

An Analysis of Vegetable Cultivation in Punjab

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ABSTRACT Vegetable cultivation has been strongly recommended as a means of crop diversification. The present study was aimed at studying vegetable cultivation so as to provide planners and extension personnel an insight into various aspects with regard to use of media, sources of information, input and marketing of produce. The data was collected personally, on a structured interview schedule from six agro-climatic zones of Punjab. The study reveals that majority of the vegetable growers were extensively using media for getting information regarding vegetable cultivation. They were procuring inputs from the local traders. The vegetables were marketed in raw form directly through the wholesale dealers in the nearest town/ city. With vegetable cultivation emerging as a major alternative preferred by farmers the extension personnel and the policy makers need to strengthen the mechanism for easy, timely and quality availability of technical , physical, monetary and marketing inputs.

I. INTRODUCTION

Indian agricultural economy under the impact of green revolution witnessed sharp increase in production and productivity, leading to higher income. Further, the percolation of the green revolution to the lowest level particularly in Punjab State led to structural transformation all around. Big strides in raising the production and productivity of cereal crops particularly of wheat and paddy were taken leading to increased adoption of biochemical and mechanical technologies. Remunerative returns under the assured price policy were also instrumental in concentration of the area under wheat and paddy at the cost of other traditional crops.

Paddy and wheat yield in Punjab have reached the point where only a marginal increase in level of production per acre is possible. Serious repercussions are being felt in form of resource depletion, soil degradation, nutrient deficiency, and fall in ground water table. The intensive paddy-wheat rotation has led to multiplication of insects/pests and diseases and intensive use of energy are some of the other consequences of paddy-wheat rotation faced by the agricultural sector. Heavy doses of fertilizers and chemicals are further causing environmental degradation.

The present scenario presents three major challenges. Firstly, the maintenance of food security for the ever growing population. Secondly, the maintenance and enhancement of agricultural profitability and thirdly, the maintenance and improvement of environmental quality.

In the wake of these challenges the need was felt to popularize crop diversification in Punjab. The cropping pattern which had become over-specialized in the favour of paddy-wheat rotation required diversification. Therefore, multiple cropping systems were recommended by the scientists.

The 'State Farmer's Commission' setup by the Punjab Government in this context recommended the increase in the area under vegetable farming which has number of advantages. The role of fruits and vegetables in improving health and providing quality food security cannot be denied. The intake of vegetables in an average rural family of Punjab is far below the ICMR (Indian Council of Medical Research) recommendations (Kaur et al. 2005). These alarming findings are matter of concern in light of decreasing trend of growing vegetable crops for family consumption. Growing of vegetable crops at household level not only help to increase the quantity and quality of food intake, but also contribute towards decrease in the area under paddy wheat rotation besides reducing family expenditure. Nature and extent of crop diversification does not lead to any conflict with self sufficiency in food grain (Pandey and Sharma 1986). In any case, diversification results in greater food security at household level (Bruan 1995).

In this regard, various measures were undertaken both at the planning and execution level to increase the area under vegetable farming and more are required to achieve the targets. Hence, the present study was designed to profile various

aspects with regard to vegetable growers in Punjab where in the year 2005-06 the total production was 2.47 million tonne from an area of 1.63 lakh hectares with productivity of 15.1 tones per hectare (Anonymous 2006). This area has increased from 1.40 lakh hectares in 2000-2001 and production from 2.32 million tonnes. The study was planned to analyze the following aspects of vegetable growers:

- Extent of use of mass media for seeking information on vegetable crops
- Source of information regarding vegetable crops
- Source of inputs for vegetable crops
- Purpose of vegetable farming
- Marketing of vegetable produce

The data generated from this study will provide basis for planning, evaluating, and suggesting medium and long term strategies for encouraging vegetable cultivation as a means of crop diversification.

