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A Study of Marketing and Production Constraints Faced by Vegetable Growers

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Authors' contributions

This work was carried out in collaboration between both authors. Author PS in consultation of the author MAA, designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author MAA managed the analyses of the study. Both the authors read and approved the final manuscript.

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ABSTRACT

Vegetable cultivation offers a unique opportunity for hill farmers of Uttarakhand due to the favourable climatic conditions. Consequently, vegetable cultivation in Uttarakhand hills, even in off-season, has picked up on quite a large scale. Although it has become quite remunerative but farmers are reportedly facing lots of marketing and production constraints. The present study was conducted in Kumaon region of Uttarakhand to study the production and marketing constraints faced by the vegetable growers. Study sample comprised of 200 farmers selected purposively from eight villages spread across four blocks and two districts in Kumaon division of Uttarakhand. The data was collected using a pre-tested structured interview schedule. The study findings revealed that major marketing constraints reported by vegetable growers were: long chain of intermediaries, inadequate transportation facilities, high transportation charges, inadequate storage facilities, low price / lack of remunerative price and non-availability of market information. Further, some production related constraints reported by the respondents were high cost of seeds/ fertilizers, lack of information about planting material/ production inputs, lack of knowledge about grading and standardization of vegetable, non-availability of farm labour and lack of packaging material. These findings will be helpful to the State government for developing a policy framework and relevant guidelines for promoting vegetable production in the state.

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1. INTRODUCTION

Mass media driven public perceptions about importance of vegetables in human diets and changing lifestyles have significantly enhanced the demand for vegetables and fruits. Vegetables are known to be the vital sources of proteins, vitamins, minerals, dietary fibres, and micronutrients. Apart from nutrition, they also contain a wide array of potential phyto-chemicals, anti-carcinogenic principles and anti-oxidants. Responding to this change in dietary and lifestyle perceptions, demand for fruits and vegetables has increased significantly. Cultivation of vegetable by farmers has grown manifolds [1]. Marketing of vegetable crops is quite complex and risky due to the perishable nature of the produce, seasonal production and bulkiness. The spectrum of prices from producer to consumer, which is an outcome of demand and supply of transactions between various intermediaries at different levels in the marketing system, is also unique for vegetables. Moreover, the marketing arrangements at different stages also play an important role in price levels at various stages viz. from farm gate to the ultimate user. Similar results found in [2]. However, vegetable cultivation in India is still an unorganized sector with farmers following traditional practices. Besides, the vegetable growers are not as well served by the agriculture extension system as the farmers growing foodgrains; and due to this productivity and production efficiency remains low [3].

Uttarakhand is primarily a mountainous state with only about ten percent of its total geographical area in the plains. Further, more than three-fourth (78 percent) of its total population is dependent on agriculture for livelihood. Sectors like horticulture (both fruit and vegetable cultivation) have a comparative advantage in the region due to its agro-climatic conditions. Vegetable cultivation in the state of Uttarakhand has been identified as the financially rewarding practice and could replace subsistence farming in the rain-fed hills. Over the years, the area, production and productivity of vegetables have increased in spite of land fragmentation. Despite small holdings, most of the farmers have opted for a shift in production from low value food grains like wheat, paddy, ragi to high commercial crops, particularly vegetable and pulses (Uttarakhand State Perspective and Strategic Plan 2009 – 2027) [4]. At present, the area under fruit crops is 179.3 thousand hectares whereas the area under vegetables is almost half i. e. 85.8 thousand hectares with much higher production of 1030.9 thousand million tons [5]. Major vegetables grown in the state are potato, cauliflower, tomato, onion, brinjal, pea, cabbage and okra. Total area of vegetable production in Kumaon region is 17,609.25 Ha and 20842.42 Ha in Garhwal Region [6].

The state has a unique advantage of producing off-season vegetables in hilly areas, which fetches good price in the market. The government has also undertaken many special initiatives for promoting vegetable marketing in the state through designing various policies and programs. The state has started horticulture mobile teams, Uttarakhand Krishi Utpadan Mandi, nurseries, separate marketing yards for horticulture, cold storage and Special Integrated Industrial Promotion Policy 2008 for Hilly & Remote Areas of Uttarakhand. Despite all the government policies and efforts, the problem of marketing the vegetables still remain stagnant. Vegetable growers lack in marketing their produce because of many constraints faced by them in the marketing because of which they do not get remunerative prices for their produce. Lack of marketing infrastructure and marketing channels are the main causes for fluctuating prices in the market and also fewer shares of prices reaches the farmer. Most of the time middlemen control the marketing and prices in the market which causes the farmers to get less prices. Due to perishable nature of the produce, it becomes more difficult for a farmer to market the produce at right time and at right place. Marketing intelligence is required by the farmers for placing the produce at right time and place. The need of the hour is to look into the constraints faced by the farmers in marketing so that they can be given solutions to their problems and fetch better prices for their produce.

