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Constraints in adoption of vegetable production technologies by the farmers of district Patiala, Punjab

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ABSTRACT

Average productivity of vegetable crops in Punjab is very low and far from the national average. It is mainly because of poor knowledge as well as adoption of scientific technologies of vegetable cultivation by the farmers. A wide gap exists between the yield obtained and the potential yield. By adopting improved varieties and technologies the production and productivity can be increased. Promotion of hybrid vegetable technology or improved varieties is major strategy for increasing productivity. The present study was conducted under the operational area of Krishi Vigyan Kendra, Patiala, Punjab. KVK, Patiala selected eight villages namely Mandaur, Ghamroda, Sauja, Binaheri, Lahor Majra, Tunga, Partapgarh and Nogawan from different blocks. In each village 15 farming families were randomly selected thus making a total sample size of 120 respondents. The data were collected from each respondent through personal interview method with the help of structured schedule. It was observed that input constraint was most important constraint as it was ranked at first position by the respondnets. This was followed by financial, technical, marketing and miscellaneous constraints as per the respondents.

Keywords: Constraints; adoption; vegetable; technologies; production; productivity

INTRODUCTION

Vegetables are the most important human diet for better health because they possess high nutritive value and are a rich source of carbohydrates, proteins, vitamins and minerals. Vegetables are good source of dietary protein especially pod bearing vegetables like pea and beans including faba bean (Singh et al 2010).The daily requirement of vegetables in human diet in India is 300 g/day/person but we are able to produce only 245 g/day/person still short of 55 g/day/person. In India more than 40 different kinds of vegetables belonging to different groups viz solanaceous, cucurbitaceous, leguminous, cruciferous (cole crops), root crops and leafy vegetables are being grown in tropical, subtropical and temperate regions. However a planned development in the field of vegetable production is very much essential to improve the nutritional security for masses. India with its wide diversity of climate and soil has vast potential for

growing different types of vegetables like potato, onion, brinjal, cabbage, cauliflower, okra, peas etc round the year. The most important aspect of vegetable cultivation is that it absorbs woman labour to a greater extent compared to other crops. It is not out of place to mention that in many cases housewives entirely manage the vegetable production system up to harvesting and marketing. Small holders dominate both Indian agriculture and vegetable production.

A wide gap exists between the yields obtained and the potential yields. It is mainly because of poor knowledge as well as non-adoption of scientific technologies of vegetable cultivation. By adopting improved varieties and technologies, production and productivity of vegetables can be increased (Sahu et al 2009). Promotion of hybrid vegetable technology or improved varieties is major strategy for increasing productivity. The sustainable rural livelihood implies that any developmental intervention for the rural people should be congruent with their existing livelihood strategies and ability to adapt. The major constraints associated with vegetable production technology are lack of knowledge about improved varieties, seed rate, sowing time and IPM technologies, unavailability of improved seeds, lack of irrigation facilities, non-remunerative price, lack of trainings on scientific production technology and lack of subsidies and high costs of pesticides. Considering the significance of constraints the present study was undertaken to know the overall knowledge of scientific package of practices, selected scientific innovations and overall adoption of scientific package of practices and to identify the major bottlenecks in adoption of recommended vegetable growing techniques.

METHODOLOGY

The present study was conducted under the operational area of Krishi Vigyan Kendra, Patiala, Punjab where eight villages namely Mandaur, Ghamroda, Sauja, Binaheri, Lahor Majra, Tunga, Partapgarh and Nogawan from different blocks were selected. In each village 15 farming families were randomly selected thus making a sample size of 120 respondents.

In the present study constraint was conceptualized as irresistible force that acts as hindrance in adoption of recommended vegetable production technologies. A list of major constraints was prepared in consultation with extension scientists, field functionaries and progressive vegetable growers and also going through available literature. The major constraints were categorized into suitable sub-heads viz input, technical, financial, marketing and miscellaneous constraints. The primary data were collected from the selected farmers with the help of interview schedule. The constraints as perceived by respondents were scored on the basis of magnitude of the problem as per Meena and Sisodiya

(2004). The scores of respondents were recorded and converted into mean per cent and constraints were ranked as per Warde et al (1991).

