

Shining stars of vegetable cultivation

in Sangrur (Punjab) under Farmer FIRST Programme

Kuldeep Singh*, Buta Singh Romana, Pankaj Kumar and Dalbeer Singh

Punjab Agricultural University, Ludhiana, Punjab 141 004

In the era of unsustainable rice-wheat mono-culture in Punjab, vegetable cultivation is a potential solution for the farmers to generate the remunerative income along with the employment generation especially for marginal and small farmers. So, under the Farmer FIRST Programme, an effort was made to uplift the livelihood of farmers through introduction of high yielding vegetable varieties and advanced vegetable cultivation techniques in the adopted villages of Sangrur (Punjab). The efforts became fruitful and resulted into successful enhancement in area under vegetable cultivation. Among the vegetable farmers, some achieved remarkable success and became the shining stars. Vinder Singh and Mandip Singh from village Chatha Nanhera and Hakam Singh from village Taranji Khera are earning a multi-folded income by adopting vegetable cultivation techniques as guided by experts and have become exemplary for other farmers in vegetable cultivation enterprise. They are encouraging and advising other farmers by developing farmer-to-farmer extension model in the area.

Keywords: FFP, Income, Livelihood, Vegetable cultivation

SHRINKING land resources along with the increase in household and farming expenses necessitated the introduction of alternative crops/systems in farming. The vegetable cultivation is a potential solution for the farmers for generation of remunerative income along with the employment generation especially for marginal and small farmers in the era of unsustainable rice-wheat mono-culture. Most of the farmers hesitate to opt for vegetable cultivation due to lack of know-how. Considering the need of farmers, Farmer FIRST Programme (FFP), initiated in Sangrur district (village Chatha Nanhera and Tranji Khera), aimed to popularize the vegetable cultivation through high yielding varieties/hybrids and advance production techniques such as low tunnel cultivation. Although some farmers were doing vegetable cultivation in the adopted villages, but due to low yielding varieties and lack of know-how to upscale the enterprise, they were stagnated to small scale and did not generate much income from this enterprise.

Thus, to popularize the high yielding varieties/hybrids of vegetables and advance techniques of vegetable cultivation, 640 demonstrations of the high yielding varieties/hybrids of chilli, peas, onion, tomato, brinjal, muskmelon and 200 demonstrations of low tunnel cultivation of cucumber, capsicum and bottle guard were conducted in the adopted villages. Project

team regularly provided guidance to the farmers which resulted into the remarkable success regarding vegetable cultivation. Currently more than 40 farmers are engaged in the vegetable cultivation and are doing it successfully. Data revealed that from one hectare vegetable cultivation, farmers are earning about ₹4.0 lakh from brinjal, ₹7.71 lakh from muskmelon, ₹3.59 lakh from peas, ₹2.83 lakh from onion, ₹3.84 lakh from tomato and ₹2.33 lakh from chilli cultivation (Table 1). By witnessing the success of farmers in the project village, many farmers from nearby villages also started vegetable cultivation. There are about 20 farmers



Field day on vegetable cultivation under FFP

Table 1. Economics of various vegetable demonstrations conducted in FFP in the year 2021–22

Intervention name	Name of crop	Name of demo variety	Name of check variety	Yield (q/ha)			Economics of demos (₹/ha)		Economics of check (₹/ha)	
				Demos	Check	% increase	Net return	B:C ratio	Net return	B:C ratio
Improved vegetable varieties/hybrids	Chilli	CH 27	Local variety	242.5	219	10.73	233900	3.06	205760	2.76
	Brinjal	PBHR 41/PBH5	Diamond	281.75	196	43.75	400940	3.11	233500	1.74
	Muskmelon	Madhu	Local variety	312.5	280	11.61	771125	3.15	466500	2.13
	Peas	MA 7 & PB 89	PB 88	187.5	147.5	27.12	359375	5.75	275625	4.90
	Onion	PRO 7	Local variety	405	330	22.73	283250	3.49	217250	2.72
	Tomato	PbBarkhaBahar 2	Local variety	625	537.5	16.28	384250	4.55	318425	3.76
Low tunnel cultivation of vegetables	Cucumber	Rajni/PbKheera I	Local variety	472.5	430	9.88	432125	6.75	387500	6.05
	Capsicum	Indira	Local variety	525	485	8.25	818750	2.26	721250	1.95

in both of the villages that are practicing low tunnel technology successfully. But the story of some farmers who make remarkable success in vegetable cultivation is essential to be narrated to the world to inspire many other farmers.

Shining stars

The first episode of the story started with the joint family in village Chatha Nanhera, who has diverted their conventional agriculture to vegetable cultivation, which improvised their net-income for their livelihood consequently diverting some village farm families towards this occupation. The members of this joint family namely Sh. Vinder Singh (54 years), Sh. Major Singh (59 years) and Sh. Khusia Singh (52 years) occupying 8 acres of their own land, have credited a moral name in the area with the adoption of vegetable cultivation with their enthusiasm and robust mind-set.

