48 %, followed by the old age group (above 45 years) at 26 % and the younger group (up to 35 years) at 25 %. Middle-aged individuals may dominate due to their balance of experience and energy, contributing both youthful enthusiasm and mature decision-making skills (4). Younger marketers might be fewer, as they could lack experience or be exploring more contemporary, high-tech fields. Older marketers, though seasoned, might face physical constraints in the labor-intensive aspects of jasmine marketing. In traditional gender roles in marketing, males account for 71 % of marketers, while females make up 28 %. This reflects a conventional gender role pattern in agricultural marketing, where men often handle direct market interactions. However, the significant female participation (28 %) suggests that women are also engaging, perhaps in supporting or niche roles. This could reflect a slow shift toward gender inclusivity, especially in rural economies (5).

Regarding educational status, primary education is the most common level among marketers (40 %), followed by middle education (21 %), illiterate (15 %), collegiate

Table 1. Social characteristics of jasmine marketers

Sl. No.	Category	Number	Percent (%)
I.	**Age**		
	Young (Up to 35 years)	15	25.00
	Middle (35 to 45 years)	29	48.33
	Old (Above 45 years)	16	26.67
II.	**Gender**		
	Male	43	71.67
	Female	17	28.33
III.	**Educational status**		
	Illiterate	9	15.00
	Primary education	24	40.00
	Middle education	13	21.60
	Secondary education	6	10.00
	Collegiate education	8	13.33
IV.	**Size of family**		
	Small	32	53.33
	Medium	17	28.33
	Large	11	18.33

Table 2. Economic characteristics of jasmine marketers

Sl. No.	Category	Number	Percent (%)
I.	**Occupational Status**		
	Farming alone	23	38.33
	Farming and business	19	31.67
	Business alone	13	21.67
	Farming and service	5	08.33
II.	**Experience in Jasmine Marketing**		
	Low (up to 10 years)	7	71.67
	Medium (11 to 20 years)	38	63.33
	High (Above 20 years)	25	15.00
III.	**Market decision**		
	Self-decision	35	58.33
	Consulting family members	12	20.00
	Consulting flower association members	1	01.67
	Consulting friends and relatives	10	16.67
	Consulting commission agents	2	03.33
IV.	**Market intelligence**		
	Low	9	15.00
	Medium	36	60.00
	High	15	25.00

Table 3. Relationship between the profile and awareness level of jasmine marketers

Variable Number	Independent Variable	'r' value	Regression coefficient	't' value	'P' value
X_1	Age	0.349*	0.238	1.958	0.075
X_2	Gender	0.478**	0.351**	3.183	0.001
X_3	Educational status	0.377*	0.111	1.136	0.065
X_4	Occupational status	0.576**	0.175*	2.320	0.004
X_5	Size of family	0.187	0.345**	3.352	0.000
X_6	Experience in jasmine marketing	0.334*	0.283**	2.273	0.001
X_7	Market decision	0.285*	0.105	1.784	0.165
X_8	Market intelligence	0.522	0.090*	2.460	0.003

**Significant at 1 % level of significance *Significant at 5 % level of significance

education (13 %) and fewer individuals have reached secondary (10 %). Limited education among marketers could impact their access to resources and market insights. Those with higher education might have better opportunities to employ modern marketing strategies and business acumen, potentially explaining why some marketers pursue more diverse occupational roles (6). Most of the marketers belonged to small families (53 %), followed by medium (28 %) and large (18 %) family sizes. Smaller family sizes may reflect modernization and a shift toward nuclear families, particularly in urbanizing regions. Smaller families may have fewer labor constraints and lower living costs, enabling marketers to reinvest in their businesses (7). However, large families might support labor needs more efficiently, especially during high-demand periods.

Economic characteristics

As shown in Table 2, a significant portion (38 %) is involved in farming alone, while others combine farming with business (31 %) or solely focus on business (21 %). A smaller group combines farming with a service role (8 %). Diversification in occupational status indicates that many marketers do not rely exclusively on jasmine marketing, possibly due to economic uncertainty in agriculture (8). Those combining farming with business might possess better financial security and risk management, while those farming alone could face income volatility, especially during off-peak seasons. The majority (63 %) of the respondents have medium experience (11 - 20 years), while 15 % have over 20 years and 11 % have low experience (up to 10 years). Marketers with medium expertise could be best positioned as they combine practical knowledge with adaptive skills. High-experience marketers likely bring stability to the market and influence pricing and operational norms, while newcomers (low experience) might struggle with market volatility or lack access to key networks (9). Market decision-making was predominantly independent (58 %), while a smaller portion consulted family (20 %) or friends and relatives (16 %) and very few consulted flower association members (1 %) or commission agents (3 %). This indicates a high level of autonomy among jasmine marketers, suggesting confidence in individual decision-making skills. Consulting family or friends might be typical for newer or smaller-scale marketers who rely on community or familial knowledge (10). Limited consultation with associations or agents could indicate a lack of access to professional market advice or a preference for local networks. Market intelligence is predominantly at a medium level (60 %), with fewer marketers having high (25 %) or low (15 %) levels. The prevalence of medium-level market intelligence suggests that while many marketers understand market trends, they may lack the comprehensive insights needed for optimal decision-making. Higher intelligence levels might correlate with those more educated or experienced, potentially allowing them to leverage competitive strategies. In comparison, lower levels could be due to limited access to formal training or digital tools for market tracking (11).

