72 KRISHI VIGYAN KENDRAS AGRI-TRAILBLAZERS

SEEDS OF SUCCESS: YOUTH-DRIVEN MODELS OF ENTERPRISE, INNOVATION AND IMPACT

ICAR-AGRICULTURAL TECHNOLOGY APPLICATION RESEARCH INSTITUTE
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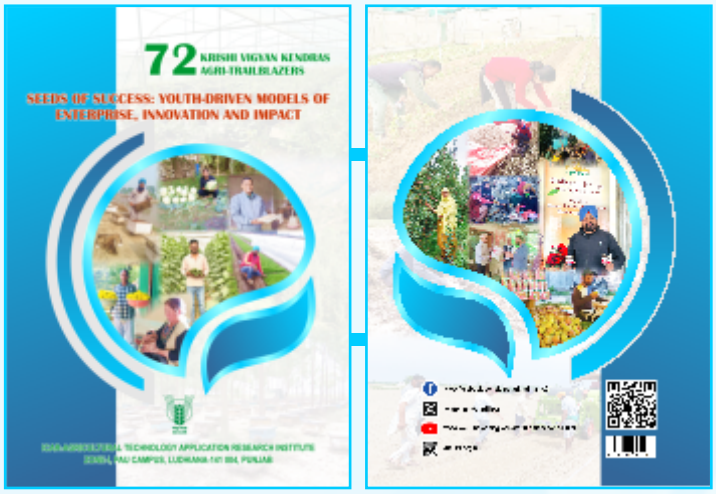

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PREFACE

Young entrepreneurs are emerging as powerful agents of change in Indian agriculture and allied sectors, bringing innovation, resilience, and enterprise-driven solutions to rural challenges. By combining scientific knowledge, local resources, and market orientation, these youth-led initiatives are redefining agriculture as a viable and aspirational livelihood. Their journeys reflect not only personal success but also the transformative potential of entrepreneurship in strengthening farm incomes, generating employment, and promoting sustainable and climate-resilient practices across diverse agro-ecological regions.

To recognize and showcase this growing momentum, ICAR–ATARI, Ludhiana has compiled a collection of success stories of young entrepreneurs from Zone-I (Punjab, Himachal Pradesh, Uttarakhand and the Union Territories of Jammu & Kashmir and Ladakh), with the active involvement of Krishi Vigyan Kendras (KVKs). The compilation highlights innovative ventures undertaken by rural youth in agriculture and allied enterprises, including crop and seed production, value addition and processing, agri-startups, floriculture, horticulture, beekeeping, mushroom cultivation, and other income-generating activities. These narratives capture the role of scientific interventions, institutional support, and entrepreneurial spirit in converting challenges into opportunities.

This compilation "Seeds of Success: Youth-Driven Models of Enterprise, Innovation and Impact" under the broader highlight "72 Krishi Vigyan Kendras; 72 Agri-Trailblazers" presents 72 impactful case studies reflecting innovation, hard work, and informed decision-making of the brilliant minds pursuing entrepreneurship in farming and its allied activities. The book reflects diversity and theme wise vast potential of farm-entrepreneurship, covering 20 success stories in Horticulture, 11 in Integrated Farming Systems, 10 in Livestock and Dairy Farming, 7 in Value Addition and Processing, 14 in Supplementary Agri-Enterprises and 10 stories under Miscellaneous Innovations themes that have strengthened farm income beyond conventional practices.

These 72 success stories are drawn from diverse agro-climatic regions of north-western India, reflecting the richness and resilience of its farming communities. Punjab being agriculturally most developed state produced 29 success stories, followed by Union Territory of Jammu and Kashmir (18 stories), Himachal Pradesh (15 stories), Uttarakhand (9 stories) and entirely cold desert Union Territory of Ladakh produced one success story, highlighting innovation across plains and hill agriculture. Together, these narratives offer valuable insights into region-specific innovations, adaptive practices, and income-enhancing strategies that can inspire farmers and agricultural stakeholders across the country.

It is a matter of great satisfaction to present this compilation, which aims to inspire rural youth, farmers, extension professionals, and policymakers by demonstrating scalable and replicable models of youth entrepreneurship. We gratefully acknowledge the visionary leadership of Dr. M. L. Jat, Secretary, DARE, and Director General, ICAR, for providing strategic direction to youth-centric agricultural development. We also express our sincere appreciation to Dr. Rajbir Singh, Deputy Director General (Agricultural Extension), ICAR, for his continued guidance and encouragement. The dedicated efforts of the KVKs of Zone-I in identifying, documenting, and compiling these success stories in a timely manner are highly commendable.