The turning point came into 2016, when Sh. Vinder Singh got chance to acquaint with FFP to proliferate his farm income. They planted one acre of hybrid chilli CH-27 during 2017 by taking training of food processing from Punjab Agricultural University (PAU), Ludhiana and earned net income of ₹1.87 lakh from green and red chilli produce of 116 quintals. This encouraged them to increase the area to 2 acres during 2018 from which they obtained output of 4 times more than rice-wheat system. Further by getting training in the hybrid seed and nursery production of chilli from FFP scientists, they earned net income of ₹1.80 lakh from CH-27 nursery in 2018 and integrated this entrepreneur with their on-going agriculture occupation system.

After being acquainted with the training under FFP, they adopted low tunnel production of vegetable in an area of 0.5 acre during winter (*rabi*) season 2018 and earned net income of ₹1.25 lakh from it. The triple income as compared to the wheat crop endeavoured them to increase the area under low-tunnel vegetables in 6 acres. They also diverted 2 acre area from rice to

early cauliflower and rainy (*kharif*) season cucumber, and adopted drip irrigation system and plastic mulching technique. With the adoption of these techniques, they planted 1.5 acres of muskmelon hybrid variety Bobby and watermelon hybrid variety Jannat and Mannat from which the net-income of ₹4.30 lakh has been obtained during 2018–19, encouraging to scale up the area under these crops.

The average net-income of Sh. Vinder Singh's family was ₹2.34 lakh, ₹2.64 lakh and ₹2.93 lakh per acre for the year 2019–20, 2020–21 and 2021–22, respectively which accounts for an average of ₹2.64 lakh per acre i.e. 3.5 times more than rice-wheat cropping pattern. Sh. Vinder Singh Chatha and their brothers have been honoured with the reputed awards at the Kisan Melas and Agricultural Diversification Award in recognition of their achievements and have also achieved many crop-produce competition prizes.

Another champion farmer of vegetable cultivation is Sh. Hakam Singh (50) having 7 acres of land from village Taranji Khera. He studied upto 8th standard and then got indulged in farming with his father to support family. Earlier, he was following traditional wheat-paddy rotation and was getting normal farm income from the field. Although he started vegetable



Documentary making on the farm of Sh. Vinder Singh



DG, ICAR Dr T. Mohapatra giving award to Sh. Hakam Singh

cultivation on 0.25 acre area in 2013, but the output was only limited to meet the family needs. During year 2016, he came in contact with the Farmer FIRST team from PAU, Ludhiana. He actively participated in the project activities with the team and came to know about the different vegetable raising techniques including poly-house, low tunnel, intercropping and drip irrigation. He started commercial vegetable cultivation on 0.5 acres of land in 2017. The scientists from Farmer FIRST team paid timely visits to his farm and guided him regarding vegetable cultivation.

In the following year, the area under vegetable cultivation increased from 0.5–1.5 acre. Further, farmer started to use low tunnel technology and plastic mulch to grow off-season and weed free crop. Due to better management practices and prior marketing strategy, farmer attained a net income 5 times higher than the returns promised by wheat from that particular area. Sh. Hakam Singh also performed experiments in his field to understand the different combination of crops. The farmer developed an intercropping innovation i.e. intercropping of brinjal and cucumber, which is recognized by NAARM, Hyderabad and he received the Innovative Farmer Award.

The farmer has developed good market linkages and the merchants procure the produce directly from the farmer's field. Currently, Hakam Singh is doing successful vegetable cultivation on 2.0 acres of land by raising summer squash, bitter gourd, capsicum, chilli, brinjal, cucumber and ash gourd. From 2 acres of land, he obtained 8.30 lakh gross income and 6.65 lakh net profit in the year 2021–22, which leads to the 3.32 lakh net profit per acre. So, Sh. Hakam Singh is setting an example in the area by earning 5 times more income than paddy-wheat rotation. The farmer is very grateful to the FFP operational in his village for the exposure and technical knowledge he has attained from the scientists. He is further planning to increase the area under other commercial vegetable crops and learning new skills in vegetable production.

Mandip Singh (35) from village Chatha Nanhera became an example for the nearby villages in vegetable cultivation enterprise. A young farmer having about 6 acres of land has changed the future of his family with sheer dedication and scientific orientation delivered to him by scientists of PAU under FFP operational in the

village. Mandip Singh wanted to do something different from traditional system. So after studying upto 12th, he moved in the direction of becoming successful farmer. Meanwhile, he came in contact with scientists from PAU, who adopted his village under Farmer FIRST project. The team provided technical knowledge and also indulged him in training courses on successful vegetable cultivation at university.