RESULTS and DISCUSSION

Input constraints

Table 1 indicates the findings of input constraints that explain that on the whole non-availability of improved seed at the time of sowing (89.16%) was the most perceived constraint and hence it was ranked 1st. The second most perceived constraint was high costs of pesticides (70.83%) followed by no subsidy on different agricultural inputs (70%) and scattered and small size land holdings (66.67%) the third and fourth being most perceived constraints respectively. The constraints like unavailability of labour (62.50%), fertilizers in the local market at the time of sowing (56.67%) and recommended chemicals for seed treatment (54.17%) were perceived as fifth, sixth and seventh most perceived constraints. The other constraints were lack of cold storage (41.67%) and irrigation facilities (33.33%) and non-availability of recommended weedicides (29.17%).

Study revealed that the inadequate storage facilities for vegetable produce in the area lead to low adoptability of growing vegetables as venture. Most of the growers lost their produce even after bumper production of crop. Rolle (2006) indicated that fresh produce losses ranged from 10 to 40 per cent globally with losses in India at the high end. Chikkasubbanna (2006) has reviewed some of the issues and priorities for improving the postharvest sector for vegetable handling.

Income from staple crops is inadequate so farmers supplement with off- and non-farm income and increasingly grow high value crops such as vegetables (Birthal and Joshi 2007). The important constraints reported by majority of vegetable growers might be due to the fact that the cooperative societies in the study area were almost defunct resultantly the respondents could not receive/obtain the required inputs and equipments as per their needs.

Financial constraints

Table 2 indicates that high cost of high yielding varieties and fertilizers and chemicals were the major constraints (83.34 and 80.83%) and were ranked at 1st and 2nd places respectively. The other constraints like minimum support price not fixed by the government, high cost of improved implements and irrigation (75.0, 73.33 and 54.17%) ranked at 3rd, 4th and 5th places respectively. Thus high cost of high yielding varieties was perceived by the vegetable growers as important financial constraint.

These findings are in conformity with the findings of Yadav (1997), Meena (2002), Singh (2002), Kumawat (2005) and Samantaray et al (2009).

Table 1. Constraints related to inputs in vegetable production

Constraint	Respondents		Rank
	Frequency	Percentage	
Non-availability of improved seed at the time of sowing	107	89.16	I
High cost of pesticides	85	70.83	II
Lack of irrigation facilities	40	33.33	IX
Scattered and small size land holdings	80	66.67	IV
Lack of cold storage	50	41.67	VIII
Non-availability of recommended chemicals for seed treatment	65	54.17	VII
Unavailablity of labour	75	62.50	V
Non-availability of fertilizers in the local market at the time of sowing	68	56.67	VI
Non-availability of recommended weedicides	35	29.17	X
No provision of subsidy on different agricultural inputs	84	70.00	III

Table 2. Financial constraints in vegetable production

Constraint	Respondents		Rank
	Frequency	Percentage	
High cost of high yielding varieties	100	83.34	I
High cost of fertilizers and chemicals	97	80.83	II
Minimum support price not fixed by the government	90	75.00	III
High cost of improved implements	88	73.33	IV
High cost of irrigation	65	54.17	VI

Technical constraints

Table 3 shows that lack of knowledge of disease resistant varieties (91.67%) was most perceived constraint and hence it was ranked 1st. The second most perceived constraint was lack of knowledge about IPM technologies (81.66%) followed by seed treatment (80.83%) and training on scientific vegetable production technology (79.17%), lesser knowledge regarding critical stage of irrigation (69.17%) and non- availability of facilities of soil testing (66.67%). The other technological constraints faced by the farmers were lack of knowledge regarding major pests and diseases identification and their management (68.33%), relevant literature (65%), recommended row to row and plant to plant distance (61.67%) and recommended fertilizer and manure application (53.33%). These findings are partially supported by the reports of earlier investigators (Meena 2003, Rai and Singh 2010).

Table 3. Technological constraints in vegetable production

Constraint	Respondents		Rank
	Frequency	Percentage	
Lack of knowledge about disease resistant varieties	110	91.67	I
Lack of knowledge about seed treatment	97	80.83	III
Lack of knowledge about IPM technologies	98	81.66	II
Lack of trainings on scientific vegetable production technology	95	79.17	IV
Non-availability of facilities for soil testing	80	66.67	VI
Lack of related literature	78	65.00	VIII
Lack of knowledge about major pests and diseases, their identification and management	82	68.33	VII
Lack of knowledge about recommended fertilizer and manure application	64	53.33	X
Low knowledge about critical stage of irrigation	83	69.17	V
Lack of knowledge about recommended row to row and plant to plant distance	74	61.67	IX