Editors


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INTRODUCTION

Agriculture in India is experiencing a significant transformation, moving away from subsistence-based, high-risk traditional practices toward a diversified, technology-driven, and market-oriented sector. This change is especially evident in the northern states of Himachal Pradesh, Punjab, Jammu & Kashmir, Uttarakhand, and Ladakh, where farmers are increasingly adopting scientific management, innovative techniques, and entrepreneurial approaches to enhance productivity and income.

The success stories highlighted in this compilation showcase the evolving identity of Indian farmers. They are no longer confined to food production alone but are emerging as agri-entrepreneurs, value creators, and rural business leaders. Through advancements in horticulture, integrated farming systems, livestock and dairy farming, value addition, supplementary enterprises, and other agri-based ventures, these farmers have demonstrated that agriculture can be profitable, resilient, and sustainable.

While challenges such as fragmented landholdings, climate variability, rising input costs, market uncertainties, youth migration, and environmental degradation persist, they have also spurred innovation. Progressive farmers are adopting high-value crops, protected cultivation, precision farming, organic and natural farming, agro-processing, and agri-tourism. With the right blend of knowledge, technology, diversification, and market support, farming today can generate annual incomes exceeding ₹300 lakh, proving its potential as a competitive and respected profession.

Innovations in Horticulture

Horticulture has become a major driver of agricultural growth, particularly in hill states, by offering much higher returns than traditional cereal farming. Crops such as apple, persimmon, blueberry, cut flowers, vegetables, dragon fruit, lavender, mango, and ornamental plants are transforming farm incomes. A notable example from Himachal Pradesh shows a farmer earning ₹322.79 lakh annually through high-value persimmon and blueberry cultivation, highlighting the benefits of exotic crops, scientific orchard management, and market-oriented production.

Diversified temperate horticulture, protected cut-flower cultivation, and commercial nursery enterprises enable farmers to earn ₹40–70 lakh annually. These cases emphasize the importance of crop diversification, polyhouses, high-density planting, nursery entrepreneurship, and branding with direct marketing. In Punjab, protected vegetables generate over ₹30 lakh annually, while in Jammu & Kashmir, high-density apple orchards with nurseries earn nearly ₹29 lakh, shifting farmers toward premium enterprises.

Integrated Farming Systems

Integrated Farming Systems (IFS) follow a holistic approach by combining crops, livestock, fisheries, vermicomposting, and allied activities to enhance income, reduce risk, and promote sustainability. In Jammu & Kashmir, diversified IFS models have generated incomes up to ₹74.10 lakh annually by integrating horticulture, dairy, poultry, fisheries, and composting. These systems effectively address challenges such as small landholdings, income instability, waste recycling, employment generation, and climate resilience. Inspiring examples show that IFS supports reverse migration of youth, empowers women entrepreneurs, helps small farmers overcome land constraints, and increases profitability through natural farming and vermicomposting.

Livestock and Dairy Farming

Livestock and dairy farming remain central to rural livelihoods in North India, with traditional systems increasingly giving way to hi-tech, commercial, and scientific models. Punjab leads with large-scale dairy farms earning up to ₹62.37 lakh annually and poultry enterprises generating about ₹18.48 lakh, driven by scientific breeding, balanced nutrition, animal health care, and strong value chains. In Jammu & Kashmir, cold-water trout farming and inland aquaculture have opened new income avenues, demonstrating the potential of aquaculture entrepreneurship even in challenging terrains.

Value Addition and Processing

Value addition has become a powerful tool for increasing farm income. Instead of selling raw produce, farmers are now processing, branding, and marketing their products. Successful ventures include sugarcane-to-jaggery processing (₹59.45 lakh), honey and agro-processing units (₹25.68 lakh), organic food processing (₹21.83 lakh), and e-marketing of horticultural produce (₹22.07 lakh).

These examples show how on-farm processing, packaging, branding, digital marketing, and direct consumer linkages significantly enhance profitability. Value addition also reduces post-harvest losses and creates rural employment.

Supplementary Agri-Enterprises

Supplementary enterprises such as beekeeping, mushroom cultivation, art and craft, and honey processing are providing steady incomes to farmers and landless families. These activities require limited land, offer quick returns, generate year-round income, and support women and youth entrepreneurship. From oyster mushroom production in Uttarakhand to honey-based enterprises in Himachal Pradesh, these ventures demonstrate how small-scale initiatives can deliver substantial economic and social impact.

