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Socio-Economic Profile of Registered Apple Fruit Growers in Sopore Fruit Mandi, Kashmir Valley

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Abstract

Apple is the predominant fruit crop of the Kashmir Valley, accounting for nearly 98 per cent of total fruit production, with Sopore fruit mandi serving as one of its principal wholesale assembly markets. Marketing efficiency and the pace of adoption of recommended practices among growers are strongly conditioned by their underlying socio-economic profile. The present study was undertaken on a random sample of 150 registered apple fruit growers (20 per cent of the total registered growers) drawn from the Fruit Growers' Association list at Sopore fruit mandi, Baramulla district, Jammu & Kashmir, using a pre-tested interview schedule administered during October-November 2015. Results revealed that a majority of growers (56.66%) belonged to the middle-age category (39-55 years), 31.33 per cent had attained 10+2 level education, 48.67 per cent had a medium-sized family (7-10 members), 51.33 per cent fell in the medium annual-income bracket (Rs 1,40,001-2,60,000), 60.00 per cent operated small land holdings (up to 1.3 ha), and 50.66 per cent had low experience (up to 13 years) in apple cultivation. These findings indicate a grower population that is predominantly smallholder, moderately educated and in the early-to-mid stage of its farming career, underscoring the need for targeted extension and marketing-support interventions calibrated to this profile.

***Key words*:** Apple marketing, Socio-economic characteristics, Registered fruit growers, Sopore mandi, Kashmir

Apple is the single most important fruit crop of Jammu and Kashmir, contributing about 98 per cent of the State's total fruit production, and the area under the crop has expanded manifold over the last four decades. Kashmir has long been regarded as the home of the apple, with the indigenous cultivar 'Ambri' considered *par excellence* in quality; the horticulture sector of the erstwhile State is now spread over roughly 3.70 lakh hectares with an annual production of about 19.13 lakh metric tonnes, of which Kashmir alone accounts for over 70 per cent of India's apple output [1]. Unlike most other agricultural commodities, apple marketing in Kashmir follows an inverse dispersion pattern: produce moves first from the orchard to the terminal/wholesale mandi and only thereafter fans out to primary and secondary markets, drawing in a long chain of intermediaries pre-harvest contractors, forwarding agents, commission agents, wholesalers and retailers. Growers in the Valley have also been observed to remain largely production-oriented rather than market-oriented, following the practices of fellow growers rather than scientific recommendations, which contributes to periodic gluts, depressed farm-gate prices and a comparatively lower economic return relative to competing apple-producing states such as Himachal Pradesh and Uttarakhand [2]. The apple industry provides direct and indirect employment to a substantial proportion of the rural population through orchard management, harvesting, grading, packaging, transportation, storage, processing and marketing activities, thereby serving as the backbone of the region's horticultural economy. Despite its immense economic significance, the sector continues to face several production and marketing constraints, including fragmented landholdings, ageing orchards, inadequate adoption of high-density plantation systems, erratic weather conditions, pest and disease incidence, limited access to quality planting material, and insufficient post-harvest infrastructure [3]. Inadequate cold storage facilities, inefficient grading and packaging practices, poor market intelligence, and high transportation costs further reduce growers' profitability and weaken their bargaining power in competitive markets. The predominance of intermediaries in the marketing channel often results in a smaller share of the consumer's price reaching the producers, while fluctuations in market arrivals and prices expose farmers to considerable income uncertainty [4]. Moreover, increasing competition from other apple-producing states, changing consumer preferences, and the impacts of climate variability necessitate improvements in orchard management, quality enhancement, value addition and efficient supply chain management. Strengthening producer organizations, promoting scientific cultivation practices, expanding controlled atmosphere storage facilities, improving market linkages and encouraging direct marketing mechanisms can significantly enhance the efficiency and

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competitiveness of the apple value chain [5]. Therefore, a comprehensive understanding of the production and marketing dynamics of apple cultivation is essential for formulating effective policies and interventions aimed at improving farmers' income, ensuring sustainable orchard productivity, and strengthening the long-term growth of the horticulture sector in Jammu and Kashmir [6].