II. METHODOLOGY

Locale and Sampling: Study was conducted in six agro climatic zones of Punjab to capture the variations, which exist in the vegetable farming pattern throughout the state with regard to agro-climatic conditions. One district was selected from each zone to represent variation in agro climatic conditions with an exception of third zone (Central plain zone). This zone was represented by two districts owing to its large size. Hence, a total of seven districts were selected from the state. From the list of blocks in the selected districts, one block adjoining to the district headquarters and one away from it was purposively selected, so as to capture the variations in the problems faced by vegetable growers. Hence, a total of fourteen blocks with one village each were selected. Four families per village from small (< 5 acres), medium (5 - 10 acres), large (> 10 acres) sized landholding selected. The total of one hundred and sixty-eight

families were thus selected as the sample for the purpose of the study representing twelve families from each village.

Data Collection: An interview schedule was prepared, pretested and used for collection of data through personal interviews.

Analysis of Data: The data were analyzed with the help statistical tools like frequency and percentage.

III. RESULTS

Extent of Use of Mass Media

The data on extent of use of the selected media show that 34.0 per cent of the vegetable growers were always using farm broadcast for gaining information in vegetable farming and nearly the same number never used it (38.7%). Farm literature was also never used by 76.8 per cent of the vegetable growers. The mean score of 0.95 with regard to use of farm broadcast indicate that the extent of use of farm broadcast by the vegetable growers was highest followed by farm telecast and least use was made of farm literature (Table 1).

This shows that not only farm broadcast is used by majority of the vegetable growers; it is also extensively used by them. This clearly indicates that the farm broadcast being an old medium is still trusted for information on production of vegetable crops.

Source of Information

For obtaining general information on growing vegetable crops, private traders were the source for majority of the vegetable growers (30.4 %) followed closely by fellow farmers (28.0 %). The least used source was Punjab Agricultural University both at campus and at district headquarter, that is, Krishi Vigyan Kendras's and Farm Advisory Service Scheme.

Private traders were the source as an informa-

Table 1: Use of mass media for vegetable farming (n = 168)

Mass media	Extent of use of mass media						Mean score
	Always		Sometimes		Never		
	f	%	f	%	f	%	
Farm broad cast	57	34.0	46	27.3	65	38.7	0.95
Farm telecast	44	26.2	31	18.5	93	55.6	0.70
Farm literature	19	11.3	20	11.9	129	76.9	0.34

*Multiple responses

tion of 38.1 per cent of the vegetable growers for purchasing inputs (Table 2). State Agricultural Department was also used for the same purpose by 25.6 per cent. Media, PAU and KVK's emerged as the least used source with less than 10.0 per cent vegetable growers using them for purchase and use of inputs. Pest management is an important aspect of vegetable farming. Private traders again emerged at the top followed by State Agricultural Department (25.6%), fellow farmers (19.0%) and PAU (16.1%).

Least use of extension functionaries to obtain information regarding pest control measures is clear from the data as shown in the table. The traders were the main source of information to 29.8 per cent of the farmers. The least used source was extension staff of *Krishi Vigyan Kendra's* and Farm Advisory Service Scheme where the farmers can get information based upon the recommendation of the Agricultural University without having to travel beyond the district headquarter.

State Agricultural Department and the private traders were marketing information source for 34.5 and 28.6 per cent of the farmers respectively. None of the farmers were engaged in processing of vegetables hence no data was available.

Source of Inputs

The data in table 3 reveals a wide range of variation with regard to source of inputs like seed, fertilizers and pesticides. With regard to seed, fertilizer and pesticides the majority of the vegetable growers that is 71.4 per cent, 98.2 per cent and 93.5 per cent respectively were dependent on local dealer/private agencies. Punjab Agricultural University was also the source of seed procurement for 17.9 per cent of the vegetable growers. The limited availability of seeds at PAU leads to lesser number of farmers being able to access the source. PAU was not engaged in selling fertilizers and pesticides, hence was not considered as source in this regard. The use of other sources was made by less than 20.0 per cent of farmers for procurement of inputs.

