



Challenges Faced by Consumers in Buying Kitchen Gardening Products through Online Platforms in Ahmedabad, Gujarat, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Kitchen gardening (also called home or nutrition gardening) is the practice of cultivating fruits, vegetables, herbs, and medicinal plants around one's home primarily for household consumption, sometimes with surplus sale. Selling kitchen gardening products online also poses challenges, especially in India. Limited digital literacy and payment infrastructure in semi-urban and rural areas mean some consumers remain hesitant about online shopping.

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Purpose: To address the food diversity and to tackle growing malnutrition issues in the resource crunch environment, Kitchen gardening practices are a notable solution both for the producers and consumers that drive many of the business opportunities; especially ecommerce segments that generate value by minimising intermediaries.

Research Methodology and Data Collection: Trust, reliability, inadequate information, poor packaging and delivery delays in the online business ecosystem are a continual problem that needs to be addressed. Looking at it as a prospective issue, the current study has been taken in the Ahmedabad district of Gujarat; more specifically, in its three talukas, viz., Ahmedabad, Daskroi, and Dholka talukas, where 100 kitchen gardening producers were targeted with a structured schedule for understanding factors influencing and constraints faced by them in buying kitchen gardening products.

Findings: Consumer assurance emerged as the most dominant motivator, followed by price sensitivity, product reviews, time-saving features, and customer service quality. Finally, the most pressing challenges consumers faced included high delivery charges, poor product quality, and insufficient product descriptions, which impacted both the purchase experience and gardening outcomes.

Conclusion: Kitchen gardening is a key source of nutritional diversity and chemical-free food for both rural and urban populations. It is suggested to focus on customer protection, reliability, prices and bundle offers to get a high share of the customer base on e-commerce platforms.

Keywords: Kitchen gardening; online; consumers; products; malnutrition.

1. INTRODUCTION

Kitchen Garden is now an important aspect of urban areas. This improves the physical, mental and spiritual health. A kitchen garden ensures an inexpensive, regular and handy supply of fresh vegetables, which are basic to nutrition. The green vegetables contain vitamins and minerals which protect us against diseases (Bhimani et al., 2020). Kitchen gardening (also called home or nutrition gardening) is the practice of cultivating fruits, vegetables, herbs, and medicinal plants around one's home primarily for household consumption, sometimes with surplus sale (Rana et al., 2021). This practice has ancient roots, for example, home gardens in India traditionally included culinary and medicinal herbs (Wagoner, 1996), and today it is regaining its attention again as a sustainable lifestyle choice. They provide fresh, nutrient-rich produce, foster self-sufficiency, and reconnect people with nature (Singh et al., 2018; Sheethal et al., 2023). Malnutrition can be used to describe an overall state of poor nutritional status, including undernutrition and overnutrition of macronutrients and/or micronutrients (Corcoran et al., 2019; Mao et al., 2023). Malnutrition remains a major challenge in India; Kitchen gardens can bridge this gap by supplying vegetables and fruits rich in essential micronutrients. Households with kitchen gardens consume more greens, root vegetables, and fruits, increasing intake of vitamins A, C, iron, and calcium, compared to those without gardens (Sheethal et al., 2023; Rana et al.,

2021). This dietary diversity is especially important for children and women, who are often most vulnerable to deficiencies (Sheethal et al., 2023). Dietary diversity is defined as the basic count of food types ingested throughout a specified reference period. Nutritional status and nutrient adequacy can be accurately predicted by an individual's dietary diversity score. In practice, dietary diversity can be measured at an individual or household level, and the measurement of dietary diversity at the household level serves as surrogate for family food security or insecurity (Kera et al., 2024). For low-income families like farmers in India, growing food at home also reduces grocery costs and improves food affordability (Rana et al., 2021; Thakar et al., 2019). Such gardens helped mitigate seasonal shortages and market price volatility by ensuring a steady supply of produce (Sheethal et al., 2023). Moreover, kitchen gardening encourages the use of organic waste as compost and sustainable practices like crop rotation, which contribute to a circular food system (Singh et al., 2018; Sheethal et al., 2023). Studies find that women managing kitchen gardens gain knowledge of nutrition and feel empowered to make dietary choices for their families (Pandey & Verma, 2024). This can create a "ripple effect" of improved household well-being. Given these advantages, experts argue for actively supporting kitchen gardens through nutrition and agricultural policies (Global Hunger Index, 2024). Governments and NGOs are thus investing in seeds, training, and

awareness campaigns to encourage wide adoption, especially in regions with high malnutrition (Global Hunger Index, 2024).

In urban India, where space is limited, innovations like rooftop beds and hydroponic kits have enabled many households to adopt kitchen gardening (Pandey & Verma, 2024). Kitchen gardens not only improve household food supply but also have broader social and cultural significance. As awareness of food safety and environmental health grows, the appeal of cultivating one's own organic vegetables has increased. The global and Indian markets for gardening goods are expanding rapidly, and this is fueled more after the Covid-19 pandemic (Marwah *et al.*, 2024; Tung & Tu, 2024; Statista, 2024).

