

RESEARCH ARTICLE

Petals to Profit: Value Chain Analysis of Jasmine and Tuberose in Tamil Nadu

Nisha V S, Balaji Parasuraman*and Mugilan Kannan

Department of Agricultural and Rural Management, CARDS, TNAU,

ABSTRACT

Jasmine (*Jasminum* spp.) and tuberose (*Polianthes tuberosa*) are the most cherished fragrant flowers in India. Jasmine is commonly used in weddings and religious functions, while tuberose is valued for decorative and perfumery purposes. Both flowers are in high global demand. However, farmers face challenges such as fluctuating prices, dependency on intermediaries, lack of cold storage, and post-harvest losses. This study aims to analyze the value chain, cost structure, marketing channels, and income patterns of jasmine and tuberose growers in Tamil Nadu. A sample of 60 farmers (30 jasmine and 30 tuberose growers) was selected from major flower-producing regions such as Madurai, Dindigul, and Coimbatore. The study was conducted using structured questionnaires, personal interviews, and focus group discussions. Analytical tools such as value chain mapping and Cost and Income Analysis were used. Results revealed that four key channels were identified: channel(I) direct sales to retailers, channel (II) commission-based mandis, channel (III) contract farming with perfume factories, and channel (IV) export-oriented marketing. The results showed that farmers engaged in direct sales or contract farming earn significantly higher net incomes than those selling at the farm gate. Perfume factories recorded the highest Benefit-Cost Ratio (BCR) of 1:3.53 for jasmine and 1:3.17 for tuberose, due to value addition and the high market price of absolute from extraction. Exporters also achieved better margins. The study recommended strengthening market linkages, encouraging group marketing, and enhancing government support to improve the profitability and long-term sustainability of jasmine and tuberose farming in Tamil Nadu.

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INTRODUCTION

Jasmine (*Jasminum* spp., family: Oleaceae) and tuberose (*Polianthes tuberosa*, family: Asparagaceae) are two of the most essential fragrant flowers cultivated in India. Jasmine is widely used in religious ceremonies, weddings, and garland-making, while tuberose is known for its strong scent and is primarily

used in decoration and perfumery. Tamil Nadu is the leading producer of jasmine, contributing nearly 80% of the country's output, especially from regions like Madurai, Dindigul, Theni, Coimbatore, and Erode (NHB Horticulture Report, 2021–22). Tuberose is grown in Tamil Nadu, Karnataka, West Bengal, and

*Corresponding author mail: pbalaji@tnau.ac.in



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Andhra Pradesh. Major domestic flower markets include Madurai, Coimbatore, and Bengaluru. In the global market, jasmine and tuberose oils are exported to countries such as France, the USA, Germany, the UAE, and Japan, where they are in high demand for use in perfumes and cosmetics (APEDA, 2022). Exporters and perfumeries often demand large quantities and are willing to offer premium prices, but mismatches in supply locations cause wastage and income loss. This mismatch between where flowers are available and where they are needed leads to waste and loss of income for farmers. The journey of jasmine and tuberose from farm to fragrance involves multiple stakeholders like farmers, intermediaries, wholesalers, distilleries, and exporters. At each stage, value is added and margins are taken, while farmers who sell to traders often remain with the smallest share. Price fluctuations in wholesale markets are frequent, driven by seasonal supply surges of 40 to 60 percent (MAPCO, 2021). Further, a lack of cold storage and improper handling causes 20 to 30 percent wastage (ICAR, 2022), reducing shelf life and export potential. Several studies highlight the cultural and economic importance of jasmine and tuberose. However, farmers face challenges such as high labour costs, pest and disease issues, and limited cold storage. Marketing is primarily dependent on intermediaries, reducing farmer profits. Although value addition through garlands and oils can boost income, access to processing units remains limited. Supporting Farmers Producer Organizations (FPOs) can help farmers earn more by reducing their dependence on intermediaries. Balaji *et al.* (2023) studied FPOs in Tamil Nadu and revealed strategies to improve farmer incomes by enabling collective marketing, better price negotiation, and access to credit and infrastructure. Value chain studies show that profits are mostly captured at the processing and export stages (Swaminathan & Priya, 2020). Labour scarcity for daily harvesting, difficulty in accessing institutional credit, pest management, transport, input supply, high commission charges, violent price fluctuations, and non-existence of a well-developed marketing system and lack of extension support are the main problems faced by jasmine farmers (Tejasri N, 2021; Kaviarasan, 2015; Thulasiram and Sivaraj, 2020). These findings are similar to those observed in this study, which also highlights the need for better value chain integration, promotion of contract farming, and support for small-scale processing units to improve farmer income and reduce wastage.

