

Sowing rows of prosperity through chilli farming as a family tradition

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This article revolves around farming families who have successfully evolved a new tradition of chilli farming through generations. The article describes the journey of a few luminary farming families who reside in southwestern border district of Ferozepur, Punjab known for its fertile lands and bountiful harvests. It is about farmers who ditched away from the traditional rice-wheat cropping cycle and capitalized the qualities of innovation, determination, and hope. For these families, growing chilli is not just a means of livelihood, but a way of life now. These families have invested countless hours of passion, dedication, and hard work, done to make chilli cultivation a profitable enterprise, and the results are truly remarkable. Their journey is as inspiring as it is heartwarming. The rows of chilli transformed into a source of prosperity not only for these families but the neighbouring communities.

Keywords: Chilli cultivation, Economic resilience, Technology dissemination

S. Manpreet Singh is a fourth-generation farmer who specializes in cultivating chilli. The family's tradition of growing chilli began with his great-grand father, S. Gurdit Singh who brought nursery of chilli plants from Jalandhar in 1980's and started growing chilli on one-acre land. Manpreet derived his inspiration from his grandfather, S. Joginder Singh, and later his

father, S. Harbans Singh, who earned significant profits in chilli farming. With the release of a high yielding and early maturing chilli hybrid CH-3 by the Punjab Agricultural University (PAU) in the year 2002, he brought 8 acres under this single hybrid and continuously harvested hefty returns (yielding 110-120 q/acre red ripe chilli) for several years. In addition to his farming



S. Manpreet Singh



A chilli field in village Basti Dabbeawali, Ferozepur, showing the rows of chilli plants

duties, Manpreet Singh assumes a scientific role, one in which he diligently collects high-quality germplasm of chilli from diverse sources, and subjects them to mini-trials on his farm. According to him, he adopts a discerning approach to the cultivation of chilli, employing a rigorous methodology to guarantee the quality of his produce. Understanding the importance of soil health, plant nutrition and plant protection operations, he minutely monitors all field operations and

ensure precise interventions on time. Now, managing a sprawling 90-acre chilli farm in the village, Lumbriwala, Manpreet's current focus is sustainable practices, producing chilli nursery for his own use and sale, managing crop residue within the fields, using fertilisers on soil testing basis and prioritising non-chemical methods as a first line of defence against biotic stresses.

Karamjit Singh is a young farmer of village Lohke Kalan with a broad vision. Amidst his fields where rice and wheat once reigned supreme, a transformation towards sustainability and profitability quietly took root due to his realisation of environmental concerns.



S. Karamjit Singh

In a region where the traditional rice-wheat monocropping has been the norm for generations, Karamjit experimented with growing chilli varieties CH-1 and CH-3 on one acre of land in 2004. Each year, his confidence grew, and the area under chilli at his farm expanded. Later he shifted to improved hybrids like CH-27 and the latest CH-52, apart from other private hybrids. At present, he is cultivating chilli crops on 26.5 acres. To further enhance the margins, he also intercroops different vegetable crops like onion, garlic, seedless cucumber and French bean with main chilli crop.

Embracing modern techniques, Karamjit adopted drip irrigation on 5 acres of his farm for precise fertigation. Recognizing the importance of preserving soil health,

Table 1. Important attributes of Chilli (*Capsicum annuum*), market types and uses