Marketing constraints

Table 4 depicts that on the whole poor marketing facilities resulting in high risk and absence of assured marketing at remunerative price and insurance facility (79.17 and 76.67%) were ranked at 1st and 2nd places respectively. The other constraints like non-remunerative price, lower price at harvesting time, manipulation by merchants and problems of marketing in remote areas, distantly located markets, poor condition of approach roads (73.33, 71.67, 70.83, 64.17, 55.83, 48.33, 48.33 and 40.83%) were ranked at 3rd, 4th, 5th, 6th, 7th and 8th places respectively. The 9th and 10th constraints expressed by vegetable growers were lack of storage (46.67%) and transportation facilities and high charges (40.83%). The important constraints reported by majority of the vegetable growers might be due to lack of awareness and absence of proper contact of them with government agencies and institutions for preservation and storage facilities and limited knowledge about preservation and storage facilities.

Miscellaneous constraints

Table 5 depicts that the first miscellaneous constraint expressed by 85.0 per cent vegetable growers was lesser priority given to vegetable production than other farm activities followed by non-availability of labour during peak season and high wages (81.66%), lack of knowledge regarding preservation and processing of surplus produce (80%) and high soil pH and EC (79.17%).

Amongst general constraints high soil pH and EC was the most serious constraint adversely affecting the overall

Table 4. Marketing constraints in vegetable production

Constraint	Respondents		Rank
	Frequency	Percentage	
Poor marketing facilities resulting in high risk	95	79.17	I
Markets being distantly located	67	55.83	VII
Approach roads not in good condition	58	48.33	VIII
Non-remunerative price	88	73.33	III
Lack of transportation facilities and high charges	49	40.83	X
Lack of storage facility	56	46.67	IX
Manipulation by merchants	85	70.83	V
Problems of marketing in remote areas	77	64.17	VI
Lower price at harvesting time	86	71.67	IV
Absence of assured marketing at remunerative price and insurance facility	92	76.67	II

performance of fruits and vegetable crops as these crops are highly sensitive to high soil pH and EC. Most of the soils in the region have pH in excess of 8.0 thus adversely affecting the availability of micronutrients. Moreover there have been incidences of salt injury to the plants. The data further reveal that high risk of natural hazards (74.17%), continuous adoption of traditional practices for growing vegetables (73.33%), poor extension contact (70.83%), lack of subsidy (67.5) and interest among rural youth (66.67%) and fear of theft of vegetable produce (62.56) were ranked 6th, 7th, 8th, 9th and 10th respectively. The results of present study are in conformity with those of Kanbid and Sharma (1994) and Sethy et al (2010).

Besides it was also observed from the study that inadequate storage facility, lack of crop insurance and effective supervision and monitoring by extension workers and low credibility of extension workers were some of the major organisational constraints that affected the vegetable production though government of Punjab had started many programmes to establish strong linkage with farming community in terms of availability of quality seed, planting material and other organic inputs provided by the line departments.

CONCLUSION

It is evident from the study that the major constraints like lack of regular soil testing, mechanization in agriculture, innovativeness, entrepreneurial ability and responsiveness, poor knowledge of IPM, absence of storage facilities, postharvest technologies, effective supervision and monitoring by extension workers were being faced by the growers. The study

Table 5. Miscellaneous constraints in vegetables

Constraint	Respondents		Rank
	Frequency	Percentage	
High risk of natural hazards	89	74.17	V
Lack of subsidy	81	67.50	VIII
Non-availability of labour during peak season and high wages	98	81.66	II
Poor extension contact	85	70.83	VII
Lack of interest among rural youth	80	66.67	IX
Fear of theft of vegetable produce	75	62.50	X
Continuous adoption of traditional practices processing of surplus produce	88	73.33	III
High soil pH and EC	95	79.17	IV
Lesser priority given to vegetable production than other farm activities	102	85	I

confirmed that inadequate marketing network, soil management, lack of awareness on improved technologies and achievement motivation, poor sources of information and lack of commitment to farming as enterprise were also contributing to low vegetable production.

Thus there was a need to organize awareness and training programmes, timely soil testing for acidic soil management and introduction of postharvest technologies to encourage the farmers for vegetable production so that the they could become economically more independent. Moreover it would also improve nutritional status of farm families thus indirectly bettering the socio-economic status of them. Based on these training needs of farmers public and private organizations might organize various training cum awareness programmes.

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