Jasmine and tuberose are highly perishable flowers that must be marketed immediately after harvest, posing significant challenges for farmers in Tamil Nadu. Farmers are facing high establishment costs, limited access to credit, and poor access to irrigation, mainly where diesel-operated tubewells are used. The marketing process is dominated by commission agents, who charge high fees (52 percent of the total marketing cost). Price fluctuations occur daily or even hourly, leading to high risk. Farmers often experience malpractice, spoilage, and lack of grading, further increasing post-harvest losses. For small and marginal farmers, exporting remains unviable due to cost and complexity. The objectives of the study are i) to map the value chain of jasmine and tuberose in the study ii) to understand how jasmine and tuberose are marketed in Tamil Nadu by analysing their value chain iii) to estimate the cost structure, and income patterns across different marketing channels and iv) to identify the key challenges faced by farmers, evaluate the profitability of direct sales, contract farming, and export models, and suggest ways to improve farmer incomes and reduce post-harvest losses.

MATERIALS AND METHODS

This study was carried out in key flower cultivation regions of Tamil Nadu, such as Madurai, Dindigul, and Coimbatore. A blend of descriptive and analytical approaches was used to understand the marketing patterns. Primary data was gathered from a total of 60 farmers, including 30 jasmine growers and 30 tuberose growers. Information was collected through structured questionnaires, personal interviews, and focus group discussions. Many of these farmers were met during their visits to wholesale mandis, which helped to gather valuable insights on real-time price trends and market challenges. Contract farming rates were collected from major perfume companies involved in sourcing flowers. This study employed a value chain mapping methodology to identify all key stakeholders from farmers to exporters. A detailed cost and income analysis was conducted to assess net returns, marketing margins, and Benefit-Cost Ratios (BCR) across different marketing channels. Descriptive statistical tools (averages and percentages) and comparative channel analysis were also used to determine the most profitable marketing paths for farmers.

RESULTS AND DISCUSSION

The results showed that farmers' earnings vary significantly depending on the marketing channel they adopt. Channels involving fewer intermediaries or contract farming arrangements tend to provide better returns to farmers. These findings align with the study by (Vimaladhithyan *et al.* 2023), which analyzed jasmine value chains in Salem and Dharmapuri districts. Among the four identified marketing routes, Channel IV (producer → retailer → consumer) had the highest marketing efficiency (22.50), whereas Channel III (producer → commission agent → exporter → consumer) was the least efficient (3.74), emphasizing the impact of intermediary involvement on farmer returns. These insights support the current study's observation that better marketing systems, reduction of intermediaries, and promotion of value addition such as oil extraction or bouquet processing, can significantly improve income for jasmine and tuberose farmers in Tamil Nadu. In our study, we identified four marketing channels for Jasmine and Tuberose as shown in Figure 1.

Channel I: Farmers → Local Flower Vendors → Consumers

Farmers sell their flowers to local vendors either at village markets or directly from their farms. These vendors then sell to nearby households, small temples, or for personal use. This channel ensures quick payment for farmers but usually fetches lower prices due to limited reach and scale.

Channel II: Farmers → Commission Agents → Wholesalers → Retailers → Consumers

Channel II is the most common marketing pathway in urban areas. Farmers bring their produce to major flower markets like Madurai, Dindigul, Coimbatore, Salem, and Erode. Commission agents connect them with wholesalers, who then supply to retail florists. The flowers finally reach consumers through retail shops. This system serves a broad market but reduces the farmer's share due to multiple intermediaries.

Channel III: Farmers → Distilleries → Absolute/Concentrate → Export (Contract Farming)

In this value-added channel, farmers enter into contracts with distilleries or perfume companies. The flowers are used for extracting essential oils or absolutes. Companies like Synthite, Jasmine Concrete Exports, and S.H. Kelkar operate in Tamil Nadu and source directly from farmers. These oils are then exported to the fragrance, wellness, and cosmetic industries.

