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Addressing Constraints in Vegetable Marketing: Insights from Kullu District, Himachal Pradesh

¹Atul Chaudhary, ¹Ishita Mandla, ¹Manoj Kumar Vaidya and ²Sudesh Rani

¹Department of Social Sciences (Agricultural Economics), College of Forestry, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, India

²SRF, ICAR-National Institute of Agricultural Economics and Policy Research, New Delhi, India

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Corresponding Author: Ishita Mandla

Abstract

This paper examines the various constraints faced in marketing of vegetables by farmers in Kullu district of Himachal Pradesh, India. A primary survey was conducted at Bhunter market to assess the problems. Chi-square test was used to study the various problems associated with production and marketing of vegetables in the study area. The results indicate that the problems of high chemical prices (43.48%) and inadequate market information (65.22%) were maximum faced by the small category farmers whereas, (92%) of the respondents in the marginal category were facing the problem of non-availability of labour at peak operation time and non-availability of assistance from the financial institutes (76%). Majority of the respondents in medium category were facing the problem of high wage rates (66%) and incidences of insects, pests and diseases (66.67%). Thus, from the policy prospective, this study suggest that there should be implementation of the policies to address labour shortage during peak season, improvement in access to inputs such as chemical fertilizers by enhancing distribution networks and ensuring timely supply to farmers, particularly in remote or marginalized areas, strengthening the presence of financial institutions in rural areas to provide accessible credit and financial services to vegetable growers, especially those in marginal categories who face challenges in accessing formal financing and enhanced dissemination of market information to farmers through technology-enabled platforms, extension services, and farmer cooperatives, enabling them to make informed decisions about crop selection, pricing, and market timing.

Keywords: Chi-square, marketing, market information, non-availability, problems

Introduction

A well-functioning agricultural marketing system is critical for increasing agricultural productivity and, as a result, boosting economic growth in developing countries. Without the selling of the produce in the market, the progress of agricultural production cannot be regarded as complete. Agriculture is the primary source of income in India, where the majority of the population is dependent on agriculture and allied sector. Marketing of agricultural produce has always been a difficult endeavour. The producers who have got timely marketing information regarding prices and arrivals can sell their produce at the right time and place for the right price gains from this venture while the rest suffer. Likewise, the abundance of supply of agricultural produce during primary season prompts low costs and driven farmers to surrender. The Indian farmers normally rely intensely upon the middle men especially in fruits and vegetables marketing. The producers and the purchasers frequently get a poor deal and the agents control the market, yet don't add a lot of significant worth. (Gandhi and Namboodiri 2002)^[2]. The traditional markets were mostly ruled by intermediaries who do not consider the interest of the primary producers and are mostly involved in various malpractices which aggravated the market problems. Thus, the need for regulating the marketing activities at the places of exchange

was recognized. Often it has been seen that even after the establishment of regulated markets, the ideal conditions for marketing of agricultural produce do not exist. Agricultural marketing needs dynamism and sound data organization. When every one of these are set up, farmers are assured of remunerative prices at minimum risk. An efficient marketing strategy is thus a key to prosperity for the farmers. The majority (about 85%) of the population in Himachal Pradesh belongs to marginal and small categories. The area under vegetable production in Kullu is 6500 hectares, with an average productivity of 200 quintals per hectares and the total production is 141854 MT (Economics Survey, 2018)^[1]. The area under vegetables has increased in all the districts of the state during the last few decades. It is mainly due to the better agro-climatic conditions, increase in irrigational facilities and concerted efforts by the government in educating the farmers about the cultivation of cash crops.

There are a number of problems associated with the production and marketing of vegetables. The important ones are non-availability of skilled labours, higher cost of inputs, greater fluctuations in their prices and a high percentage of losses in their handling and transportation. Productivity of vegetable crops is unable to reach its optimum level. Low productivity may be attributed to poor infrastructure, poor

irrigation, small and fragmented land holdings, and low investment capacity of the farmers, fragile ecosystem and inaccessibility to technology. The perishable nature of the vegetables also results in inability on the part of producers to manage supply in assembling markets. These parameters need to validate time to time for policy making and for the farmers to take judicious farm decisions.

Materials and Methodology

Marketing is an important operation in vegetable production. The study was carried out in the year 2019-2020 at Department of Social Sciences, College of Forestry, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, India. Primary data was collected on a pre-tested and well-structured schedule by personal interview method from the selected respondents. Therefore, to examine the various marketing aspects of vegetables, five traders, five wholesalers and five retailers were selected randomly from the Bhunter market to study the functioning of market. Secondary data pertaining to the market arrivals and prices was collected from different government offices, revenue offices, Department of Horticulture, Department of Agriculture as well as from the various available literatures and websites.

