

RESEARCH PAPER

Marketing strategy for Apple Value Chain- A case of Himachal Pradesh

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Abstract: Apple cultivation forms the backbone of Himachal Pradesh's horticulture sector, accounting for over 80% of total fruit production. Despite favourable agro-climatic conditions, the sector faces increasing vulnerability due to climate change, weak infrastructure, market volatility, and limited access to premium markets. This article synthesizes findings from a recent study conducted to develop a sustainable marketing strategy for socially responsible apple value chains. The paper critically assesses the socio-economic profile of growers, value chain inefficiencies, market segmentation, and international opportunities, while offering strategic recommendations centered on certification, value addition and export development. The area under cultivation of Apple in the selected districts were showing the positive growth, except Sirmaur and Chamba districts. Commission agents and wholesalers are dominating players in the market. High transport cost, lack of cold storage, price volatility and only 10% of production was occupied direct sale in the market.

Key words: Area, Direct Sale, Growth, Percentage, Production, Segmentation

Introduction

Himachal Pradesh, often referred to as the “Apple Bowl of India,” plays a dominant role in India's temperate fruit economy Himstate, (2023). The state's unique agro-climatic conditions, topography, and traditional horticultural practices make it well-suited for high-quality apple production. However, the state's apple value chain is now challenged by environmental risks, rising input costs, limited cold-chain logistics and fragmented marketing channels. As India becomes one of the largest importers of apples, largely from Turkey and Iran, improving domestic apple competitiveness has become an economic and policy priority.

The history of apple cultivation in Himachal Pradesh dates back to the early 20th century when the British introduced apple trees in the region. Over the time, the farming community in Himachal Pradesh embraced apple cultivation, transforming the state into the “Apple Bowl of India.” The success of apple farming has far-reaching implications, not only in terms of the state's economic growth but also in improving the livelihoods of farmers, particularly in remote and hilly areas where traditional farming practices had limited scope for growth.

Today, apple orchards in Himachal Pradesh cover vast areas of land, particularly in districts like Shimla, Kullu, Kinnaur and Mandi. The region's favourable altitude, cool temperatures, well-drained soil and the seasonal monsoon rains provide an ideal environment for apple trees to flourish. Furthermore, Himachal Pradesh has made significant strides in apple research and development, improving cultivation techniques, pest management and post-harvest handling, all of which have led to higher yields and better-quality fruit. However, despite its success, apple cultivation in Himachal Pradesh faces several challenges. Climate change, the prevalence of diseases and

pests, water scarcity, and fluctuating market prices continue to pose risks to apple farming. Farmers in the region must adapt to these challenges through innovative agricultural practices, government policies and investment in infrastructure to ensure the continued growth and sustainability of apple production. Yet, despite its prominence, Himachal Pradesh has not fully leveraged its premium apple produce in domestic and international markets—highlighting the urgent need to identify the most promising apple-based products and develop actionable strategies to link producers directly with high-value consumers. With respect to growth in production, all the selected districts are showing positive growth except Kinnaur and Kangra.

Material and methods

The study employed a mixed-method approach, includes both secondary and primary data, involving 50 apple farmers and 25 value chain participants across Himachal Pradesh. Stratified random sampling ensured diversity in farm size, social category and regional spread. Data were collected through structured questionnaires, key informant interviews and focus group discussions. Analytical tools included descriptive statistics and cross-tabulation Patil C *et al* (2020).

Table 1. Socio-Economic Profile

Variable	Distribution
Gender	75% Male
Age Group	31–60 years
Primary Occupation	80% rely on apple farming
Annual Income from Apples	50% earn ₹ 1-3 lakhs
Organic Certification	Only 5% certified
Access to Formal Credit	40%
Pricing Issues	60% report poor price realization due to middlemen

Table 2. Percentage change of Area & Production over a decade considering 2012-13 as base year.

District	Area growth Rate (%)	Production growth rate (%)
Shimla	8.43	35.33
Kullu	5.27	19.40
Kinnaur	8.65	17.51
Mandi	3.63	358.93
Chamba	-1.56	545.86
Sirmour	-10.26	625.47
Kangra	12.95	15.19
Lahaul Spiti	15.42	116.12

Results and discussion

The table 1. highlights limited penetration of organic certification (only 5%) despite increasing global demand for certified produce (Statista, 2023). This indicates a missed opportunity in premium markets. Furthermore, over half the farmers earn between ₹ 1–3 lakhs annually, suggesting modest incomes constrained by inefficiencies and dependence on intermediaries—an issue also noted by Reddy *et al.* (2020).