In India, government schemes complement these trends (Protected Cultivation Component of Establishment of New Gardens (Area Expansion) Scheme, n.a.). For instance, the Cluster Nutritional Kitchen Garden Scheme (Arunachal Pradesh) and protected-cultivation subsidies (Puducherry) provide inputs (seeds, poly houses) and training to families for year-round vegetable production (Digital India Corporation, Ministry of Electronics & IT, Government of India, 2024).

Taking the importance of Kitchen gardening as the backdrop, consumer buying behaviour in e-commerce contexts is crucial. Consumer buying behaviour, defined by the motivations, preferences, and decision-making processes of individuals, is a vital component in the success of e-commerce platforms (Solomon, 2017; Kotler & Keller, 2016). In the context of kitchen gardening, this behaviour directly influences how consumers engage with online platforms offering seeds, tools, and related products. Trust and perceived risk are particularly critical, as consumers cannot physically inspect perishable or quality-sensitive items like seeds and live plants. As a result, businesses must offer secure payment systems, transparent return policies, and detailed product descriptions to reduce uncertainty (Sinha, 2010; Bala *et al.*, 2024). Convenience is another major factor, and E-commerce enables consumers to access a wide variety of kitchen gardening products anytime, anywhere, eliminating geographic and temporal barriers (Suyog, 2019). Social influence, through peer reviews and digital communities, plays a growing role in driving kitchen gardening product purchases (Mishra & Malik, 2025). Platforms integrating user-generated content and influencer endorsements create a sense of trust and engagement (Verma

& Agarwal, 2015; Bala *et al.*, 2024). However, selling kitchen gardening products online also poses challenges, especially in India. Limited digital literacy and payment infrastructure in semi-urban and rural areas mean some consumers remain hesitant about online shopping (Suyog, 2019; Mohanpriya & Rangasamy, 2020).

Despite the intersection of these global trends, the specific dynamics of kitchen gardening commerce in local Indian markets remain understudied. In particular, Ahmedabad, a major city in Gujarat with a growing IT sector and high internet penetration which presents an interesting case (Census of India 2011, 2021). Although Ahmedabad has seen rising interest in urban farming and a vibrant e-commerce market, there is little empirical research on how its residents shop for gardening supplies online (Guidelines for Identifying Census Centres, n.a.). Existing studies on kitchen gardening focus on rural nutrition outcomes (Sheethal *et al.*, 2023; Rana *et al.*, 2021) or on general gardening behaviour (Bhimani *et al.*, 2020; Jha *et al.*, 2020). Likewise, e-commerce research tends to address broad retail categories. There is a gap concerning who (which types of consumers) are buying kitchen gardening products online in an urban Indian context, why they choose to do so (what factors influence their decision), how satisfied they are with the online services, and what problems they encounter in the process. The complete research paper tries to fill these gaps by analysing consumers' buying behaviour for kitchen gardening products on online platforms in the Ahmedabad district.

Some of the studies that support the factors influencing consumer buying behaviour are highlighted here:

Dhingra & Mishra (2024) compared online and offline shopping preferences among 300 Indian consumers, identifying convenience, competitive pricing, product variety, and home delivery as key motivators for online purchases.

Tung and Tu (2024) examined online potted plant purchases among 400 consumers. Their analysis revealed six critical dimensions influencing purchase behaviour, which were consumer assurance (trust), plant care and safety, well-being benefits, service quality, price/promotions, and plant size. The strongest motivator was the emotional and health-related benefits of plant ownership, especially among women.

Tomar and Chaudhary (2020) studied online gardening product purchases and found seller credibility, detailed product information, user-friendly websites, secure payment methods, and reliable logistics to be vital. These findings emphasise the importance of trust and transparency in online garden-related shopping.

However, some of the pertinent issues were also observed in kitchen Gardening products that were mismatched, had inadequate packaging, delivery delays, and a lack of after-sales support. These factors reduced customer satisfaction and trust (Reyes & Navarra, 2022). Supporting it, another research work highlighted that product quality discrepancies, payment security concerns, and delivery delays are the critical issues in this segment (Nuntharmawia & Lalropuii, 2021). However, research rarely addressed challenges specific to kitchen gardening e-commerce, such as seed viability post-delivery, damage to seedlings, or the need for planting guidance, which is attempted to establish in this research paper.

2. MATERIALS AND METHODS

This study investigated consumer buying behaviour for kitchen gardening products through online platforms in Ahmedabad District, Gujarat. Conducted from December 26, 2024, to March 25, 2025, the study employed a descriptive research design to analyse behavioural patterns and decision-making factors among online gardening consumers. It was a primary work which was taken forward through a well-structured schedule. The sample comprised 100 kitchen gardeners from three talukas, namely Ahmedabad City (urban), Daskroi (semi-urban), and Dholka (rural/urban mix) were selected to represent varied consumer contexts.