Miscellaneous Innovations

Agricultural innovation is not limited to crops and livestock. Many farmers have diversified into seed production, custom hiring centres for farm machinery, agro-eco tourism, vermicomposting, and natural farming. Seed production ventures in Punjab generate ₹27–35 lakh annually, while agro-eco tourism in Uttarakhand has strengthened food processing businesses. Natural farming initiatives in Himachal Pradesh and Jammu & Kashmir show that environmentally friendly practices can ensure safe food production and stable income.

Overall Scenario

The income figures highlighted in these success stories demonstrate the transformative potential of modern agriculture. With annual net earnings ranging from ₹5 lakh to over ₹322 lakh, farmers have improved living standards, generated rural employment, reduced migration, and strengthened local economies. Many have emerged as role models, proving agriculture can be a prestigious and profitable profession. Institutional support from KVKs, agricultural universities, ICAR institutes, state departments, and farmer producer organizations has been vital, offering training, demonstrations, and technical guidance. Together, these experiences provide a clear blueprint for rural development, demonstrating that scientific farming, diversification, value addition, entrepreneurship, and innovation are essential for higher incomes, food security, climate resilience, and sustainable rural prosperity.

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A. INNOVATIONS IN HORTICULTURE

Horticulture has emerged as one of the most dynamic and income-enhancing sectors of Indian agriculture, offering immense opportunities for diversification, value addition, employment generation, and sustainable livelihood security. In an era marked by shrinking landholdings, climate variability, and rising input costs, horticultural enterprises-ranging from fruits and vegetables to nurseries, floriculture, and high-value crops-have enabled farmers to break free from the limitations of traditional cereal-based farming. The success stories presented in this section vividly demonstrate how innovation, scientific management, and market-oriented approaches in horticulture can transform farm incomes and strengthen rural economies.

This section of the book brings together a rich collection of horticulture-based success stories from diverse agro-climatic regions, including plains, mid-hills, high hills, and cold desert areas. The stories highlight how farmers, supported by Krishi Vigyan Kendras (KVKs) and other extension systems, have adopted location-specific technologies, improved crop choices, and integrated modern practices to achieve remarkable economic gains. These narratives not only showcase impressive net incomes but also reflect resilience, entrepreneurship, and adaptability among farming communities.

Several success stories focus on high-value fruit cultivation, demonstrating how farmers have leveraged the comparative advantages of their regions. For instance, the adoption of persimmon and blueberry-based high-value horticulture in Kullu illustrates the economic potential of niche and non-traditional fruit crops when combined with scientific orchard management and value addition, resulting in exceptional income levels. Similarly, apple-based systems in temperate regions, including protected cultivation and quality nursery production, underline the importance of quality planting material, canopy management, and post-harvest handling in enhancing profitability.

The role of protected cultivation and precision horticulture is another prominent theme across these success stories. Farmers cultivating high-value vegetables under protected conditions have successfully overcome climatic constraints, extended growing seasons, and improved both yield and quality. Such interventions have proven especially beneficial in regions where open-field cultivation faces limitations due

to temperature extremes or erratic weather patterns. The stories emphasize that even small and marginal farmers can achieve substantial income gains by adopting cost-effective protected structures and scientifically recommended production practices.

A significant number of narratives in this section revolve around vegetable cultivation and seed production, highlighting their potential as reliable income-generating enterprises. Farmers from regions like Faridkot and Mansa have demonstrated how the cultivation of high-value vegetables, combined with seed production and nursery raising, can ensure year-round income and better price realization. These success stories also underline the importance of entrepreneurship, forward planning, and market linkages in transforming vegetable farming from a subsistence activity into a profitable agri-business.

The section also sheds light on orchard-based entrepreneurship, where farmers have diversified beyond traditional fruit crops to explore emerging options such as dragon fruit and integrated orcharding models. These stories illustrate how careful crop selection, quality planting material, efficient irrigation systems, and scientific nutrient management can significantly improve orchard productivity and economic returns. Transitioning from cereal-based farming to fruit and vegetable-based systems has not only increased farm income but also contributed to improved soil health and resource-use efficiency.