Mandip Singh started vegetable cultivation from 0.5 acre where he raised chilli, tomato, brinjal, cucumber and bottle gourds for local market and obtained a fruitful crop that year. After the successful cropping, he started keeping himself in touch with the scientists working in the project. Gradually, he enhanced his capacity to produce vegetables. He started to grow onion, cabbage, cauliflower, bottle gourd, cucumber, chilli, brinjal and some local vegetables. He got ₹200–300 on a daily basis by selling vegetables in his own village. In year 2018–19, he had obtained net income of ₹1.25 lakh by raising bottlegourd on 0.75 acre of land. The remunerative income boosted his morale to upscale the vegetable cultivation enterprise.

At present, he is growing vegetables on 2.0 acres of land and growing various vegetables such as capsicum, chilli, cucumber, summer squash, sponge gourd, bitter gourd, muskmelon, watermelon. He fetched the gross income of about ₹9.5 lakh and earned ₹4.5 lakh net profit from the vegetable cultivation in the



Farm innovation by Mandip Singh

year 2021–22. Mandip Singh has also developed some farm innovations such as fumigation of cucurbits with guggal to prevent premature fruit drop. The innovation of farmer also got published by NAARM Hyderabad in list of field innovations under Farmer FIRST Project. He is of the opinion that farming can be successful when one takes the right decision at the right time and puts in considerable hard work. He further added that due to increased farm income, he became able to educate his children in good schools and raised the standard of living of his family. Now, he is able to manage the livelihood of his family through vegetable cultivation and has become a pioneer commercial vegetable grower in the surroundings.

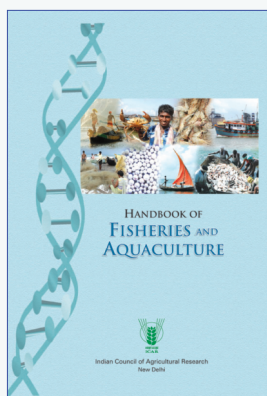
SUMMARY

Vegetable cultivation as a potential enterprise could contribute towards enhancing the farmers' income and uplifting their livelihood. Thus, under the Farmer FIRST Programme (FFP), farmers in the adopted village of Sangrur (Punjab) were introduced with improved high yielding varieties and advanced cultivation techniques. To popularize the high yielding varieties/hybrids

of vegetables, advance techniques and low tunnel cultivation of vegetables were conducted in the adopted villages. Project team regularly provided guidance to the farmers which resulted into the remarkable success regarding vegetable cultivation. Some of the farmers became so successful that they became an inspiration for other farmers. These shining stars, Vinder Singh, Hakam Singh and Mandip Singh, cultivated the high yielding improved varieties and advanced cultivation techniques of vegetable cultivation. At first, they became successful and generated multi-folded income than rice-wheat crop rotation themselves and then, uplifted other farmers' livelihood through farmer-to-farmer extension. They became inspiration for other farmers of their area and imparted vegetable cultivation skills to their fellow farmers and relatives, playing active role in crop diversification. Hence, it can be said that the vegetable cultivation module of the FFP is witnessing huge success in uplifting farmers' livelihood through vegetable cultivation enterprise.

*Corresponding author's e-mail: hodee@pau.edu

HANDBOOK OF FISHERIES AND AQUACULTURE



Fisheries is a sunrise sector with varied resources and potentials. The sector engages 14 million people at the primary level and is earning over ₹10,000 crore annually through exports. Fish consumption has shown a continuous increasing trend assuming greater importance in the context of 'Health Foods'. It is expected that the fish requirement by 2025 would be of the order of 16 million tonnes, of which at least 12 million tonnes would need to come from the inland sector and aquaculture is expected to provide over 10 million tonnes. The domestic market for fish and fishery products is also growing rapidly and necessary models and quality control protocols in this regard need to be developed.

In 2006, the Indian Council of Agricultural Research, brought out the First Edition of 'Handbook of Fisheries and Aquaculture'. The present revised edition comprises 42 updated and six new chapters, viz. Fish physiology; Aquaculture engineering, Fisheries development in India; Fisheries cooperatives; Demand and supply of fish; and Climate change – impact and mitigation. The Handbook would be of great value to students, researchers, planners, farmers, young entrepreneurs and all stakeholders in fisheries and aquaculture.

TECHNICAL SPECIFICATIONS

Size : Royal Octavo (16 cm × 24 cm) • No. of pages : i-x + 1116 • Price : ₹ 1500 • Postage : ₹ 100
ISBN No. : 978-81-7164-106-2

For obtaining copies:

Business Unit

Directorate of Knowledge Management in Agriculture
Indian Council of Agricultural Research
Krishi Anusandhan Bhavan-I,
Pusa, New Delhi 110 012
Tel : 011-25843657, Fax 09-11-25841282;
E-mail : bmicar@icar.org.in