Crop and botanical name	Chilli (<i>Capsicum annuum</i>)
Market types prevalent in India	(i) Fresh market (green, red, multi-colour whole fruits), (ii) Fresh processing (sauce, paste, canning, pickling), (iii) Dried spice (whole fruits and powder), and (iv) industrial extracts (paprika oleoresin, capsaicinoids and carotenoids)
Cultivation of other species like <i>C. frutescens</i> , <i>C. chinense</i> , and <i>C. baccatum</i>	Limited to home gardening in different regions
Important attributes	Pungency and colour
Chemical compound in chilli inducing burning sensation	Capsaicin and related capsaicinoid derivatives
Leading producers in India	Andhra Pradesh, Telangana, Madhya Pradesh, Karnataka and Odisha
Few latest improved hybrids recommended by Punjab Agricultural University, Ludhiana	CH-52 is suitable for cultivation under low tunnel, has tall, spreading and dark green plants, fruits 9.8 cm long, deep green when immature, deep red at maturity, fruits pungent with 0.9% capsaicin, high in dry matter of 25%, resistant to biotic stresses including leaf curl virus, fruit rot, and root-knot nematode, gives average yield of 255 q/ha CH-27 is suitable for processing/ powder making, plants are tall and spreading type, continue to bear fruits for a long time, fruits 6.7 cm long, thin skinned, light green when immature and deep red when mature, fruits pungent with 0.7% capsaicin, high in dry matter of 26%, rich in colouring matter (242 ASTA units), resistant to biotic stresses including leaf curl virus, fruit rot, and root-knot nematode, tolerant to sucking pests like thrips and mites, average fruit weight of 3.6 g, and gives 240 q/ha of average yield of red ripe fruit
Few other private hybrids prevalent in the area	Sahiba & Sunidhi (VNR seeds), Chilli 8307 & Chilli 6807 (United Genetics India)

he turned to paddy residue mulch to retain soil moisture and suppress weed control. Paddy straw mulch cuts the cost of weedicides by atleast 50-75% and minimized the need for excessive watering.

Karamjit diligently follows the recommendations provided by the Punjab Agricultural University (PAU) for the management of insect pests and diseases, ensuring that his crop was not only bountiful but also of the highest quality. Recognizing the importance of market linkage, he took the initiative to establish connections with local markets and buyers. By doing so, he not only ensured a fair price for his produce but also eliminated intermediary costs, further enhancing his profitability. Karamjit's journey of diversification and innovation through vegetables farming is not just a personal triumph, but also a shining example of how a farmer's vision can ignite change and pave the way for a more sustainable future.

Baljinder Singh, another young determined farmer hailing from the village Lohgarh also made his living by cultivating chilli. It has been more than ten years now since he first experimented with growing chilli on just half acre. Sharing his journey of initial struggle, he recalled the days when every morning he would rise before the sun, greeting the dawn with optimism, carefully nurturing each seedling, and whispering words of encouragement to them as if they



S. Baljinder Singh

were his children. Despite the doubts of his neighbours, he flourished with patience and perseverance, and presently growing chilli on 12 acres of land. Yellow sticky traps and other non-chemical methods of insect pest control are his favourites as he strongly believes in the quality of the produce. A couple of years ago, he took another initiative to produce and sell the nursery of chilli and other vegetables for better returns which met a very welcoming response. "Family support is my biggest asset" he whispered with a smile.

With weathered hands and a heart full of hope, Lakhwinder Singh toiled tirelessly in his fields day in and day out. This is about the journey of another young humble farmer from a small village Toot. "I somehow never wanted to spend my entire life tending to the same crops my ancestors had cultivated for generations, as they could barely sustain my family", Lakhwinder uttered with a determined glint in his eyes. Armed with nothing but his courage and thirst for knowledge, he embarked on a journey of crop diversification. Though he now manages a ber orchard, and some high-value crops like strawberries, but the vibrant hues of green and red chilli on his field spread the word of his success far and wide. With the guidance of PAU-FASC Ferozepur, he cultivates chilli hybrid CH-27 using PAU recommend action of transplanting two rows of chilli on 80 cm wide bed with row-to-row

distance of 60 cm and plant-to-plant distance of 45 cm. He utilised plastic mulch on the beds and paddy straw mulch between the beds to conserve moisture and discourage weed growth. By incorporating the drip irrigation system along with mulching, he saved up to 65-70% of irrigation water, and the weed growth in the field was almost negligible adding a decent saving on labour and the cost of weedicides. The plants received the right amount of irrigation water without any waste. Lakhwinder was amazed at how this simple yet efficient technology of PAU helped him conserve precious water resources. Besides CH-27, he also grows some private chilli hybrids intercropped with onions. Amidst the newfound prosperity among the rows of chilli, Lakhwinder remains humble and generously shares his expertise with his fellow farmers hoping to inspire them to venture beyond the limitations of tradition.

