



A CASE STUDY

Self cultivation of vegetable crops

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Abstract : A person engaged in various agricultural activities under the expertise advice has capacity to develop a potential to empower himself through the adoption of knowledge, skills, motivation, and competencies that underpin sustainable agriculture. The factors affecting level of income earned from vegetable growing were analysed and the benefits after following the improved agricultural technology were summarized. The achievements by Mr. Gurdial Singh, a progressive vegetable grower of village Kirrhi Shahi, tehsil- Khadoor Sahib and district Tarn Taran were assessed through interaction with him. He, besides being a marginal farmer, made a unique identity through vegetable cultivation through scientific attitude, ideas and his hard work. It could possible after he adopted all the advanced agricultural technologies of Punjab Agricultural University in vegetable farm practices. With his 30 acres of his own and 50 acres on lease, he emerged as a successful vegetable grower and has become a nation symbol for other farmers. In addition, he also excelled in dairy farming. A case study of the achievements and allied expertise has been discussed in this manuscript which can benefit other land holders.

Key Words : Self, Cultivation, Vegetable, Crops, Vegetable, Crops

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INTRODUCTION

In India, about 70 per cent of the population lives in rural areas, the development of a more sustainable agricultural system is a major policy concern. Whole agricultural system across the country is much under increasing pressure from a range of sources that made the marginal farmers either to give up the farming profession or have followed the way of suicide. Since four decades back, there has been a widespread reduction in centralized, state-led extension activities across much of the developed and developing nations, in favour of approaches that have more involvement from the private

sector and farmers themselves. In essence, the message from extension practitioners and the agricultural experts is that 'self-help is the order of the day' (Black, 2000). This, of course, needs to be balanced against the requirement for continued support from the government side, particularly in terms of financial aids, capacity building, co-operation and the co-ordination. For remaining competitive, a grower is required to engage in a process of ongoing adaptation of improved technologies, ensuring that the use of such technologies and practices maximize both his efficiency and profitability, while at the same time ensuring long-term economic, social and

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environmental sustainability. Indeed, the notion of farmer participation in the generation and dissemination of the new knowledge, skills and the practices is now accepted as one of the most effective means for promotion of a more sustainable system (Robinson, 2003). This reflects a growing recognition that the development of more sustainable agriculture requires integrated approaches that not only involve high levels of farmer participation, but also engage with the complex economic, social and environmental processes (Dalal-Clayton *et al.*, 2003). The volatile global commodity prices, enhanced input costs, degradation of land and the socio-demographic changes are the common ones (Tonts and Siddique, 2010).

Today, in several parts of the developing nations of the world, growers are facing a range of challenges such as cost-price pressures, climate change, knowledge and skill deficits and the difficulties accessing the latest technologies (Siddique, 2011).

The government agricultural institutions especially the extension wing plays a critical role in ensuring to have a grower with great knowledge, skills and competencies to remain competitive and sustainable. Moreover, the central government's retreat from the agricultural research and development, and the extension in agriculture, and the increasing focus on farmer-led participatory strategies, has contributed to the emergence of farmer-based bodies which have played a significant role in the promoting a more sustainable agricultural system. This case study involved the story of a innovative and progressive vegetable grower Mr. Gurdial Singh who has created a milestone example for the other marginal land holders.

The objectives of the study were - to know the gain of agricultural knowledge by the farmer, and to know the adoption of agricultural technologies by the farmer.

MATERIAL AND METHODS

The current investigation was carried to analyse the factors affecting level of income earned from vegetable growing and other crops by Mr. Singh and summarize the benefits achieved through adoption of the improved agricultural technologies.

A team of experts from Punjab Agricultural University, Ludhiana made a visit to his native village Kirrhi Shahi, tehsil- Khadoor Sahib in district Tarn Taran. The important information was recorded through a personal interview method. In the interview, he informed

that after getting registered as member of PAU Kisan Club, attended several trainings, seminars, group discussions, training camps besides some foreign visits under the direction of agricultural experts. According to him, he cultivates vegetables and other crops on 80 acres including 50 acres lease land. Based on his knowledge acquired from the trainings under PAU expertise he applied all the recommended practices on his farm.

RESULTS AND DISCUSSION

The group involvement helps a grower to establish appropriate marketing relationships and to minimize the input costs (Kalra *et al.*, 2013). The achievements of the progressive vegetable grower named Mr. Gurdial Singh after he adopted all the advanced agricultural technologies recommended by Punjab Agricultural University were assessed. He has made a unique identity through vegetable cultivation in Punjab state through his scientific attitude, ideas and hardworking. Though, farming over a total of ten acres of his operational agricultural land, Mr. Singh emerged as a successful vegetable grower and has become a nation symbol. In addition to these, he has also made a milestone in dairy farming and gets 25 lit of milk per day from 9 cattles. He thinks his purpose has solved through right direction to farming and increased communication for marketing. In spite of his small land holding, he has created an example for not only Punjab but whole India how to get highest returns from vegetable cultivation.

Techniques for conservation of natural resources like soil and water:

Laser land leveling:

In 2010, the leveling at his farm improved water application efficacy in agriculture and horticulture crops.

Diversification of paddy and wheat by vegetable crops:

He used latest recommended technology with latest varieties and innovative techniques for cultivation of vegetables.

Vegetable nursery on raised beds:

He is specialized in growing nursery on raised beds. He has various instruments like nursery bed maker and plug in trays. The nursery beds are raised 15 to 20cm from the ground level and seeds of tomato, brinjal, okra, cauliflower and onion are sown in lines after adopting

package of practices by Punjab Agricultural University, Ludhiana.