Another notable aspect highlighted in these success stories is the growing importance of nursery production and floriculture as specialized horticultural enterprises. Farmers engaged in commercial nursery raising of ornamental plants, fruit saplings, and vegetable seedlings have successfully tapped into increasing demand from both farmers and urban consumers. These enterprises require relatively small land areas but offer high returns when supported by technical knowledge, quality control, and effective marketing strategies. Such examples are particularly relevant for youth and women entrepreneurs seeking viable agri-enterprises with lower land dependency.

The success stories from hill and cold regions further emphasize adaptive horticulture under challenging environments. Farmers in areas such as Lahaul & Spiti and Kargil have demonstrated that, even under extreme climatic conditions, horticulture can be a profitable venture when supported by suitable crop choices, organic and natural farming practices, and efficient resource management. These stories stand as powerful examples of human ingenuity and determination, showcasing how farmers have turned geographical constraints into economic opportunities.

Across all these narratives, the role of innovation, capacity building, and institutional support is clearly evident. Krishi Vigyan Kendras have played a pivotal role in technology dissemination, skill development, and handholding of farmers, enabling them to adopt improved horticultural practices with confidence. The success stories reflect a strong linkage between research, extension, and field-level adoption, reinforcing the importance of knowledge-driven agriculture.

Collectively, this section on horticulture serves as a source of inspiration and practical guidance for farmers, extension professionals, policymakers, and agri-entrepreneurs. The stories demonstrate that horticulture is not merely an alternative to traditional farming but a powerful engine for income enhancement, sustainability, and rural transformation. By documenting real-life experiences and proven models, this section aims to encourage wider adoption of horticultural enterprises and to contribute to the vision of doubling farmers' income through diversification, innovation, and market-oriented agriculture.

1

DEMONSTRATING REVOLUTIONARY ECONOMICS THROUGH PERSIMMON AND BLUEBERRY BASED HIGH-VALUE HORTICULTURE

Name	**Mr. Vishal Kumar Thakur**
Age	**34 years**
Address	**Vill. Churla, PO-Dugilag, Teh. Kullu-175 101 (HP)**
Qualification	**B. Tech**
Mobile	**7018342467**
KVK	**Kullu**

Background/ Situation

Mr. Vishal Kumar Thakur, an Electronics and Communication Engineering graduate from Kullu, Himachal Pradesh, transitioned from a seven-year corporate career in Delhi to a successful horti-entrepreneur in his native region, demonstrating the potential of market-led, technology-driven mountain agriculture. His family established a persimmon orchard in 2009 with 250 plants on 1.4 acre, generating ₹7–8 lakh annually by 2019–20 through local mandi sales. During the COVID-19 pandemic, he returned to Kullu and professionalized the enterprise by introducing branding, value addition, improved packaging, cold-chain logistics and digital marketing under the brand "Fungani Orchards," aggregating produce from local farmers and expanding market access to major Indian cities and international buyers, which increased net profit to ₹25 lakh in 2020–21. He subsequently diversified into fruit nursery production and pioneered commercial blueberry cultivation in Kullu under "Fugni Berry Farms," supported by scientific orchard management, precision irrigation and a tissue culture nursery launched in 2023.

KVK Intervention

Krishi Vigyan Kendra (KVK) Kullu acted as a key scientific partner by providing continuous, need-based technological backstopping to support Mr. Vishal's high-value horticultural enterprises. The interventions included scientific orchard planning and soil health management, particularly guidance on soil testing, land preparation, and maintaining acidic pH for blueberry cultivation through customized soil media and amendments, along with recommendations of suitable high-yielding varieties adapted to Kullu's microclimate. KVK also imparted hands-on training on high-density planting, canopy management, pruning, integrated nutrient and water management, drip irrigation, fertigation, mulching, and weed control to enhance productivity and resource efficiency. Support was extended in post-harvest handling through guidance on grading, packaging, shelf-life enhancement, export standards, and market linkages, including FPO networking. In addition, KVK provided technical support for nursery development, quality planting material production, and establishment of the tissue culture facility, along with regular field diagnostics, IPM advisory, and climate-resilient practices. This sustained scientific support reduced production risks, enabled successful diversification, and aligned the enterprise with state priorities on exotic fruit promotion and sustainable horticulture.