In the heart of Ferozepur, there is another village named Mahalam. This story revolves around the journey of Balwinder Singh, a 46-year-old farmer from the same village. He cultivates 30 acres of land, has 5 dairy animals, and maintains a backyard poultry unit. Realising the importance of diversification and the demand for high-quality chilli plants, he set to work transforming a small corner of his farm into a nursery of chilli plants way back in 2010. Balwinder poured all his energy into learning



S. Balwinder Singh

the intricacies of seed germination, plant propagation, and nursery management, seeking guidance from seasoned experts and experimenting tirelessly until he mastered the art. Balwinder's nursery quickly gained a reputation for excellence, with farmers praising the quality of his plants and the personalised attention he offers to every customer. Now he manages a nursery with sprinkler irrigation facility and supplies quality seedlings of PAU-recommended hybrids apart from some private hybrids. Chilli growers from neighbouring villages visit his nursery to purchase healthy and robust chilli seedlings. "Extending support to my fellow farmers, offering resources and encouragement to help them succeed in their endeavours is my passion now," he said passionately. Despite their different backgrounds and struggles, Manpreet, Karamjit, Baljinder, Lakhwinder and Balwinder shared some interesting common traits that have contributed to their success. Despite their humble background, all acted bold enough to leave behind the cultivation of traditional crops and venture into high-value crops; all five embarked on the journey of discovery, immersing themselves in agricultural literature, seminars, training workshops and guidance from experts of Punjab Agricultural University, Department of Agriculture & Farmers Welfare, and the Department of Horticulture; each one of them showed exceptional ability to experiment tirelessly;



S. Lakhwinder Singh attending plants of chilli hybrid CH-27 raised under double row on beds with drip irrigation system

each one of them acted responsibly and adopted eco-friendly practices for IPM, INM, NRM and crop production; all five generated employment for ruralites, and valued community and collaborations.

Understanding and witnessing the unique journey of each one of them, one could easily imagine the ups and downs faced by them to break free from the limitations of the traditional cropping system. Their journey of transformation is nothing short of miraculous events. With each bountiful harvest, their confidence grew, and today each one of them stands as a beacon of hope and inspiration in their

community. Large-scale production of chilli in the region is now catching the attention of buyers from far and wide places like Gujarat, Uttar Pradesh, Madhya Pradesh, etc. Also, a large number of farmers from neighbouring villages are showing their readiness to embrace a similar change for success.

Despite the government's recent launch of the Punjab Horticulture Advancement and Sustainable Entrepreneurship (PHASE) project, which promises attractive subsidies for chilli growers, farmers continue to grapple with numerous challenges that hinder their progress. Setting up essential

infrastructure such as collection centres, dryer units, cold storage, and processing facilities remain a significant hurdle. Moreover, without a robust marketing support and an assured minimum support price, farmers struggle to secure fair returns for their produce. The need for quality critical inputs including seeds, fertilizers, pesticides, etc. further exacerbates their difficulties. To truly empower the chilli producers and ensure their sustained success, it is imperative to develop a comprehensive local ecosystem that addresses their multifaceted needs, fostering growth and stability in the sector.