Relationship between the profiles with awareness level of jasmine marketers

The awareness level of jasmine marketers plays a crucial role in shaping their marketing decisions, strategies and overall performance in the floral trade. The profile encompasses demographic, socio-economic and professional characteristics, while the awareness level indicates the marketer's knowledge of current market trends, packaging practices, pricing strategies and market-related challenges (12). It can be seen from Table 3 that variables such as gender (X_2) and occupational status (X_3) showed a positive relationship at the 1% level of significance. The variables such as age (X_1), educational status (X_3), experience in Jasmine Marketing (X_6) and market decision (X_7) showed significant and positive correlations with awareness level at the 5 % level of significance. The R^2 value of 0.703 revealed that 70 % of the variations in the awareness level were described by the 8 independent variables selected for the study. 'F' value was significant at a 1 % significance level. It can be inferred that the regression coefficient of gender (X_2), size of family (X_5) and experience in Jasmine Marketing (X_6) were positively related to awareness level at a 1 % level of significance. The regression coefficient of occupational status (X_3) and Market intelligence (X_8) were positively associated with awareness level at a 5 % level of significance (13). While age may influence awareness, other factors like education and occupational status seem stronger. The higher awareness in a specific gender group could be attributed to different social dynamics or access to training and resources. Gender-specific approaches could be beneficial to improving awareness in both groups. Although education seems to contribute to awareness, the lack of statistical significance suggests that other factors might overshadow the direct impact of education. Occupational status, therefore, appears to be a strong predictor of awareness. This variable likely captures the professional experience and active involvement in jasmine marketing, directly impacting awareness. While family size may seem less directly related to awareness, the availability of more labor could result in greater interaction with market dynamics, leading to improved awareness over time. Experience plays a crucial role in developing awareness, as marketers who have been in the field longer are likely to encounter various market scenarios and adapt to changes, thereby enhancing their awareness level (14). Although market decision is an important aspect of marketing, it may not be as influential in shaping awareness compared to other factors like experience and occupational status. Even though market intelligence can lead to better awareness, the lack of statistical significance indicates that other factors like occupational status and experience might substantially improve awareness. Efforts were made to position the research questions to be globally relevant. For instance, the findings on market intelligence and decision-making resonate with broader themes of agricultural modernization and inclusivity. Understanding socio-economic factors influencing jasmine marketing provides insights not only for local agricultural markets but also for developing economies aiming to stabilize perishable goods markets. Integrating global best practices, such as establishing transparent auction systems and value-addition strategies, can align the findings with a broader readership. Additionally, addressing gender dynamics and education levels reflects universal challenges in agriculture, ensuring the research contributes to global discussions on market inclusivity and sustainability.

Packaging Methods of Jasmine

Grading method

Table 4 shows that the data on grading practices adopted by jasmine marketers reveals fascinating insights into their preferences and practices. A significant proportion of respondents (46 %) grade jasmine based on size alone. This preference is likely due to the commercial importance of flower size, as larger flowers often command higher market value and are preferred by consumers for their aesthetic appeal and fragrance intensity. Additionally, grading by size is a relatively straightforward process, which might make it more practical for marketers with limited resources or time (15). However, 23 % of the respondents do not follow any grading practices. This lack of grading might be attributed to factors such as a lack of awareness about the benefits of grading, limited access to resources, or a focus on bulk selling rather than quality-based marketing. For small-scale marketers, the absence of grading might also reflect constraints like time or labour availability. Meanwhile, 16 % of the marketer's grade jasmine based on color. Color is another critical quality parameter, as consumers often associate specific colors with freshness, variety or suitability for particular occasions. However, the lower percentage for color-based grading might indicate that marketers prioritize size over visual characteristics. Finally, 13 % of the respondent's grade jasmine based on size and color. This dual criterion suggests a more comprehensive grading approach to meet diverse consumer preferences and improve marketability (16). Such practices may be more prevalent among marketers who cater to high-end markets or export requirements, where both size and color are critical determinants of quality.