Farm yard manure:

He makes use of FYM in all the fields after proper compost making.

Cultivation of green manure crops:

Green manure crops like sunhemp, dhaincha are raised and these are buried in the field for supplying essential nutrients to the crops. This has improved soil health and productivity of his farm land. He also buries potato plant residues in his fields.

Vermi-compost unit:

He installed small vermi-compost unit on his farms. The compost was prepared successfully and it was used in vegetable crops.

Land and infrastructure:

His farm soil is sandy loam to loam, medium in organic carbon and high in P and K contents. He owes tube well (10), tractors (3, *i.e.*, Mahindra 475, Massey 5245 and Mini tractor 730), trolley (1), disc harrow (2), wooden leveler (1), bed maker (1), knapsack sprayer

(3), power sprayer (1), tractor power sprayer (1), ride maker (1), crates (100) and potato planter (1).

Kind of innovative approaches developed:

Vegetable cultivation:

He moved to vegetable cultivation from paddy-wheat crop rotation and grows brinjal, tomato, cucumber, coriander, bottle gourd, cabbage, cauliflower and chilli (Table 1).

Trailing structure in cucurbits:

The cucurbits especially bottle gourd, bitter gourd, cucumber, indeterminate tomato is trailed on bamboo poles and wires. He fetches vegetables with quality, fruit shape, size and higher yield during rainy season (Table 2).

Special trailing structure with net:

Specialized nets are used in case of bottle gourd and bitter gourd to get better quality and higher yield returns.

He adopted new techniques of nursery bed preparation. The main nursery he grows includes cauliflower, tomato, brinjal, sweet pepper, cabbage and chilli. The PAU released varieties are grown in these nursery beds along with private varieties.

Table 1: Details of the crop/allied enterprises

Crop	Area (Acre)	Production (quintals)	Yield/acre (quintals)
Rabi (2009-10)			
Peas	15.0	600	40
Potato	25.0	3750	150
Tomato	1.0	300	300
Onion	1.0	125	125
Maize	9.0	270	30
Wheat	29	551	19
Kharif (2009-10)			
Bitter gourd	2.0	200	100
Cucumber	3.0	450	150
Bottle gourd	1.0	250	250
Capsicum	1.0	70	70
Chilli green	1.5	375	250
Brinjal	0.5	75	150
Palak	1.0	125	125
Cauliflower	4.0	800	200
Cabbage	0.5	125	250
Paddy	40.5	1215	30
Basmati	25.0	525	21

The low tunnel technology is followed by him for cultivation of vegetable crops. The low tunnel is done in the month of November-December so as to protect crops like tomato, capsicum, cucumber and early cucurbits from frost in the month of January-February. He fetches good returns from the marketing of early crops. Bijalwan (2014) presented the success story of Mr. Dewas who made tremendous progress as vegetable grower in district Madhya Pradesh and laid a milestone for other vegetable growers.

Economics and feasibility of the approach:

His net annual income from the agriculture is Rs. 25 lakh.

Impact of adoption:

After adopting vegetable cultivation he increased

his farm income and his native farmers also started vegetable cultivation.

Motivational symbol:

Farmers of his native area started growing vegetable crops as major profession after making visits to his farm and have diversified from rice-wheat rotation which helped to raise their farm income and conservation of water.

Methods of marketing and storage of produce value addition:

Direct marketing of vegetable to the consumer:

He sells *Palak* and coriander directly in the vegetable market in the months of June, August, September and October and fetches him good returns. He sells *palak* @ Rs. 20/kilogram in the month of August.

Table 2 : Details of the crop/allied enterprises

Crop	Area (Acre)	Production (quintals)	Yield/acre (quintals)
Rabi (2010-11)			
1. Vegetable nursery	0.06	-	-
2. Brinjal (small round)	1.5	225	150
3. Tomato	2.0	400	200
4. Bottle gourd	2.0	400	200
5. Chilli green	1.0	100	100
6. Peas	6.0	300	50
7. Pumpkin	3.0	450	150
8. Cabbage	1.0	150	150
9. Cucumber	5.0	1125	225
10. Bitter gourd	2.0	100	50
11. Turnip	0.5	50	100
12. Potato	23.0	2990	130
13. Wheat	35.0	-	38
Kharif (2010-11)			
1. Cucumber	9.0	1000	125
2. Pumpkin	3.0	450	150
3. Bottle gourd	2.0	250	250
4. Cabbage	1.0	150	150
5. Tomato	3.0	150	150
6. Bitter gourd	2.0	100	50
7. Brinjal	2.0	-	-
8. Chilli green	1.0	-	-
9. Okra	0.5	-	-
10. Cauliflower	2.0	-	-
11. Onion	1.0	-	-
12. Radish	2.0	-	-
13. Paddy	62.0	-	-
14. Basmati	8.0	-	-

Sale of vegetable nursery to selective farmers:

This has also increased his farm income.

Visit made:

He has visited PAU, Ludhiana (main campus), KVK and FASC, Amritsar, PAU Farm, Gurdaspur. He is working hard for achieving Euro-gap certificate for exporting his produce at international market.

Awards received:

He was awarded with S.Ujjagar Singh Dhaliwal Memorial Award (PAU Kisan Mela, September 2011) for his major contribution as vegetable grower.

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Conclusion:

It is evident that Mr. Singh made a unique identity through vegetable cultivation that was possible through his adoption of improved agricultural technologies. He emerged as a successful vegetable grower and has become a nation symbol. In addition to these, he has

also made a milestone in dairy farming.

Group involvement helps to establish appropriate marketing relationships and to minimize input costs.

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