A grower's socio-economic profile age, education, family size, income, land holding and farming experience has consistently been shown in the extension literature to shape the pace at which improved marketing practices are understood, valued and adopted. Documenting this profile for a specific, economically important mandi is therefore a necessary first step before designing extension or market-reform interventions. The present investigation was accordingly carried out with the specific objective of describing the personal and socio-economic characteristics of registered apple fruit growers operating through Sopore fruit mandi, one of the largest fruit assembly markets of North Kashmir.

Earlier extension research on horticultural and other crop growers has repeatedly linked age, educational attainment, family size, income, land holding and farming experience to knowledge acquisition and adoption behaviour. Middle-aged farmers have often been reported to combine physical capacity with accumulated experience, while education has been consistently associated with greater receptivity to new information and technology. Family size and land holding, by contrast, have shown more variable relationships with adoption outcomes across different cropping systems and regions, reflecting the influence of local resource endowments and market structures on how socio-economic status translates into practice change.

MATERIALS AND METHODS

Locale of the study

The study was conducted in North Kashmir, in district Baramulla of Jammu & Kashmir, where Sopore fruit mandi was purposively selected as a case-study market for apple marketing in the Valley. Baramulla is the largest district of the Valley in terms of both population and area, receives an average annual rainfall of about 1270 mm, and supports major agricultural and horticultural crops including rice, maize, pulses, apple, pear, apricot, peach, cherry and olive.

Sampling

A list of registered fruit growers was obtained from the Fruit Growers' Association of the concerned district, and a random sample of 150 registered growers (20 per cent of the total registered growers) was selected for detailed study.

Data collection tool

A structured interview schedule was constructed in English on the basis of the study objectives and available literature, pre-tested on ten growers outside the sample, and refined before final administration. Data were collected personally by the investigator, with the assistance of Area Marketing Officers, during October-November 2015.

Operational classification of variables

Respondents were classified into Low/Medium/High (or equivalent) categories for six socio-economic variables age, education, family size, annual income, land holding and farming experience following cut-offs derived from the mean and standard deviation of the sample distribution.

Statistical analysis

Data were quantified, categorized and analyzed using frequency counts, percentages and descriptive statistics computed in Microsoft Excel.

RESULTS AND DISCUSSION

Age

The distribution of respondents according to age (Table 1, Fig. 1) revealed that a majority (56.66%) of the registered fruit growers in Sopore fruit mandi belonged to the middle-age group (39–55 years), followed by the young age group (26.00%, up to 38 years), while only 17.34 per cent were above 55 years of age. The predominance of middle-aged growers suggests that this category constitutes the most economically active and professionally engaged segment of the apple-growing community. Farmers in this age group generally possess a balanced combination of farming experience, physical capability, and willingness to adopt improved production and marketing practices, enabling them to respond more effectively to changing market dynamics. The comparatively lower proportion of younger growers may reflect the growing inclination of rural youth towards higher education, government employment, or non-farm occupations, whereas the relatively smaller representation of older growers could be attributed to declining physical involvement in orchard management and the gradual transfer of farming responsibilities to younger family members. The correlation analysis further indicated that age exhibited a significant and positive association with the knowledge level of apple growers ($r = 0.7195$), implying that knowledge regarding apple cultivation and marketing tends to increase with age and farming experience. This finding suggests that older and middle-aged growers have accumulated greater practical experience, stronger market linkages, and enhanced exposure to extension activities, training programmes, and interpersonal information networks, all of which contribute to higher knowledge acquisition. Similar observations have been reported by Reshmy *et al*. [7], Lakshmisha [8], Babanna *et al*. [9], who concluded that age positively influences farmers' knowledge and adoption behaviour through accumulated experience and continuous interaction with extension and market systems.