Channel IV: Farmers → Exporters → International Market

Based on APEDA data and observed export trends, a small share of jasmine and tuberose is exported directly. Exporters procure flowers from organized farmers or clusters and ship them to countries like the UAE, Singapore, and parts of Europe. This high-value channel offers better prices but is accessible to only a few farmers due to strict quality standards.

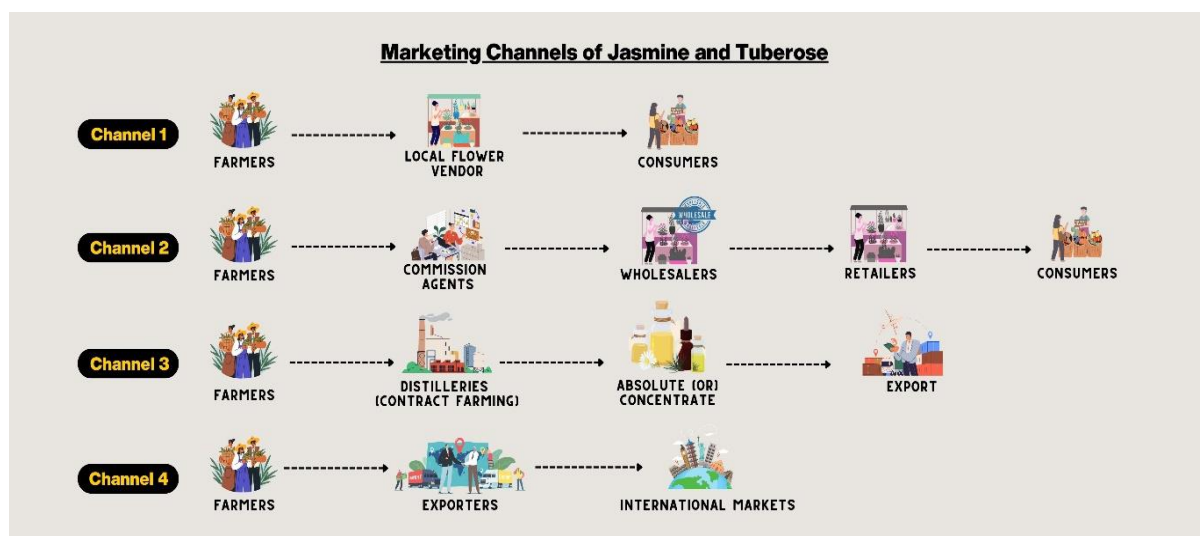


Figure 1. Various Marketing Channels of Jasmine and Tuberose



Table 1 Value Chain Economics of Jasmine Flowers in Tamil Nadu (Per Quintal Basis)

Player	Value Addition Process	Cost of Procurement per quintal (₹)	Production Cost per quintal (₹)	Value Addition Cost per quintal (₹)	Total Cost per quintal (₹)	Selling Price per quintal (₹)	Net Income per quintal (₹)	Marketing margin in %	Efficiency (Net income/ Total cost)	BCR
Farmers -I	Cultivation, Harvesting, Primary Grading & packing	--	8878	190	9068	25000	15932	63.72	1.75	2.75
	1)farmers sell it to the retailer or mandi									
Farmers -II	2)farmers sell flowers at the farm gate to traders	--	8878	100	8978	20000	11022	55.11	1.22	2.22
Traders	Collection, Sorting, and Logistics, storage, packaging	20,000	--	1,500	21500	35,500	14,000	39.43	0.65	1.65
Perfume factories	Solvent Extraction (Concrete/ Absolute)	21,000 (Contract farming)	--	4250	25250	89325	64075	71.73	2.53	3.53
Exporters	Packing, Cold Chain, Air Cargo, Documentation	20,000	--	6,000	26,000	60000	34,000	56.67	1.31	2.31

(Source: primary data)

This analysis explored the economics of jasmine marketing in Tamil Nadu, focusing on the costs and returns across different players in the value chain from farmers to exporters and perfumery units on a per quintal basis.