Purpose of Vegetable Farming

The vegetable growers vary with regard to the purpose or the end product, which they intend to sell in the market. The vegetable growers in majority opted for the most easily and quick method that was the sale of fresh vegetables in the market. A large number was also using fresh

Table 2: Sources of information for vegetable farming (n = 168)

Source	Information							
	General information		Inputs		Marketing		Pest control	
	f	%	f	%	f	%	f	%
Punjab Agricultural University	20	12.0	15	8.9	23	13.7	27	16.1
KVK's/FASS	21	12.5	12	7.1	12	7.1	16	9.5
State Department of Agriculture	29	17.3	44	26.2	58	34.5	43	25.6
Private traders	51	30.4	64	38.1	48	28.6	50	29.8
Fellow farmers	47	28.0	33	19.6	27	16.1	32	19.0
Media	22	13.1	14	8.3	19	11.3	24	14.3

*Multiple responses

Table 3: Sources of input for vegetable farming (n= 168)

Source	Inputs					
	Seeds		Fertilizers		Pesticides	
	f	%	f	%	f	%
Own farm	6	3.6	-	-	-	-
Fellow farmer	12	7.16	-	-	-	-
Local dealers/private agencies	120	71.46	165	98.2	157	93.5
Govt. agencies	18	10.76	23	13.7	28	16.7
Contracting firms	13	7.76	13	7.7	13	7.7
Punjab Agricultural University	30	17.9	-	-	-	-

*Multiple response

vegetables grown at their farm for fulfilling family needs (42.9%). Seed production was done by only 8.9 per cent of the vegetable growers and sale of seedlings by 12.5 % of the vegetable growers (Table 4).

Table 4: Purpose of vegetable farming (n=168)

Purpose	Respondents	
	f	%
Sale in market in fresh form	154	91.6
Seed production	15	8.9
Sale of seedling\nursery	21	12.5
Fulfilling the family need	72	42.9

*Multiple responses

Marketing of Vegetable Produce

The data as shown in the previous table reveals that the majority of farmers obtained the produce in form of fresh vegetables. This produce as can be seen in table 5 was sold by majority of the growers always to the wholesale dealers in the nearby towns/cities (90.8%) and very few sold it in far off cities (3.6%). None of the growers were selling the produce to the Government agencies because there is no procurement by them. The most interesting and important finding was that the direct sale of vegetables to the consumers was done by 4.80 per cent 'always' and 'sometimes' by 3.0 per cent of the vegetable growers.

IV. DISCUSSION

Extent of Use of Mass Media

Vegetable growing needs technical and latest knowhow, so media is extensively used by farmers and farm broadcast is used by majority of the vegetable growers. This clearly indicates that the

farm broadcast being an old medium is still trusted for information on production of vegetable crops. The extent of its use can also be attributed to the easy access in access to media in Punjab.

Source of information

Growing vegetables at commercial level is not only a new concept but it also requires technical and specialized skills. Therefore farmers usually obtain information from various sources to undertake cultivation of vegetable crops.

The authenticity of the source of information play a vital role in making decisions regarding use of inputs, practices and marketing of produce. The Krishi Vigyan Kendras' and Farm advisory service need to gear up to meet the challenge of technology dissemination on vegetable production as farmers have easy access to the information based upon the recommendation of the Agricultural University without having to travels beyond the district headquarter.

Source of Inputs

The timely availability and quality of the inputs are crucial to vegetable production. The dependency on local traders for seed, fertilizers and pesticides can be attributed to easy availability and purchase on loan. This can be checked through making farmers aware of the importance of quality inputs, sources of quality and reasonably priced inputs and by providing timely and easy loans at lower interest rates for purchase of inputs.