Education

Nearly one-third (31.33%) of the growers had attained 10+2 level education, followed by matric (24.00%) and middle-level (18.67%) qualifications; 14.00 per cent were illiterate, while graduates and above-graduate growers together constituted only about 12 per cent of the sample. Education showed a significant relationship with both knowledge level and sources-of-information utilization in the correlation analysis, consistent with Yogananda [10], Balasubramani [11] and Raghavendra [12], indicating that formal education continues to widen growers' exposure to extension literature and improves their contact with extension functionaries.

Family size

A medium family size of 7-10 members characterized 48.67 per cent of the growers, while 29.33 per cent had a small family (up to 6 members) and 22.00 per cent a large family (above 11 members). Family size was not significantly related to knowledge level in this sample, a pattern also reported by Lakshmisha [8] and Vedamurthy [13], suggesting that household size per se is a weaker determinant of marketing knowledge than variables more directly tied to resource access. These findings indicate that while age and farming experience

play a significant role in enhancing growers' knowledge of apple cultivation and marketing practices, family size alone does not exert a meaningful influence on knowledge acquisition, emphasizing that access to extension services, information sources, and socio-economic resources is more critical than household size in determining farmers' knowledge levels.

Annual income

Just over half the growers (51.33%) fell in the medium annual-income bracket (Rs 1,40,001-2,60,000), 39.33 per cent in the low bracket (up to Rs 1,40,000) and 9.33 per cent in the high bracket (above Rs 2,60,001). Annual income was significantly associated with knowledge level (r = 0.7691), in line with Balasubramani [11] and Vedamurthy [13]; higher-income growers are typically better placed to purchase inputs, secure credit and maintain wider external contacts, all of which reinforce marketing knowledge.

Land holding

A majority of growers (60.00%) operated small holdings of up to 1.3 hectares, 29.33 per cent held medium-sized orchards (1.4-2.65 ha) and only 10.67 per cent held large holdings (above 2.66 ha), confirming that apple cultivation in Sopore mandi's catchment is dominated by smallholders. Land holding was not significantly related to knowledge level, similar to the findings of Raut [14] and Borude [15].

Table 1 Personal and socio-economic characteristics of registered apple fruit growers (N = 150)

S. No.	Characteristics	Frequency	Percentage
1.	Age		
	Young (up to 38 years)	39	26.00
	Middle age (39-55 years)	85	56.66
	Old age (55 years and above)	26	17.34
2.	Educational qualification		
	Illiterate	21	14.00
	Middle	28	18.67
	Matric	36	24.00
	10+2	47	31.33
	Graduate	11	7.33
	Graduate & above	07	4.67
3.	Family size		
	Small (up to 6 members)	44	29.33
	Medium (7-10 members)	73	48.67
	Large (above 11 members)	33	22.00
4.	Annual income (Rs)		
	Low (up to 1,40,000)	59	39.33
	Medium (1,40,001-2,60,000)	77	51.33
	High (above 2,60,001)	14	9.33
5.	Land holding		
	Small (up to 1.3 ha)	90	60.00
	Medium (1.4-2.65 ha)	44	29.33
	Large (above 2.66 ha)	16	10.67
6.	Experience in apple farming		
	Low (up to 13 years)	76	50.66
	Medium (14-27 years)	70	46.66
	High (above 28 years)	04	2.66