Only individuals with prior experience purchasing gardening inputs online were included through purposive sampling. These inputs included seed, pot and types of growing bags, fertilisers, plant protection chemicals, live plants, and gardening tools. To identify key factors influencing online purchase behaviour, Henry Garrett's ranking method was applied. Respondents ranked

factors such as consumer assurance, price, promotions, time-saving benefits, service quality, and customer reviews, which were converted into scores to prioritise influences. Challenges faced during online purchases, such as poor product descriptions, delays, quality issues, and high shipping costs, were also analysed by using Garrett's method to identify the most pressing issues in buying kitchen gardening products.

Garrett's ranking technique was used to rank the preference indicated by the respondents on different factors. As per this method, respondents have been asked to assign a rank for all factors, and the outcomes of such ranking have been converted into a score value with the help of the following formula

$$\text{Percent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for the i th variable by the j th respondent

N_j = Number of variables ranked by j th respondent

With the help of Garrett's Table, the estimated per cent position was converted into scores. Then, for each factor, the scores of each individual were added, and the total value of scores and the mean value of the scores were calculated. The factors that had the highest mean value were considered to be the most important factors.

3. RESULTS AND DISCUSSION

Understanding the factors driving online purchasing decisions helped businesses identify key drivers, allowing companies to tailor marketing strategies, improve product presentation, and optimize online platforms to meet consumer expectations. It also highlighted the growing role of digital influences like reviews, ratings, and social media in shaping consumer choices. For kitchen gardening products, traditionally sold offline, this research was particularly valuable in tapping into a newer, tech-savvy urban consumer base.

Table 1. Factors influencing kitchen gardening products through online

Factors	Garrett Score	Rank
Consumer Assurance	71.48	1
Price, Discounts & Promotion	70.76	2
Product Quality	53.24	3
Time Saving	51.44	4
Customer Service	33.08	5

Table 2. Problems faced by consumers through the online portal

Factors	Garrett Score	Rank
High Delivery Charge	80.02	1
Poor Quality Product	64.66	2
Insufficient Description	63.04	3
Delay in Delivery	58.29	4
Poor Customer Service	44.30	5

Consumer assurance was the most essential psychological driver in online shopping, especially for delicate kitchen gardening products like seeds and live plants (Table 1). It referred to confidence in product authenticity, secure payments, replacement policies, and seller reliability. With a Garrett mean score of 71.48, it ranked first, indicating that trust and transparency played a key role in online purchase decisions. Platforms offering clear product information and dependable service strongly influenced first-time or intermediate gardeners. Price and promotional strategies ranked second with a Garrett mean score of 70.76. As e-commerce expanded, consumers became more price-sensitive, seeking discounts, free shipping, and combo offers. Respondents compared prices across platforms and responded well to promotional campaigns, highlighting the need for competitive pricing and timing. Product quality ranked third with a score of 53.24. In the absence of physical trials, buyers relied on reviews, product descriptions, and influencer feedback to assess performance and durability. Although less influential than assurance and pricing, quality perception still played a significant role in shaping purchase confidence. Time-saving ranked fourth with a Garrett mean score of 51.44. Features like fast delivery, easy navigation, and one-click ordering contributed to convenience. However, gardening consumers prioritised trust and value over speed, showing willingness to spend time researching before buying. Customer service ranked lowest with a score of 33.08. While important for post-purchase satisfaction, it did not significantly influence initial buying decisions. Consumers may have had limited-service interactions or focused more on product reliability and pricing. Overall, the analysis emphasised that trust, price, and quality perception were key factors shaping online buying behaviour for kitchen gardening products.

High delivery cost (80.02) with the highest ranking highlighted that heavy or fragile items like soil bags or pots that raise shipping fees

higher and are a major concern for the consumers. This discouraged repeat purchases and affected affordability (Table 2). Poor product quality ranked second (64.66), suggesting that many buyers faced issues like non-germinating seeds, broken pots, or wilted plants. Inconsistent quality led to dissatisfaction and eroded trust in online gardening platforms, impacting both financial investment and gardening success. Lack of detailed product information (63.04) was third in the list of issues in the online purchase performance. Consumers struggled with incomplete descriptions, unclear instructions, or missing compatibility details, which led to confusion or wrong purchases. The data emphasised the need for more informative and visually rich content to support confident decision-making. Delivery delays, especially of time-sensitive products like seedlings or fertilisers, negatively affected gardening schedules and satisfaction.

4. CONCLUSION

Kitchen gardening is a key source of nutritional diversity and chemical-free food for both rural and urban populations. In terms of factors influencing online buying behaviour, consumer assurance emerged as the most dominant motivator, followed by price sensitivity, product reviews, time-saving features, and customer service quality. This suggests that trust, transparency, and value for money are key for consumer engagement on digital platforms. Finally, the most pressing challenges consumers faced included high delivery charges, poor product quality, and insufficient product descriptions, which impacted both the purchase experience and gardening outcomes. These insights highlight the potential for e-commerce platforms to improve content clarity, pricing strategies, and post-purchase support, ultimately contributing to a more satisfying and trustworthy consumer journey in the kitchen gardening segment. It is suggested to focus on customer protection, reliability, prices and bundle offers to get a high share of the customer base on e-commerce platforms.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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