The district-wise analysis of area and production growth rate presented in the table 2. The study reveals a diverse pattern of horticultural development in Himachal Pradesh. Notably, Sirmour and Chamba experienced remarkable production growth (625.47% and 545.86%, respectively) despite a decline in cultivated area, suggesting substantial improvements in productivity, possibly due to technological interventions, improved crop varieties, or better agronomic practices. Similar trends have been observed in prior studies; for instance, Negi and Singh (2018) reported that productivity in hilly regions often increases when farmers adopt high-yielding varieties and efficient management practices even without area expansion. Districts like Mandi and Lahaul-Spiti also show impressive production gains (358.93% and 116.12%) with only modest area growth, further underscoring the role of yield enhancement strategies. In contrast, Kangra, despite leading in area expansion (12.95%), registered only a 15.19% increase in production, indicating a relatively lower improvement in productivity. These findings align with Kumar *et al.* (2020), who highlighted that mere expansion in cultivated area does not necessarily translate into proportionate gains in output unless supported by productivity-enhancing inputs.

The dominance of commission agents restricts producer margins and reduces price transparency. Only 10% of farmers engage in direct or export sales, limiting their access to higher-value consumers. Singh *et al.* (2021) and FAO (2020) emphasize that bypassing middlemen via FPOs and digital platforms significantly enhances farm profitability.

The table outlines emerging market opportunities for value-added apple products, supported by evolving consumer trends and advancements in food processing technologies. Apple juice and cider are experiencing increased demand due to improvements in juice extraction, fermentation, and pasteurization techniques, coupled with a global shift toward minimally processed, natural beverages. Apple cider vinegar

Table 3. Marketing and value chain issues

Aspect	Observation
Dominant Channel	Commission agents and wholesalers
Key Challenges	High transport cost, lack of cold storage, price volatility
Direct Sales / Export	Only 10% participate

(ACV), produced through controlled acetic acid fermentation, is gaining recognition as a functional food, attributed to its bioactive compounds, including acetic acid, polyphenols, and probiotics, which are associated with various health benefits. Dried apple slices, enabled by advanced dehydration methods such as vacuum drying and freeze-drying, retain nutritional value and shelf stability, catering to the growing need for healthy, portable snacks. Pectin, a polysaccharide extracted from apple pomace using enzymatic and acid hydrolysis techniques, is in high demand as a natural gelling agent and dietary fiber, particularly in the EU and North American markets where clean-label and plant-based formulations are preferred. These product categories represent significant opportunities for technological intervention and market expansion within the apple value chain. Global demand for functional and health-focused products is rising. Behera *et al.* (2022) and Statista (2023) document strong consumer interest in organic and value-added products, particularly in Western markets. Product diversification could also reduce post-harvest losses and improve orchard profitability.

The strategy aims to enhance the apple sector’s competitiveness and profitability, particularly in regions like Kinnaur. Firstly, obtaining certifications such as the Geographical Indication (GI) tag, USDA Organic, and Fair trade can help establish the distinct identity of Kinnaur apples and improve access to premium global markets. Secondly, promoting value-added products like apple cider vinegar, dried apple snacks, and pectin—especially through Farmer Producer Organizations (FPOs)—can diversify income sources and increase returns for farmers. Thirdly, investing in cold chain infrastructure through Public-Private Partnership (PPP) models

Table 4. High-Potential Apple-Based Products

Product	Market Opportunity
Apple Juice / Cider	Increasing domestic and export demand
Apple Vinegar	Considered a premium health product
Dried Slices & Pectin	Growing demand in the EU and North America
Strategy Area	Recommendation
Certification and Branding	Facilitate GI (Kinnaur), USDA Organic, and Fairtrade certifications to improve global market access.
Value Addition	Promote apple cider vinegar, dried apple snacks, and pectin production through FPOs.
Infrastructure Investment	Expand cold chain infrastructure using PPP models to reduce losses and enhance shelf life.
Digital & Export Promotion	Use e-commerce platforms, blockchain for traceability, and trade fairs to access premium buyers.

is essential to reduce post-harvest losses and extend the shelf life of apples, enabling wider distribution. Lastly, leveraging digital tools such as e-commerce platforms and blockchain for traceability, along with active participation in international trade fairs, can open up new export opportunities and connect producers with high-value buyers. Collectively, these measures aim to build a more resilient, market-oriented and value-driven apple ecosystem. Sharma and Bhardwaj (2018) highlighted the export benefits of GI tags for Himachal apples. Behera *et al.* (2022) emphasized that combining branding with traceability systems (*e.g.*, blockchain) improves both buyer confidence and price realization. Moreover, Singh *et al.* (2021)

argued that cold storage can reduce post-harvest losses by up to 30%, boosting net returns.

Conclusion

The apple value chain in Himachal Pradesh is at a strategic inflection point. While challenges around climate risks and marketing inefficiencies persist, the opportunities in premium and niche markets offer a transformative pathway for growers. This review emphasizes the need for integrated marketing, certification, cooperative engagement and infrastructure support to create a globally competitive and environmentally sustainable apple economy.

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