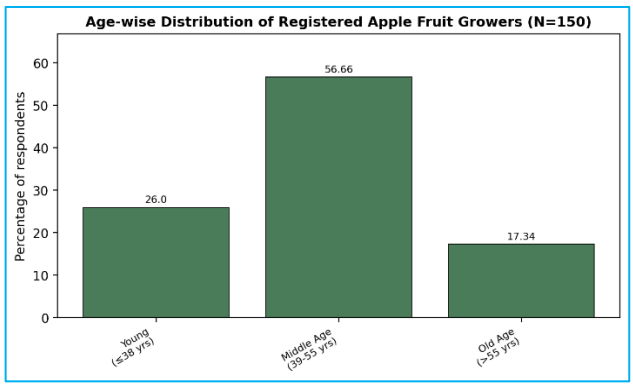

Fig 1 Age-wise distribution of registered apple fruit growers

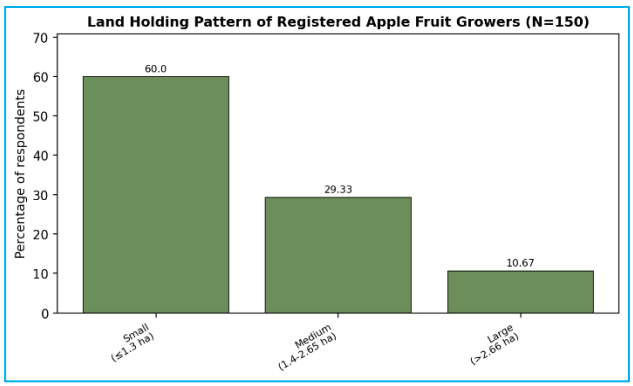

Fig 2 Land holding pattern of registered apple fruit growers

Experience in apple farming

The distribution of respondents according to their experience in apple farming revealed that 50.66 per cent of the growers had low farming experience (up to 13 years), followed closely by 46.66 per cent with medium experience (14–27 years), while only 2.66 per cent had high experience (above 28 years), indicating that nearly 97.32 per cent of the apple growers belonged to the low and medium experience categories. This distribution reflects the changing dynamics of apple cultivation in Jammu and Kashmir, where increasing profitability, diversification from traditional agriculture, adoption of high-density orchards, and various government-supported horticultural development programmes have encouraged many new and relatively young farmers to establish apple orchards

over the past two decades [16]. Although growers with limited experience may lack adequate practical exposure to scientific orchard management, repeated involvement in cultivation and marketing gradually enhances their technical competence, decision-making ability, and confidence in adopting improved production and post-harvest technologies. Farmers possessing medium levels of experience generally develop better skills in orchard establishment, canopy management, nutrient scheduling, integrated pest and disease management, harvesting, grading, storage, and marketing through continuous interaction with extension personnel, researchers, traders, and fellow growers. Conversely, the very small proportion of highly experienced growers suggests that only a few orchardists have remained engaged in commercial apple cultivation for more than three decades; however, these farmers serve as valuable repositories of indigenous knowledge and practical expertise that can significantly contribute to farmer-to-farmer learning and participatory extension approaches [17]. The correlation analysis further demonstrated that farming experience had a highly significant positive association with the knowledge level of apple growers ($p < 0.01$), implying that knowledge accumulation is largely experiential, and prolonged engagement in apple cultivation enables growers to refine production practices, minimize production risks, and improve marketing decisions through learning-by-doing [18]. The findings substantiate the well-established concept that experience serves as an important form of informal education, complementing formal extension efforts in enhancing technological competence and adoption behaviour. The predominance of low- and medium-experienced growers highlights the need for continuous capacity-building initiatives, including regular training programmes, field demonstrations, exposure visits, digital advisory services, and farmer-to-farmer knowledge exchange, to accelerate experiential learning, strengthen scientific orchard management skills, enhance technology adoption, and ultimately improve productivity, fruit quality, and income among apple growers in J & K[19-20].

CONCLUSION

The socio-economic profile of registered apple fruit growers in Sopore fruit mandi is that of a predominantly middle-aged, moderately educated, medium-family-size, medium-income, smallholder population with comparatively limited farming experience. This composite profile particularly the dominance of small land holdings and low-to-medium farming experience implies that extension and marketing-support programmes targeting this mandi should be designed for smallholder constraints (limited scale economies, credit access, storage) while capitalizing on the moderate education levels already present among a sizeable share of growers to accelerate adoption of recommended marketing practices.

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