Table 2. Profile of selected farmers and farmers' income from chilli cultivation

Farmer's Name*	S. Manpreet Singh	S. Karamjit Singh	S. Baljinder Singh	S. Lakhwinder Singh	S. Balwinder Singh
Village	Lumbriwala	Lohke Kalan	Lohgarh	Toot	Mahalam
Age (years)	33	39	40	41	46
Qualification	B.A.	10+2	10+2	Primary	Middle
Land under cultivation (acres)	90	35.5	18	11	30
Own	25	9	6	2.5	5
Leased in	65	26.5	12	8.5	25
Area under chilli cultivation (acres)	65	26.5	12	5	18
Farming system before intervention	Traditional mixed farming (wheat+paddy)	Traditional mixed farming (wheat+paddy)	Traditional mixed farming (wheat+paddy)	Traditional mixed farming (wheat+paddy)	Traditional mixed farming (wheat+paddy)
Farming system after intervention	Agriculture + Horticulture (chilli, mushroom, strawberry, kitchen gardening) + dairy	Agriculture + Horticulture (chilli variety CH-52 & others, raising nursery and selling seedlings of chilli variety CH-27 and other private hybrids, onion variety PRO 7 and Punjab Naroya; kitchen gardening) + dairy	Agriculture + Horticulture (chilli, raising nursery and selling seedlings of chilli variety CH-27 and other private hybrids, onion, cauliflower; kitchen gardening) + dairy	Agriculture + Horticulture (chilli variety CH-27 on beds in double row system with drip irrigation; sale of seedlings of vegetables; kitchen gardening) + dairy	Agriculture + Horticulture (chilli, selling seedlings of chilli variety CH-27 & others raised with sprinkler irrigation facility) + dairy + backyard poultry
Principal crops	Chilli, capsicum, paddy, wheat	Chilli, capsicum, organic wheat, paddy, basmati, beans, onion, garlic, maize, cauliflower	Chilli, capsicum, paddy, sugarcane, onion, garlic, wheat, cauliflower	Chilli, capsicum, onion, peas, paddy, ber, strawberry	Chilli, capsicum paddy, wheat, maize, cauliflower
Gross returns** (₹/acre)		3,00,000			
Total variable costs** (₹/acre)		1,16,077			
Returns on variable costs** (₹/acre)		1,83,923			
Future goal	Improving soil health, productivity, and quality; developing a processing facility	Increasing area under CH-27, drip irrigation and prioritizing non-chemical methods of pest & disease management	Expanding the nursery, production of chilli and other vegetable crops	Maintaining an ecologically sustainable integrated farming system with special emphasis on high-value crops, ecologically sound IPM	Expanding the nursery, production of chilli and exploring more rewarding markets for chilli
*profile arranged in ascending order of farmer's age					
**average value of four farmers					



Technology dissemination programmes organized by PAU-FASC and KVK Ferozepur for the chilli growers of the district

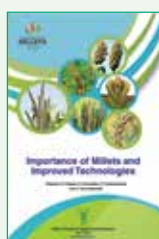
SUMMARY

Buoyed by their newfound prosperity and financial stability, these chilli heroes are now planning to further expand their operations, investing in a state-of-art processing equipment, hiring additional staff to meet growing demand and developing a complete marketing chain with the help of State Government, district authorities and experts. The State Government is also incentivising and promoting chilli cultivation by providing attractive subsidies on seed (@₹ 8,000 per acre), polythene for low

tunnels (50% subsidy/ ₹30,000 per acre), spray pump and power tiller (40-50% subsidy) from time to time. The recent launch of the Punjab Horticulture Advancement and Sustainable Entrepreneurship (PHASE) project will further address the concerns of chilli growers. With the handsome economic returns, subsidies provided by the government, and technical support by PAU and allied departments, the area under the chilli cultivation swelled to around 9000 acres in the district. Chilli fields teeming with vibrant greenery in March-April

transformed to the fiery colour of ripe chilli in May to end-June. With a sense of pride, these chilli growers are grateful for the abundance that their land has provided. The young farmers who are still yearning for a change must understand that sometimes the greatest rewards await those who are brave enough to take the leap of faith and self-commitment.

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