Keeping this is view; the present study was undertaken to find out the constraints faced by the vegetable growers related to production and marketing of vegetables in Uttarakhand.

2. RESEARCH METHODOLOGY

The study was conducted in Kumaon region of Uttarakhand which has a total vegetable production of 3,08,351.30 MT and the area

29,348.03 hectares in year 2019-20 (State Horticulture Department). Two districts - Nainital and Udhamsigh Nagar district were selected purposively as the vegetable production is highest in state. Vegetable production in Nainital is60493.45 MT and Udhamsingh Nagar is 97805.85 MT in year 2019-20, respectively (State Horticulture Department). In each of the selected district, four villages were selected based on the highest productivity of vegetables. A total of eight villages-Sarana, Paladha, Purvi Kheda and PaschmiKhera in the hilly region, and FaujiMatkota, Fulsungi, Barirai and Girdharinagar in plains-were selected for the study. From each village 30 famers were selected through snowball sampling. Thus, the study sample comprised of 240 vegetable growers spread across 2 district, 4 blocks, 8 villages. The respondents, i.e. vegetable growers were interviewed with the help of a pre-tested structured interview schedule. Data analysis was done using Statistical Package for Social Sciences (SPSS) software (version 20).

2.1 Measurement of Predictable Variable (Marketing and Production Constraints)

As part of the pilot study, the researcher selected two villages in Haldwani block (a non-sampled block) and conducted two focus group discussions with randomly selected fifty vegetable growers and asked them about the marketing and production related constraints faced by them. The respondents were asked to list down the constraints faced by them in vegetable production and marketing. On the basis of their responses, (in addition to the literature view) two categories of constraints-related to Marketing and Production - were prepared. In each category, list of constraints was prepared. Later, the respondents were asked to rank these constraints faced by them.

The focus of the study was the constraints faced by the respondents in the production and marketing of vegetable. Eighteen constraints were identified and the respondents were asked to rank them on a five-point continuum - Very high (4), High (3), Medium (2), Low (1) and Not at all (0) and scored accordingly. Finally, the "Constraints Score" of a respondent was calculated by summing up the weights of his / her responses to all the eighteen statements.

Thereafter, a "Constraints Faced Index" was developed using the following formula.

$$CFI = Cvh \times 4 + Ch \times 3 + Cm \times 2 + Cl \times 1 + C0 \times 0$$

Where,

CFI = Constraint Faced Index
Cvh = No. of vegetable growers faced very high constraints
Ch = No. of vegetable growers faced high constraints
Cm = No. of vegetable growers faced medium constraints
Cl = No. of vegetable growers faced low constraints
C0 = No. of vegetable growers faced no constraints

To compare the severity of the constraints, rank ordering of various constraints related to marketing and production was done in a descending order of the CFI.

3. RESULTS AND DISCUSSION

(A). Marketing Constraints faced by Vegetable Growers: Marketing of agriculture produce is often a problem for the farmers. The respondents were asked to rank various constraints faced by the in the marketing of vegetables. Results obtained in respect of marketing constraints are given in Table1.

As is evident from Table 1, the major constraint that was ranked 1stby the vegetable growers was "long chain of intermediaries" by about 82% of the respondents. The vegetables are usually sold in the market through the local traders/vendors or middlemen present in the mandi but these would take commission which led to less prices received by the growers. Similarly, [7] in their study of marketing constraints of tomato also mentioned marketing intermediaries (72.5%) as major constrains and also [8] in the study of marketing behavior found that 81.66 per cent farmers found that commission agents were the major constraints.

"Inadequate transportation facility" was ranked II by the 78% growers as most of the farmers did not have their personal vehicle to take the produce to the market. Also, it was very difficult for the hill farmers to make the transportation available at their timings as a common vehicle would come to take the produce at a particular time in which they had to send their vegetables.

Third ranked constraint was accorded to "high transportation charges" by 76% respondents as most of the vegetable growers had to pay the fee for transporting their produce to the market or mandi for selling. High cost of transportation was given by the vegetable growers in the hills as the market and mandi was far away from their village. Further, inadequate storage facility was ranked IV by 75% because vegetable growers of plain villages had an advantage to store their produce in nearby cold storage houses near the mandi and market through the commission agent. On the other side vegetable growers in the hills did not have any storage facility and used to store their produce in gunny bags or in rooms available in their houses.