Innovation/ Initiative

Mr. Vishal's success is rooted in innovation, strong market orientation, and community-centric

entrepreneurship, making his enterprise a model for high-value horticulture. He developed premium brands, “Fungani Orchards” for persimmons and “Fugni Berry Farms” for blueberries, and leveraged digital marketing, e-commerce, and bulk buyer networks to connect Kullu farmers with major Indian cities and international markets including Nepal, Dubai, and Bangladesh. By introducing export-oriented orchard management practices such as modern packaging, cold-chain logistics, traceability, and quality compliance, he achieved a significant income jump from ₹7-8 lakh in 2019-20 to ₹25 lakh within the first year. As a pioneer of commercial blueberry cultivation in Kullu, he established scientifically managed orchards with over 10,500 plants across Kullu and Banjar blocks using imported varieties and sustainable practices. He further strengthened the value chain through his own nursery and tissue culture facility, producing 10,000-20,000 plants annually, with cumulative sales exceeding ₹1 crore since 2023. Alongside marketing premium fresh blueberries at ₹1,200–1,500 per kg, he empowers local farmers and generates employment for rural youth and women.

Socio-Economic Impact

Mr. Vishal Thakur's transition from a corporate engineer to a horti-entrepreneur in Kullu has generated strong socio-economic gains for the region. His focus on high-value crops and professional marketing resulted in sharp income growth between 2020 and 2025, demonstrating the strong multiplier effect of agri-entrepreneurship in mountain regions. By aggregating and procuring persimmons from local farmers, he improved price realization by an estimated 20-30 per cent over traditional mandi sales, injecting liquidity into smallholder systems and encouraging quality production. The persimmon orchard established over 1.4 acre with 250 plants incurred an input and operational cost of ₹2.23 lakh and generated a gross income of ₹6.41 lakh, resulting in a net income of ₹4.18 lakh. Blueberry cultivation, spread over 10 acre with 10,500 plants, emerged as the most profitable enterprise, with an input cost of ₹1.37 crore and a substantially higher gross income of ₹4.00 crore, yielding a net income of ₹2.63 crore. The fruit nursery unit, with an annual capacity of 45,000 plants, incurred an operational cost of ₹ 34.33 lakh and recorded a gross income of ₹89.75 lakh, resulting in a net income of ₹55.42 lakh. Overall, the integrated enterprise model generated a total gross income of ₹4.96 crore with a net income of ₹3.23 crore against a total investment of ₹1.73 crore, demonstrating the high profitability and economic viability of diversification through high-value horticultural crops and nursery production. (Table 1).

Table 1: Enterprise-wise financial summary of persimmon, blueberry and nursery units (2025)

Enterprise	Persimmon Orchard	Blueberry Farms	Fruit Nursery	Total
Area / Capacity	1.4 acre	10 acre	45,000 units/ annum	
Plants Count	250 plants	10,500 plants	Nursery-based	
Input Costs & Operational (₹)	2,23,000	1,36,86,000	34,33,000	1,73,42,000
Gross Income (₹)	6,41,250	4,00,05,000	89,75,000	4,96,21,250
Net Income (₹)	4,18,250	2,63,19,000	55,42,000	3,22,79,250

Contributors: Surender Kumar, Ramesh Lal and Surinder Thakur, Krishi Vigyan Kendra, Kullu

2 DIVERSIFIED TEMPERATE HORTICULTURE FOR EXEMPLARY INCOME GENERATION

Name	Mr. Karan Singh
Age	44 years
Address	Vill. Dharon Ki Dhar, PO-Kotla, Teh. Solan-173 212 (HP)
Qualification	M. Sc.
Mobile	9418228453
KVK	Solan

Background/ Situation

Mr. Karan Singh, an innovative farmer from Village Dharon Ki Dhar, Solan (HP), has successfully diversified temperate horticulture through fruit nursery production, protected cultivation of carnation and blueberry, and the establishment of multi-fruit orchards. A postgraduate from Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, he completed his M.Sc. in 2004, and after brief professional experience, established his own farming enterprise in 2011. Today, he manages an integrated horticultural system comprising accredited fruit nurseries, high-value floriculture, protected cultivation, and scientifically managed orchards, supplying quality planting material across Himachal Pradesh and neighbouring states. His enterprise includes diversified orchards and about 3,000 m² of polyhouse area, ensuring extended fruiting periods and stable income generation.

KVK Intervention

Despite being a postgraduate in horticulture, Mr. Karan Singh further strengthened his practical skills by undergoing training on fruit nursery production under the ARYA project at KVK Solan in 2019. This intervention enabled him to transform his traditional farm into a commercial enterprise by improving his expertise in grafting, budding, scion wood management, and production of true-to-type, disease-free planting material. With continued technical backstopping from KVK and the university, he adopted scientific orchard management practices, including need-based irrigation, nutrient management, and eco-friendly pest control measures such as solar traps. Training under the Natural Farming Mission further encouraged him to adopt natural farming practices in kiwifruit, stone fruits, and persimmon cultivation.