The cost of cultivation of *Jasminum grandiflorum* was estimated at ₹8,878 per quintal, based on a total cultivation cost of ₹3,99,536 per hectare and an average yield of 45 quintals per hectare. Major cost components include harvesting (₹1,80,000), manures/FYM (₹80,000), irrigation labour (₹49,400), weeding (₹23,563), and fertilizers (₹15,000). Other expenses such as land preparation (₹8,645), planting material (₹22,350), plant protection chemicals (₹5,427), and labour for planting (₹9,300), were also significant. Additionally, a flat estimate of ₹5,851 was considered for maintenance labour. The total cost also includes minor grading and transport expenses at the farm level.

In terms of value addition, each player in the jasmine supply chain incurs specific costs to enhance the value of the product. For farmers-I who is selling directly to mandis or retailers, the value addition cost was ₹190 per quintal, which covered primary grading, packing and transportation. Farmers-II selling at the farm gate added a smaller cost of ₹100 per quintal for basic handling and packaging. Traders spent around ₹1,500 per quintal on collection, sorting, packaging, storage, and logistics. Perfume factories incur ₹4,250 per quintal through solvent extraction processes. From 1 quintal of flowers, we can extract 100-120 ml of absolute, which sells for up to ₹ 89325 when carefully extracted, packaged, and marketed for luxury perfumery or niche boutique exports. Exporters faced the highest value addition cost of ₹6,000 per quintal due to expenses related to packaging, cold chain maintenance, air cargo, and export documentation.

Farmers earn more when they sell directly to retailers or markets instead of selling to traders. Traders and exporters spend more on transport, packaging, and storage. Perfume factories make the highest profit by turning flowers into concrete or absolute. Costs and profits can change depending on the season, weather, and labour availability. Most perfume companies follow contract farming to get a steady supply and better control over prices.

The total cost of cultivating tuberose per hectare is ₹4,13,250, with a yield of around 70 quintals, resulting

in a production cost of ₹5,900 per quintal. Major contributors to this cost include planting material (bulbs costing ₹1,20,000), harvesting expenses (₹1,50,000 for 150 rounds/year), irrigation labour (₹33,750), manure (₹35,000), and maintenance. Farmers who sell directly to retailers or mandi (Farmers-I) incur an additional ₹350 for grading and transport, earning a net income of ₹6,750 per quintal and a BCR of 2.08. In contrast, farmers selling at the farmgate to traders (Farmers-II) have fewer marketing expenses but earn only ₹4,050 per quintal with a lower BCR of 1.68.

Traders procure at ₹10,000/quintal and add ₹1,200 for sorting, packaging, and transportation to the market. Their total cost is ₹11,200, and they sell at ₹22,000, earning a margin of ₹10,800 with a BCR of 1.96. Perfume factories, often through contract farming, procure tuberose at ₹7,000 and invest ₹3,900 in value addition for absolute extraction. They spent ₹10,900 in total and sold at ₹34,538 per quintal, achieving the highest net income of ₹23,638 and a BCR of 3.17. Exporters purchase at ₹13,000, add ₹6,000 for packaging, cold chain, and documentation, and export at ₹42,000, earning a net income of ₹23,000 (BCR 2.21).

This analysis showed that value addition significantly boosts profitability along the value chain, especially for perfume industries and exporters. However, farmers can also earn better returns if they sell directly rather than to intermediaries.

The Benefit-Cost Ratio (BCR) comparison showed that jasmine yields higher profitability than tuberose, particularly at the farmer level. In direct sales, jasmine records a BCR of 2.75, while tuberose stands at 2.1. Similarly, at the farmgate level, jasmine achieves a BCR of 2.25, compared to 1.75 for tuberose. This indicates that jasmine farmers benefit more, especially when fewer intermediaries are involved. At the trader level, tuberose performs slightly better, with a BCR of 1.95, whereas jasmine records 1.7, possibly due to tuberose's better post-harvest shelf life and lower perishability. The highest BCR was observed in perfume factories, where jasmine reaches 3.5 and tuberose 3.2. This highlighted that the high value of both flowers in essential oil extraction, with jasmine having a slight edge due to its higher oil content and demand. Among exporters, both crops have similar BCRs (around 2.3), but tuberose is often preferred for