Vegetable growers do not get fair prices of their produce because of the long marketing channels. So, low price / lack of remunerative price was ranked V in marketing constraints by 68% respondents. Further, ranked VI was given to 'non-availability of market information' (65%) as hill farmers due to low connectivity were unable to use internet or contact intermediaries for availing market information but the vegetable growers in the plain villages had regular contact with the traders and commission agent of the mandi for information related to market prices. Additionally, the last four ranked constraints were: non availability of vegetable growing and marketing related information through SMS/Internet ranked VII by 60% vegetable growers, lack of organized marketing (56%) ranked as VIII because no proper market is established in the hill villages to sell the produce. The last two constraints were: less availability of agriculture farming /market related newspaper, farm magazine, literature, etc. particularly in rural areas (45%) ranked as IX and lack of proper training with respect to vegetable growing and marketing (40%) ranked as X constraint by the vegetable growers. Though the government has taken many initiatives for the market development still the problems faced by the vegetable growers at grassroots level remain the same. It is the need for providing them marketing platforms through internet and also developing other resources so that they can sell their produce at right prices and place. Dhurwey, Choudhary, and Shrey [3] in a study of constraints perceived by farmers in production and marketing of major Cole vegetable crops in Bemetara district of Chhattisgarh state reported that 'Lack of proper methods applied for harvesting of crop' followed by 'Lack of facilities regarding standardization& grading', 'Lack of post harvest management' and 'Lack of regulated and co-operative market' were some marketing constraints.

(B) Production constraints faced by Vegetable Growers: India has emerged as the leading producer of the vegetables and ranks first globally after China. An attempt was made to identify the major production related constraints faced by the vegetable growers. Results obtained are given in Table 2.

A careful perusal of the results presented I Table 2 reveals that the first rank was given to 'high cost seed and fertilizers' (65%) because vegetable growers in the hills had to travel to the main market or city to buy them which would automatically increase the cost of seeds and fertilizers. On the other hand, in plain's villages many private companies had their own store and would sell the fertilizers and seed in retail shops which would cost the farmer comparatively less than the hill farmers. [9] in their study on constraints faced by cauliflowers growers also gave the weightage of 53 per cent to high cost of seed and 59 per cent to fertilizers. Further, 'lack of information about planting material/ production inputs (63%) was ranked second because the information would not reach the vegetable growers in the hills timely; also the new technology adoption rate was slow in the hills compared to the plain villages. Besides, the vegetable growers were skeptical in using and trying out new production inputs. Vegetable growers in the hills would send their produce in bulk to mandi through traders or commission agents which would by themselves did the grading and standardization of the produce. Hence, lack of knowledge about grading and standardization of vegetable (59%) was ranked third major constraint. Farmers in the hills would have no chance to be the part of grading stage which would lead to get market prices decided solely by the middlemen. Also, lack of machine facilities in hill region and also in plains would make it more difficult to grade their produce by themselves and manual grading was more time consuming. [10] also identified lack of machine facilities as one of the constraints faced by the vegetable growers.

Non availability of labour (56%) was ranked fourth constraint because the plain's vegetable growers' production area is comparatively larger than the hill region; so, to harvest the produce labour is required more in the plain villages. Due to a greater number of farmers and area, the labour was less present in the plains which cost

them high amount to pay. Mostly, the produce in hills was stored in huge plastic bags just before transportation to the mandi and gunny bags in the plains. No proper packaging material was used by the vegetable growers to retain the produce as the perishability is high in vegetables. Therefore, lack of packaging material (55%) was ranked as fifth constraint by the vegetable growers. Lastly, 'lack of credit facilities' (53%) was ranked as sixth constraint followed by 'poor economic condition of farmers' (46%) as seventh and 'poor co-ordination and co-operation among grass root level extension workers (40%) ranked as eighth constraint. Dhurwey, Choudhary and Shrey [3] in a study of constraints perceived by farmers in production and marketing of major cole vegetable crops in Bemetara district of Chhattisgarh state also reported that 'Scarcity of labour' followed by 'Problem of high infestation of different insects, pests and diseases in the crop', 'Lack of adequate training facility to farmers', 'Lack of technical knowledge', 'Lack of soil testing, facilities' and 'Lack of information regarding crop cultivation were major production constraints faced by farmers.

(C): Severity of Constraints: Intensity of constraints faced by the farmers vary depending on various factors. In this study, the severity of constraints faced by the farmers was worked out; the results are presented in Table 3.