Table 4. Grading method

Sl. No.	Category	Frequency	Percent (%)
1.	No grading	14	23.33
2.	According to colors	10	16.67
3.	According to size	28	46.67
4.	According to size and colors	8	13.33

Mode of packaging

Packaging is also an important variable that influences the marketing characteristics of jasmine. Table 5 revealed that more than half of the respondents (55 %) used polythene bags as mode of packaging. Polythene bags dominate as the most preferred packaging material due to their low cost, lightweight nature and ease of handling. They are also widely available and protect flowers from external elements like dust and rain (17). However, they are not eco-friendly and may cause overheating or moisture buildup if misused.

Meanwhile, 38 % of the respondents used gunny bags as the packaging method. Gunny bags are preferred for their availability, low cost and reusability. They are commonly used by marketers who prioritize affordability and ease of

Table 5. Grouping of respondents corresponding to the mode of packaging

Sl. No.	Category	Frequency	Percent (%)
1.	Bamboo baskets	4	06.67
2.	Gunny bags	23	38.33
3.	Polythene bags	33	55.00

handling. However, they offer limited protection against physical damage or moisture, which can affect the quality of the flowers. Training marketers on the limitations of gunny bags and encouraging them to invest in better packaging alternatives could enhance marketability. Finally, 6 % of the respondents used bamboo baskets for the mode of packaging method. Bamboo baskets are traditional and eco-friendly packaging materials. However, their low usage may be due to their limited availability, higher cost, or lack of durability compared to modern alternatives (18). Additionally, bamboo baskets' bulky nature can make them less practical for transporting larger quantities. Efforts to revive their use could include promoting them as a sustainable option and subsidizing their cost to encourage environmentally friendly practices.

Marketing behaviour

The various marketing behaviours of marketers were catalogued and analysed in 5 sections: Mode of sale, mode of transport, reasons for selection of market, terms and conditions of sale and payment pattern.

Mode of sale

Table 6 shows that most (53 %) of respondents sell their produce through commission agents due to their extensive network and ability to facilitate quicker sales, especially for perishable commodities like jasmine. Wholesalers (26 %) are the second preference, as they provide a reliable outlet for bulk sales. Local merchants (20 %) are chosen by farmers with smaller quantities or those who prefer convenience. Contractors are not utilized, possibly due to a lack of established contracting systems or distrust in such arrangements. Farmers prefer channels that ensure prompt sales and minimize risks, with commission agents dominating due to their established role in linking producers to larger markets (19). Encouraging direct sales through cooperatives or organized markets could reduce dependency on intermediaries and improve farmer profits.

Mode of transport

Table 6 revealed that most respondents (65 %) used two-wheelers for transport due to their affordability, flexibility and convenience for short distances. Town buses (30 %) are used by those without personal vehicles or when transporting smaller quantities. Auto-rickshaws (5 %) are rarely used, possibly due to higher costs, and tempo vans are not utilized, likely because of limited access to such vehicles or their unsuitability for small-scale farmers. Two-wheelers' dominance reflects the small-scale nature of jasmine marketing (20). Improving access to shared transport services or providing subsidies for better transport options could enhance efficiency and reduce flower damage during transit.

Reasons for selection of market

Table 6 shows that receiving advance payments (73.33 %) is the primary reason for market selection, as it provides financial security and enables farmers to manage production costs. Cash payment (16 %) is another motivation, ensuring immediate liquidity. Proximity to the place of production (10 %) is less prioritized and higher prices are not a deciding factor, possibly due to the dominance of intermediaries who standardize pricing. Farmers' reliance on advance payments highlights their need for upfront financial support. Strengthening institutional mechanisms like farmer cooperatives and credit systems could reduce dependence on intermediaries and provide more favorable market options (21).