Purpose of Vegetable Farming

The low percentage of vegetable growers in case of seed production and sale of seedling/nursery (can be attributed to lack of technical

Table 5: Marketing of vegetable produce (n=168)

Marketing	Respondents						Mean score (0-2)
	Always		Sometimes		Never		
	f	%	f	%	f	%	
To end users\consumers	8	4.8	5	3.0	155	92.3	0.13
To retailers	12	7.1	8	4.8	148	88.1	0.19
To Wholesale Dealers							
- Local\nearby towns	120	71.4	20	12.0	28	16.7	1.54
- Far off cities	6	3.6	2	1.2	160	95.0	0.08
To Govt. agencies	-	-	-	-	-	-	-
Private companies	-	-	19	11.3	149	88.7	0.11
Through contract	-	-	13	7.7	155	92.3	0.07

knowledge and skill-required for the purpose. The lesser number engaging in seed production can also be due to more chances of damage, involving difficult and time consuming marketing process than direct sale of vegetables. The vegetable growers hence need to be motivated to get adopt seed production which is a highly profitable activity. Adequately trained and interested farmers can also act as catalyst agents.

Gill et al. (1990) reported that growing and consumption of vegetable at home level helps to reduce nutritional deficiency at family level. Hence, this trend is encouraging but still need to be strengthened through educating farmers/families regarding the importance of growing vegetables for household consumption.

Kaur and Khurana (2004) were optimistic about the increase in area under seed production due to increasing interest among farmers. But the interest had not got converted into action.

Marketing of Vegetable Produce

The produce in form of fresh vegetables was sold by majority of the growers to the wholesale dealers in the near by towns/cities which can be due to the reason that this was the most easy and quick method of disposal of highly perishable produce. Lack and high cost of transportation can be another cause of quick sale.

A similar finding was also reported by Nakro and Khiki (2006) who found that lack of transport infrastructure increases the cost of transfer of the produce and acquisition of inputs. The estimate transportation cost of fruits and vegetable crops as per the study was between 18-28 per cent of the total input cost, which was quite high.

Lack of support price lead to local dealers and retailers gaining more economically than vegetable growers. It calls for intensive efforts of the extension personnel to educate farmers not only in marketing skills but also in bringing attitudinal changes with regard to direct sale in the open market. The large farmers can be initially motivated to engage labour for direct sale to consumers in *Apni Mandis*. The small farmers can themselves act as seller for larger profit margin. This will also be beneficial in terms of productive use of family labour. The regulation of *Apni Mandis* by the government agencies can also help the farmers to gain appreciably through direct sale to the consumers. Low percentage of marketing through

contracting firms is also an indicator of a need for studying the problems due to which farmers are not going for contract farming. Provision of storage facilities can also motivate farmers in adopting appropriate and profitable marketing strategies.

V. CONCLUSION

Media is extensively used by vegetable growers as a source of information with regard to vegetable cultivation. Farm broadcast and farm telecast emerged to be the major source in this regard. Local traders/dealers/agencies are most sought after for the purchase of all kinds of inputs like seed, fertilizer and pesticides.

The farmers in majority sold the fresh vegetables in the market but only half of them were using fresh vegetables grown at their farm for fulfilling family needs. Very few farmers were involved in seed production or sale of seedlings. Wholesale marketing of produce was done by most of the farmers by disposing off the fresh vegetables in the nearby wholesale market, mainly because of the problems related to storage, marketing and transport. The dissatisfaction resulted from high input cost.

VI. RECOMMENDATIONS

1. Extension staff needs to make personal contacts so that farmers can be informed and educated regarding various aspects of vegetable cultivation, cost of inputs and sources for procurement. It is important to work intensively for disseminating information regarding quality and reliability at block and district level.
2. Media should be extensively used to inform and educate farmers regarding vegetable farming. Use of media by extension personnel will help in authentic information reaching the maximum farmers in minimum time frame which will enable them to make correct decisions with regard to use of inputs, practices and marketing of produce.
3. Extension personnel should work towards bringing about attitudinal changes among the rural families with regard to sale to the retailers and consumers as that can enhance the profits of the vegetable growers beside the consumer getting fresher vegetables at lesser price.

4. Small farmers should be educated regarding setting up cooperatives for maximizing the utilization of resources and effective marketing.

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