Table 2 Value Chain Economics of Tuberose Flowers in Tamil Nadu (Per Quintal Basis)

Player	Value Addition Process	Cost of Procurement per quintal (₹)	Production Cost per quintal (₹)	Value Addition Cost per quintal (₹)	Total Cost per quintal (₹)	Selling Price per quintal (₹)	Net Income per quintal (₹)	Marketing Margin (%)	Efficiency (Net Income / TPC)	BCR
Farmers-I	Cultivation, Harvesting & Primary Grading (farmers directly sell it to the retailer or mandi)	--	5,900	350	6,250	13,000	6750	51.9	1.08	2.08
Farmers-II (to trader)	Farmgate sale to traders	--	5,900	100	5,950	10,000	4,050	40.5	0.68	1.68
Traders	Sorting, Packaging, Transport to Market	10,000	--	1,200	11,200	22,000	10,800	49.1	0.96	1.96
Perfume Factories	Extraction of Concrete/ Absolute	7,000 (contract farming)	--	3900	10900	34538	23638	68.4	2.17	3.17
Exporters	Packaging, Cold Chain, Air Cargo, Documentation	13,000	--	6,000	19000	42,000	23,000	54.76	1.21	2.21

(Source: primary data)

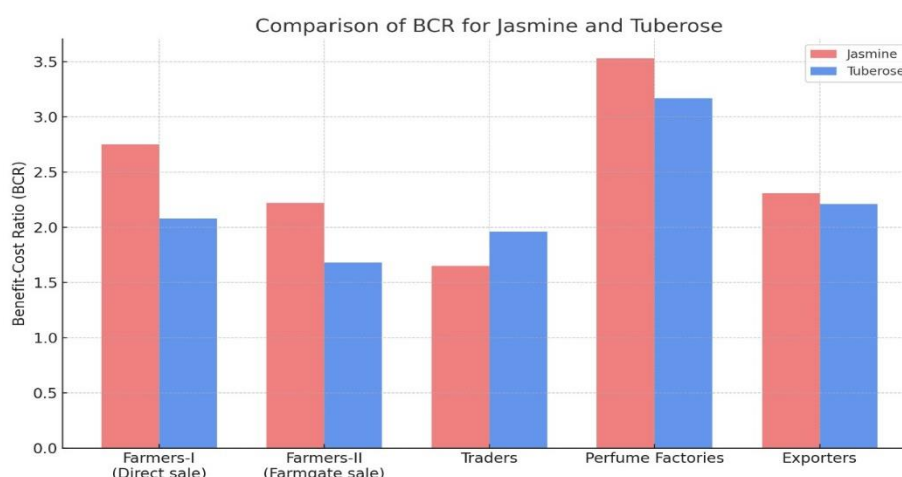


Figure 2. Comparison of BCR for Jasmine and Tuberose (Per Quintal)

its longer post-harvest life and international demand. Overall, jasmine proves highly profitable in domestic and perfumery segments, while tuberose is more export-friendly and efficient for intermediaries.

CONCLUSION

This study shows that how marketing of jasmine and tuberose has a significant impact on farmer income. Farmers who sell directly or through contract farming earn more because there are fewer intermediaries. Farmers who sell at the farm gate to traders earn the least. Perfume companies and exporters make more profit by value addition. The main problems faced by farmers include price changes, lack of cold storage, pest attacks, and lack of proper access to loans or market information.

To increase the profitability of the farmers, the study suggests supporting Farmer-Producer Organizations (FPOs), as they help farmers secure better prices by selling collectively. Such efforts can increase farmer income up to 40 percent. Improving cold storage and transportation is also crucial, as 20 to 30 percent of flowers are lost due to spoilage before reaching the market. Small farmers can be encouraged to enter into contract farming with perfume companies, which would offer a steady income, better prices, and incentives for maintaining quality. Additionally, farmers can come together to set up small-scale distilleries to extract flower oil, enabling value addition and increased income. With improved storage infrastructure, strong farmer producer organisation, and reliable buyers, jasmine and tuberose cultivation in Tamil Nadu can become more profitable and sustainable.

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