To study the various problems associated with the production and marketing of vegetables, Chi-square analysis was carried out (Rana and Singhal, 2015) ^[4]. The detail of approximate Chi-square test (χ^2) is given as under:

$$\sum_{j=1}^L \sum_{i=1}^K \frac{(O - E)^2}{E} \sim \chi^2 (L - 1)(K - 1) \text{ d.f.}$$

Where,

O = Observed values

E = Expected values

K = number of problems

L = number of farm size groups

Results and Discussion

Production Constraints

The analysis of production-related constraints faced by vegetable growers in Kullu district (Table 1) reveals that labour scarcity is among the most pressing challenges, with

statistically significant variations across farm size categories. A shortage of skilled labour was reported by 64% of marginal, 78.26% of small, and 66.67% of medium farmers. Non-availability of labour during peak operational periods was particularly acute for marginal (92%) and small (82.61%) farmers, with the association between labour availability and farm size being statistically significant ($\chi^2 = 13.33$, $p < 0.05$). Rising labour wage rates were another significant concern, cited by 43.48% of small and 66.67% of medium farmers ($\chi^2 = 31.29$, $p < 0.05$), indicating that labour costs pose a substantial economic burden across farm sizes. Chemical input constraints also emerged prominently. High prices of fertilizers were reported by 43.48% of small and 41.67% of medium farmers ($\chi^2 = 6.418$, $p < 0.05$). Pest and disease infestations were cited by 52.17% of small and 66.67% of medium farmers ($\chi^2 = 6.90$, $p < 0.05$), suggesting that input affordability and plant protection remain critical production challenges. These are consistent with prior findings that rising input costs and pest pressures reduce input use efficiency and increase production risks (Shah & Ansari, 2020) ^[6].

Financial barriers were also significant. The non-availability of financial institutions in villages was reported by 76% of marginal and 52.17% of small farmers ($\chi^2 = 17.36$, $p < 0.05$), indicating poor access to formal credit. This limits the capacity of farmers to invest in inputs, mechanization, and improved practices—an observation supported by previous research on credit constraints faced by smallholders (Gopi Chand *et al.*, 2017) ^[3]. Institutional and knowledge-based constraints were also reported. About one-third of the farmers indicated inadequate access to training and extension services. Additionally, 56.67% of all respondents lacked awareness of recommended package of practices, highlighting critical gaps in knowledge dissemination and farmer education systems. Social constraints further exacerbate production limitations. A significant proportion of farmers reported a lack of interest in farming among younger family members, while more than 86% of respondents across all farm categories cited inadequate cultivable land. These findings reflect broader demographic and structural challenges in hill agriculture, including land fragmentation, ageing farming populations, and rural-to-urban migration (Ratna & Thakur, 2015) ^[5]

Table 5: Production problems faced by vegetable growers.

Particulars	Marginal	Small	Medium	Overall	Chi-square
No. of farmers	25	23	12	60	
Skilled labour					
Shortage of skilled labour	64.00	78.26	66.67	57.96	3.61
Higher wage rate	16.00	43.48	66.67	36.67	31.29*
Non- availability at peak operation time	92.00	82.61	50.00	80.00	13.33*
Chemical fertilizers					
High price of chemical	24.00	43.48	41.67	35.00	6.418*
Problems of insects and diseases	40.00	52.17	66.67	50.00	6.90*
Desired brand not available	64.00	60.87	66.67	63.33	0.27
Non-availability of insecticides/fungicide	80.00	78.26	75.00	78.33	0.17
Financial problems					
Non- availability of financial institutes in village	76.00	52.17	33.33	58.33	17.36*
Low repayment capacity	20.00	34.78	33.33	28.33	4.56
High interest rate and cumbersome procedure of banks	36.00	52.17	41.67	43.33	3.11

Institutional problem					
Inadequate training facilities	32.00	43.48	33.33	36.67	2.18
Lack of extension facilities	12.00	21.74	16.67	16.67	2.83
Lack of knowledge of package of practices	60.00	52.17	58.33	56.67	0.60
Social problems					
Lack of interest in farming of family members	40.00	56.52	50.00	48.33	2.84
Inadequate cultivable land	88.00	86.96	83.33	86.67	0.14

*Significant at 5 percent level.