Innovation/ Initiative

With scientific backstopping from KVK Solan, Mr. Karan Singh adopted protected cultivation of carnation in 2011 on 1,000 m², later expanding it to 3,000 m², which ensured stable income despite climatic challenges. He further diversified by cultivating chrysanthemum and gladiolus as intercrops in fruit orchards for additional returns. With expansion into fruit nursery production and new orchards, he adopted advanced technologies such as micro-irrigation, mulching, soilless media, improved canopy management, and clonal rootstock propagation, and established his own budwood bank of temperate fruit cultivars. In 2025, he further diversified into protected cultivation of blueberry over 1,000 m², strengthening income stability and enterprise resilience.

Socio-Economic Impact

From producing merely 3,000 plants in 2013, Mr. Karan Singh now produces about 50,000 plants annually, including apple, kiwifruit, plum, apricot, peach, nectarine, pear, pomegranate, and persimmon (Table 1). He

earns a net profit of approximately ₹13 lakh from protected cultivation of carnation (Table 2), contributing to a total annual net income of around ₹70 lakh from nursery production and carnation, which reflects the commercial viability and scale of his diversified horticultural enterprise.

Table 1: Year-wise economics of fruits nursery enterprise

Year	Enterprise	No. of plants propagated	Price per plant (₹)	Gross returns (₹)	Expenditure (₹)	Net returns (₹)
2013-14	Apple, pear, kiwifruit, stone fruits, pomegranate	3,000	50-70	2,00,000	50,000	1,50,000
2014-15		5,000	50-70	3,80,000	60,000	3,20,000
2015-16		10,000	70-90	8,00,000	2,00,000	6,00,000
2016-17		15,000	90-100	14,00,000	4,00,000	10,00,000
2017-18		16,000	90-150	18,00,000	5,00,000	13,00,000
2018-19		25,000	120 -150	44,50,000	7,00,000	37,50,000
2020-21		35,000	120-150	55,00,000	9,00,000	46,00,000
2022-23		45,000	150-250	60,00,000	10,00,000	50,00,000
2024-25		50,000	150-300	70,00,000	13,00,000	57,00,000

Table 2: Year-wise economics of carnation production under protected cultivation

Year	Crop	Area (m^2) & No. of Plants	Cost of cultivation (₹)	Gross returns (₹)	Net returns (₹)
2023-24	Carnation	3,000 (60,000)	6,50,000	20,50,000	14,00,000
2024-25		3,000 (60,000)	7,00,000	20,00,000	13,00,000

Awards and Recognitions

Agriculture Technology Management Agency (ATMA), Solan conferred upon him the “Best Farmer Award” in 2014. He was awarded with the prestigious Pandit Deendayal Upadhyay Antyodaya Krishi Puraskar-2019 by ICAR for Zone-1. In 2022, he bagged “Solan Iconic Award” from Himachal Dastak, a prominent media house of HP. He is a major supplier of true-to-type plants and consultancy services to the farmers of HP, Uttarakhand, J&K and several north-eastern states.

Contributors: Anurag Sharma, Meera Devi and Arti Shukla, Krishi Vigyan Kendra, Solan

3

EXEMPLARY ENTREPRENEURSHIP THROUGH PROTECTED CULTIVATION OF CUT FLOWERS

Name	Mrs. Meena Kumari
Age	44 years
Address	Vill. Beri Drollan, Teh. Jhandutta, Bilaspur-174 024 (HP)
Qualification	M.A., B.Ed.
Mobile	9816006341
KVK	Bilaspur

Background/ Situation

Mrs. Meena Kumari, a resident of District Bilaspur, Himachal Pradesh, initially worked as a school teacher after completing her M.A. and B.Ed. Despite having limited landholding and being located in a subtropical climatic zone not traditionally associated with commercial floriculture, she had a strong inclination towards farming from an early age. She started her agricultural journey at a very young age around 1999–2000 with the cultivation of flowers such as marigold and gladiolus. Low income from conventional crops and the absence of assured markets posed major challenges. However, her determination to adopt high-value agriculture encouraged her to explore protected cultivation and commercial floriculture. With limited resources but strong motivation, she gradually moved from subsistence farming to market-oriented flower production. The turning point came when she recognized the potential of diversified cut flowers and scientific management practices to generate sustainable income and employment. Today, she is acknowledged as a progressive and innovative flower grower, setting an example for farmers, especially women, in Himachal Pradesh.