A careful perusal of the results presented in the Table 3 reveals that 'long chain of intermediaries' was the most severe constraints faced by the vegetable growers followed by 'inadequate transportation', 'lack of packaging material', high transportation cost and inadequate storage facilities, in that order. Further, other production and marketing constraints faced by the vegetable

Table 1. Marketing constraints faced by vegetable growers

Sl. No.	Marketing related Constraints	Respondents (n=200)	
		Weightage (%)	Ranking
1.	Lack of organized marketing	56	VIII
2.	Inadequate storage facilities	75	IV
3.	Inadequate transportation facilities	78	II
4.	High transportation charges	76	III
5.	Long chain of intermediaries	82	I
6.	Low price / lack of remunerative price	68	V
7.	Non-availability of market information	65	VI
8.	Less availability of agriculture farming /market related newspaper farm magazine, literature etc. particularly in rural areas	45	IX
9.	Lack of proper training with respect to vegetable growing and marketing	40	X
10.	Non availability of vegetable growing and marketing related information through SMS/Internet	60	VII

*(*Multiple responses were allowed)*

Table 2. Production constraints faced by vegetable growers

Sl.No.	Production related Constraints	Respondents (n=240)	
		Weightage (%)	Ranking
1.	Lack of packaging material	55	V
2.	Lack of credit facilities	53	VI
3.	Poor co-ordination and co-operation among grass root level extension workers	40	VIII
4.	Lack of knowledge about grading and standardization of vegetable	59	III
5.	Poor economic condition of farmers	46	VII
6.	Lack of information about planting material/ production inputs	63	II
7.	High cost seed/ fertilizers	65	I
8.	Non availability of labour	56	IV

**Multiple responses were allowed*

Table 3. Index of constraints faced by the respondents

Sl. No.	Constraints: Marketing and production	Severity index (Rank)
	Long chain of intermediaries [M]	0 1
	Inadequate transportation facilities [M]	02
	Lack of packaging material [P]	03
	High transportation charges [M]	04
	Inadequate storage facilities [M]	05
	Lack of credit facilities [P]	06
	High-cost seed/ fertilizers [P]	07
	High-cost seed/ fertilizers [P]	08
	Low price / lack of remunerative price [M]	09
	Non-availability of market information [M]	10
	Lack of knowledge about grading and standardization of vegetable [P]	11
	Lack of organized marketing	12
	Lack of information about planting material/ production inputs [P]	13
	Non availability of labour [P]	14
	Non availability of vegetable growing and marketing related information through SMS/Internet [M]	15
	Poor co-ordination and co-operation among grass root level extension workers [P]	15
	Lack of proper training with respect to vegetable growing and marketing [M]	16
	Less availability of agriculture farming / market related newspaper, farm magazine, literature etc particularly in rural areas [M]	17
	Poor economic condition of farmers [P]	18

(M=Marketing constraint, P= Production constraint)

growers are includes Lack of credit facilities, High cost seed/ fertilizers, Low price / lack of remunerative price, Non-availability of market information besides other constraints as listed above. [10] reported that insufficient space (for storage) was the most severe constraints faced by the vegetable growers in Bangladesh followed by 'number of middlemen', inadequate information about the market' lack of pucca roads (for transportation) and unavailability of packaging material during harvest time' in that order.

4. CONCLUSION

Based on study findings and their logical interpretation, it can be concluded that vegetable growers face many production and marketing related constraints. The state and central government should address those constraints to make vegetable cultivation a profitable business enterprise in the state of Uttarakhand. Immense opportunities exist to scale-up the vegetable cultivation in order to meet the growing demands of the consumers. However, the government has to facilitate this by formulating relevant policies and developing the necessary storage infrastructure and transportation facilities backed up by price regulatory mechanism which maximises the farmers' profit. Besides, the agriculture scientists should also develop the high yielding and disease resistant varieties of vegetable crops as it can be profitable for even small and marginal farmers in Uttarakhand.

Although, the government has come up with the new bills i.e. Farmers' Produce Trade and Commerce (Promotion and Facilitation), 2020 Act which would give them the freedom to sell their produce and purchase agriculture produce all over the country. This shall create larger opportunities for the farmers and get the prices of their desire. Also, Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services, 2020 which would accelerate the growth in agriculture sector through more private sector involvement. This would also help in global marketing. These opportunities can be used by the vegetable growers in expanding their horizon of sale of their produce and retaining a

place in the market wherever they want in the country.

CONSENT AND ETHICAL APPROVAL

Consent of the respondents was obtained orally before the data collection. Ethical approval not required/ applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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