Marketing Constraints

Marketing-related problems (Table 2) were also found to be significant, especially post-harvest labour issues. A shortage of skilled labour for grading and packing was reported by 64% of marginal, 78.26% of small, and 66.67% of medium farmers. The non-availability of labour at peak marketing periods was particularly severe for small farmers (82.61%), with this variation being statistically significant ($\chi^2 = 6.63$, $p < 0.05$). High post-harvest wage rates were another major issue, reported by 72% of marginal and 60.87% of small farmers ($\chi^2 = 8.30$, $p < 0.05$). These challenges increase transaction costs and contribute to quality deterioration, limiting the efficiency of marketing operations (Shah & Ansari, 2020) [6]. Constraints related to packing materials were also noted, although not statistically significant. Shortages were reported by 48% of marginal and 66.67% of medium farmers, while high prices were a concern for 68% of marginal and 69.57% of small farmers. These factors collectively raise the cost of marketing and reduce net margins (Gopi Chand *et al.*, 2017) [3].

Storage infrastructure was another critical issue. Approximately 43% of respondents lacked adequate storage facilities, which can lead to significant post-harvest losses and restrict farmers' ability to sell when prices are

favourable. These infrastructural limitations are common in hill regions, where cold storage and decentralized warehousing systems remain underdeveloped. Transportation emerged as a statistically significant constraint. The lack of vehicles was more acute for marginal (40%) and small (34.78%) farmers ($\chi^2 = 10.11$, $p < 0.05$). Additionally, high transport charges and untimely vehicle availability were widely reported, which impede timely delivery and increase spoilage risks.

A lack of market intelligence was also a major constraint. Inadequate information was reported by 65.22% of small and 58.33% of medium farmers ($\chi^2 = 11.92$, $p < 0.05$). The absence of timely and accurate market information reduces farmers' capacity to make informed decisions regarding harvesting, pricing, and sales location—often resulting in distress sales and lower returns. These findings are supported by studies emphasizing the role of information asymmetry in undermining smallholder market participation (Shah & Ansari, 2020) [6]. Delayed payments were another statistically significant concern, particularly for marginal (60%) and small (52.17%) farmers ($\chi^2 = 7.95$, $p < 0.05$). Such liquidity constraints disrupt the production cycle and reduce farmers' ability to reinvest in timely agricultural operations (Gopi Chand *et al.*, 2017) [3].

Table 2: Marketing problems faced by the vegetable growers.

Marketing problems					
Particulars	Marginal	Small	Medium	Overall	Chi-square
Grading and Packing					
Shortage of skilled labour	64.00	78.26	66.67	70.00	1.65
High wage rates	72.00	60.87	41.67	61.67	8.30*
Non-availability at peak operation time	56.00	82.61	58.33	66.67	6.63*
Packing material					
Shortage of packing material	48.00	56.52	66.67	55.00	3.14
High prices	68.00	69.57	50.00	65.00	3.88
Storage facility					
No storage facility	40.00	52.17	33.33	43.33	4.42
Inadequate storage facility	48.00	43.48	33.33	43.33	2.78
Transportation					
Lack of vehicles	40.00	34.78	16.67	33.33	10.11*
Vehicles not available in time	48.00	56.52	50.00	51.67	0.77
High transport charges	56.00	60.87	66.67	60.00	0.95
Market Intelligence					
Late information	32.00	43.48	41.67	38.33	1.96
Inadequate information	32.00	65.22	58.33	50.00	11.92*
Limited to market only	56.00	56.52	66.67	58.33	1.24
Non remunerative price for the produce	40.00	52.17	50.00	46.67	1.79
Delayed payment	60.00	52.17	33.33	51.67	7.95*

*Significant at 5 percent level.

Conclusion

The major problems faced by the growers in production of vegetables were non-availability of labours during the peak period, non-availability of timely financial help, high prices

of plant protection material, problems of insects and diseases and high wage rates. In the field of marketing, majority of farmers reported problems of non-availability of labours during the peak period, high wage rate, delayed

payments, lack of market intelligence and problem of transportation. The study brightened many problems of the vegetable growers in the area for production and marketing activities of vegetable crops. These problems can be solved by technology and post-harvest management, supply of critical inputs at farmer's door, training in modern production technology and post-harvest management, reinforcing the marketing infrastructure: increasing the number of markets, constructing rural go-downs and cold chambers, timely management of transport and strengthening of market intelligence system and establishment of eNam.

Acknowledgement and Conflict of Interest

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