KVK Intervention

Krishi Vigyan Kendra (KVK), Bilaspur played a pivotal role in transforming Mrs. Meena Kumari into a successful floriculture entrepreneur. From 2015 onwards, KVK scientists provided continuous technical guidance on protected cultivation, selection of suitable flower crops, nursery management, fertigation, plant protection and post-harvest handling of cut flowers. She was trained in advanced flower production technologies, crop diversification and market-oriented planning. Exposure visits, on-field demonstrations and regular advisory services helped her adopt scientific practices for crops such as carnation, gerbera, rose, gypsophila, lisianthus and spray carnation. Through capacity-building programmes and farmer–scientist interactions, she enhanced her managerial and technical skills. KVK further encouraged her to act as a farmer-trainer, enabling horizontal spread of innovations among fellow farmers in the district and state.

Innovation/ Initiative

Mrs. Meena Kumari is the first farmer in Himachal Pradesh to introduce high-value flower crops such as gypsophila, spray carnation, lisianthus and dianthus (green ball) under protected cultivation. Her most notable innovation is the modification of polyhouse ventilation systems, which

significantly reduced temperature and humidity stress under subtropical conditions. This innovation enabled her to extend the productive life of carnation crops up to five years, compared to the usual two-three years in the region. Improved ventilation minimized fungal diseases, enhanced flower quality in terms of colour, stem length, shine, compactness and reduced plant mortality. She has also diversified floriculture by introducing a wide range of flower varieties and integrating allied enterprises like dairy and fishery. By forming a group of nearly 300 farmers, she actively promotes scientific floriculture through trainings, live demonstrations, media interactions and doordarshan programmes, making her a true change agent in the region.

Socio-Economic Impact

The adoption of scientific floriculture transformed the socio-economic status of Mrs. Meena Kumari and her family. From low returns in traditional farming, she now earns a gross annual income of about ₹62 lakh with a net income of ₹41 lakh and a B:C ratio of 2.95 (Table 1). Her enterprise generates regular employment for around 20 local people, including women and rural youth, contributing to livelihood security in the village. She has emerged as a role model for women farmers, inspiring them to adopt high-value crops and agri-preneurship. Her vision of developing a "flower village" and value addition through incense sticks and rose water further reflects her commitment to sustainable rural development.

Table 1: Economic performance of Mrs. Meena Kumari's floriculture unit

Particulars	Details
Area under floriculture	0.70 ha (Protected + Open cultivation)
Major Crops	Carnation, Spray Carnation, Gerbera, Rose, Gypsophila, Lisianthus, Dianthus, Gladiolus and Marigold
Cost of cultivation (₹/year)	21,00,000
Gross returns (₹/year)	62,00,000
Net returns (₹/year)	41,00,000
Benefit-cost ratio (B:C)	2.95

Awards and Recognitions

Mrs. Meena Kumari received following awards:

- IARI Innovative Farmer Award 2025
- Innovative Women Entrepreneur Award 2025 by ICAR-ATARI Zone-I Ludhiana
- Global farmer Business Summit 2025
- Rose Puraskar 2024, (Large Category)
- Rose Puraskar 2024, (Industry)
- Progressive farmer Award by Agriculture Today Group 2024
- Krishi Jagran MFOI- 2023
- 3 State award (By SAU & State Department)

Contributors: Gourav and Seema Shah, Krishi Vigyan Kendra, Bilaspur

4

ECONOMIC EMPOWERMENT THROUGH CULTIVATION OF HIGH VALUE VEGETABLE CROPS

Name	**S. Baldhir Singh Bhullar**
Age	**34 years**
Address	**Vill. Basti Nanaksar, Teh. Faridkot, Faridkot-151 203 (PB)**
Qualification	**12th**
Mobile	**9465008281**
KVK	**Faridkot**