Terms and conditions of sale

Table 6 shows that most sales (86 %) are conducted on credit, as commission agents or wholesalers may delay payments until the produce is sold. Immediate payment (13 %) is less common, possibly due to the cash flow constraints of buyers or the informal nature of transactions. Auction and contract sales are absent, reflecting limited market infrastructure and formalized trading systems. Credit sales dominate due to the market structure, but they can lead to delayed payments and

Table 6. Grouping of respondents corresponding to marketing behavior

Sl. No.	Particulars	Frequency	Percent (%)
I	**Mode of sale**		
1	Local merchants	12	20.00
2	Contractors	0	0
3	Wholesalers	16	26.67
4	Commission agents	32	53.33
II	**Mode of transport**		
1	Two-wheeler	39	65.00
2	Auto	3	05.00
3	Town bus	18	30.00
4	Tempo van	0	0
III	**Reasons for selection of market**		
1	Nearness to the place of production	6	10.00
2	Receipt of advance	44	73.33
3	Higher price	0	0
4	Cash payment	10	16.67
IV	**Terms and conditions of sale**		
1	Auction	0	0
2	Credit sales	52	86.67
3	On contract	0	0
4	Immediate payment	8	13.33
V	**Payment pattern**		
1	Partially	12	20.00
2	Fully	48	80.00

financial strain for farmers. Introducing transparent auction systems or formal contracts could enhance fairness and provide farmers with immediate returns (22).

Payment pattern

Table 6 revealed that most (80 %) of respondents receive full payment for their produce, likely indicating trust in the market system and the importance of timely financial transactions. Partial payments (20 %) occur in cases where buyers face liquidity issues or when payments are staggered to manage risk. The predominance of full payments is a positive sign for market stability. However, partial payment practices highlight the need for better payment systems (23). Policymakers and extension services should focus on strengthening market infrastructure to ensure timely and secure transactions.

Problems encountered in jasmine marketing

Analysis of problems is one of the essential components in extension education, as farmers have difficulties adopting strategies and new technologies that are recommended (24). An investigation was made to identify the different constraints experienced in jasmine marketing. The major problems perceived by the jasmine marketers are presented in Table 7.

Table 7 shows that the most prominent problem farmers face is the unpredictable fluctuation in market prices, affecting 80 % of respondents. Supply-demand imbalances, seasonal variations and the perishable nature of jasmine flowers often drive this volatility. Price instability poses a significant risk to farmers' income and sustainability (25). Establishing price stabilization mechanisms, such as minimum support prices or dynamic pricing models, can help mitigate the impact. Additionally, promoting forward contracts or collective bargaining through cooperatives may enhance price stability. However, 68 % of the respondents report dissatisfaction with the price-setting practices of commission agents. These intermediaries often prioritize their profits, leaving farmers with minimal bargaining power. Dependence on commission agents reflects the lack of direct access to more extensive or organized markets (26). Encouraging direct sales, establishing farmer-producer organizations (FPOs) and introducing transparent auction systems can empower farmers to negotiate better prices and reduce exploitation.

Demand fluctuations, affecting 28 % of respondents, are another key problem. Demand varies with seasons, festivals and cultural events, leading to inconsistencies in sales and income. Managing demand fluctuations requires diversifying marketing channels and developing value-added products like dried flowers or essential oils. Improved market intelligence systems can also help farmers align production with demand trends, reducing wastage and financial losses. About 23 % of the respondents identify the absence of cooperative markets as a significant challenge. Such markets could offer fair pricing and reduce dependency on intermediaries. The lack of cooperative markets limits farmers' ability to directly connect with buyers and achieve fair value for their produce (27). Government and private sector initiatives to develop and promote cooperative markets can address this issue, ensuring equitable market access and improving farmers' livelihoods. Finally, a smaller proportion (15 %) of the respondents face financial constraints in meeting marketing expenses, such as transportation and packaging costs. This issue highlights the need for better access to credit facilities tailored for small-scale farmers (28). Providing subsidies or financial assistance for transportation and other logistical needs can ease this burden and improve farmers' market participation.

Table 7. Problems encountered in jasmine marketing

Sl. No.	Problems	Frequency	Percent (%)
1	Fluctuation in market price	48.00	80.00
2	Fixation of price by the commission agents	41.00	68.33
3	Inadequate funds to meet marketing expenses	9.00	15.00
4	Lack of cooperative market	14.00	23.33
5	Fluctuation of flower demand	17.00	28.33

Suggestions to overcome the problems

The feedback mechanism is one of the important processes to assess the reach of a particular innovation among the target people. It helps refine the innovation to suit the local needs of the people. In this regard, suggestions offered by jasmine marketers to encounter the various constraints can be game changers in marketing behavioral aspects of jasmine.

Table 8 examined that an overwhelming majority (90 %) of the respondents suggest implementing a standard pricing mechanism for jasmine to address price volatility and ensure fair returns for farmers. Standardizing prices can provide stability and predictability in farmer income, reducing their vulnerability to market fluctuations (29). This can be achieved through government interventions like minimum support prices (MSPs) or transparent pricing systems in regulated markets. Such measures would empower farmers and boost their confidence in jasmine cultivation. A significant 85 % of respondents support establishing government-run processing industries for jasmine to add value to their produce and expand market opportunities. Processing industries can create value-added products such as essential oils, perfumes and incense, providing farmers with an alternative revenue stream. Government initiatives to establish these industries could generate employment and reduce farmers' dependency on raw flower sales, stabilizing their income. About 35 % of respondents suggest improving market storage facilities to address the perishability of jasmine flowers and minimize post-harvest losses. The lack of adequate storage infrastructure forces farmers to sell flowers immediately, often at lower prices. Developing modern storage solutions like cold storage units can preserve flower quality and extend

Table 8. Suggestions offered by jasmine marketers

Sl. No.	Suggestions	Frequency	Percent (%)
1	The standard price for jasmine	54.00	90.00
2	Establishment of a regulated market for flowers	16.00	26.67
3	Establishment of government processing industries	51.00	85.00
4	Enhancing storage facilities in the market	21.00	35.00
5	Assist the marketers with loans from the banking sector	12.00	20.00

their shelf life, allowing farmers to negotiate better prices. Around 26 % of respondents recommend setting up regulated flower markets to ensure fair trade practices and better price realization. The absence of regulated markets results in a lack of transparency in pricing and an over-reliance on intermediaries. Establishing dedicated flower markets would facilitate direct farmer-to-buyer transactions, ensure quality grading and promote competitive pricing. Such markets could also serve as hubs for networking and knowledge sharing. Finally, a smaller proportion (20 %) of respondents propose providing marketers easier access to loans to cover expenses like transportation, packaging and other logistical needs. Financial constraints hinder effective marketing practices (30). Tailored loan schemes with low interest rates for flower marketers can enable them to invest in better infrastructure and expand their operations. Collaboration between banks and agricultural extension services can ensure timely and adequate financial support.

Conclusion

This research highlights the socio-economic challenges and marketing practices of jasmine marketers, providing valuable insights into the dynamics of the local flower trade. Generally, families were categorized as small and most marketers had medium levels of experience (11-20 years) in Jasmine trade. Decision-making in the market was primarily self-driven, supported by moderate levels of market intelligence. The marketing practices highlight varying grading methods, packaging and modes of sale. While most graded jasmine flowers by size, over half used polythene bags for packaging. The most common mode of sale was through commission agents, with two-wheelers being the predominant transport option. Advance payments emerged as a key factor in market selection and credit sales were the dominant term of sale. Significant challenges were identified, including frequent price fluctuations, the dominance of commission agents in price fixation and inadequate cooperative market facilities. The lack of sufficient funds and fluctuating demand compounded the marketers' difficulties. The marketers suggested establishing standardized pricing mechanisms, regulated flower markets and government-supported processing industries as potential solutions to these challenges. Establishing regulated markets for policymakers should prioritize setting up regulated flower markets to ensure transparent and standardized pricing mechanisms. These markets can reduce the dominance of intermediaries and foster fair competition among buyers and sellers. Improving storage facilities through investment in modern storage infrastructure, such as cold storage units, can help preserve the quality of jasmine flowers, reduce post-harvest losses and stabilize prices during fluctuating demand. Implementing sustainable packaging practices, such as transitioning from polythene bags to eco-friendly and cost-effective packaging materials, can reduce environmental impact and enhance the marketability of jasmine flowers. Promoting access to financial support for financial institutions can play a vital role by offering jasmine marketers tailored banking loans and credit facilities. This will alleviate the issue of insufficient funds and empower marketers to invest in better resources. Encouraging government-supported processing industries to establish processing units for jasmine products, such as essential oils or perfumes, can diversify income opportunities and reduce dependency on direct flower sales. Developing market intelligence programs for stakeholders can organize training programs to improve market intelligence and decision-making skills among marketers, enabling them to respond more effectively to market trends. By addressing these areas, stakeholders can stabilize the jasmine market, enhance the livelihoods of marketers and foster the broader development of flower markets in specific regions. Such policy interventions and actionable steps will significantly reduce economic vulnerabilities and create a more resilient agricultural marketing ecosystem.

Regarding the research hypotheses, the findings suggest that the hypotheses, which addressed the impacts of market structure, pricing mechanisms and financial constraints on marketers' decision-making and livelihood, were largely confirmed. Most marketers face significant barriers that influence their market behaviors and long-term success. The proposed policy interventions, including financial support, training in market intelligence and establishing processing industries, are expected to address these challenges and contribute to a more resilient and equitable market system.

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Authors' contributions

BI wrote the manuscript, designed the research article and analyzed the data. NL read and helped with revisions of the research article and also approved the final manuscript.

Compliance with ethical standards

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