Background/ Situation

S. Baldhir Singh Bhullar is a highly innovative farmer. His innovations are unique in the sense that he has been able to convert adversity into opportunity through innovative crop planning in the field of vegetable production. He has diverted 19 acres from paddy-wheat cycle into vegetable farming. Protected cultivation of vegetables is his forte. He has a large holding doing farming on 138 acres across district Faridkot and district Ganganagar in Rajasthan. Prior to 2021, he was following the paddy-wheat cropping system. He firmly believes that it is our responsibility to restore and replenish what we take from the earth by giving back to Mother Nature. To accomplish his belief, he was into crop residue management quite early in 2019. It was in the year, 2021 that his wheat crop sown with Super Seeder on 19 acres was devastated by pink stem borer making him think to shift to other crops which could be remunerative in the longer run. During the hours of distress, he came in contact with Krishi Vigyan Kendra (KVK) Faridkot where scientists guided him to raise tomato and late cauliflower on 19 acres devastated by stem borer. This proved to be a boon for him giving him net returns of ₹95,000 per acre. Thus, with his hard work and determination, he turned the adversity into an opportunity.

KVK Intervention

Buoyed by the success, he made plans to make foray into protected cultivation of vegetables as well. He took training on cultivation of seedless cucumber and capsicum under net house from KVK Faridkot. He imbibed finer points of vegetable cultivation under net house ranging from training and pruning to seed and seedling treatment with fungicides to combat damping off, use of sticky traps and spraying at pest population above ETL as means of IPM in net house and micro irrigation systems etc. He was also apprised about management of nematodes under protected cultivation. He grades and markets the produce at his own to earn higher benefits.

Innovation/ Initiative

The farmer has diverted 19 acres from paddy-wheat rotation cultivation to vegetables. He raises tomato and cauliflower on 12 acres. He grows both determinate and indeterminate hybrids of tomato on 7 acres. He produces cauliflower on 5 acres. He takes two crops of cauliflower by raising rainy season and main season cauliflower. He has acquired expertise in the field of protected cultivation of vegetables both under net house and low tunnels. He raises parthenocarpic cucumber on 2 acres in his net house. In other 2 acre under net house, he has ventured into strawberry, tomato, capsicum and gladiolus. He has cultivated coloured capsicum varieties along with green capsicum variety Indra. He raises nursery of tomato,

cauliflower, cabbage and onion on 0.25 acre under net house. By raising nursery in plug trays and by following seed and seedling treatment with fungicides, disease incidence has been reduced by 17 per cent, which is an additional income for him as he now sells 17 per cent more plants. He is raising water melon under low tunnel on 2.5 acre. To ward off nematodes and maintain soil health, he opts for green manuring with sunhemp.

Socio-Economic Impact

His income has increased 4 times after switching to vegetable farming as compared to paddy-wheat cropping system. He has inspired 7 farmers from the district to adopt protected cultivation of vegetables. Brief economics of vegetable crops raised at his farm is enlisted in Table 1. His farm has become a model farm for exposure visits by the allied departments, contributing to rural skill and entrepreneurship development.

Table 1: Economics of vegetables production by the entrepreneur

Crop	Area (Acre)	Production (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
Seedless cucumber (September-December) under net house	2	440	13,00,000	6,50,000	6,50,000
Seedless cucumber (February-June) under net house	2	830	16,30,000	8,40,000	7,90,000
Tomato	7	1274	8,40,000	2,80,000	5,60,000
Cauliflower	5	387.5	7,10,000	1,55,000	5,55,000
Capsicum under net house	0.5	77.85	3,05,000	1,75,000	1,30,000
Water melon under low tunnel	2.5	500	4,47,500	1,05,000	3,42,500
Total			**52,32,500**	**22,05,000**	**30,27,500**

Awards and Recognitions

His achievements have earned him place in Scientific Advisory Committee of KVK Faridkot and Advisory committee of ATMA and district Horticulture department. The innovative experience of enhancing farm income through cultivation of high value crops both under open field conditions as well as under protected cultivation combating adverse edaphic factors is worth emulating by other farmers in the state.

Contributors: Gurdarshan Singh and Rakesh Kumar, Krishi Vigyan Kendra, Faridkot; Jaskirandeep Kaur, ICAR-ATARI, Ludhiana

5

INTEGRATING HIGH-DENSITY APPLE ORCHARD WITH QUALITY NURSERY PRODUCTION FOR EXTRA-ORDINARY FARM PROFITABILITY

Name	**Mr. Ishfaq Ahmad Hajam**
Age	**40 years**
Address	**Vill. Magraypora, PO-Achabal, Anantnag-192 201 (J&K)**
Qualification	**12th**
Mobile	**9596019800**
KVK	**Anantnag**

Background/ Situation

Mr. Ishfaq Ahmad Hajam, a young farmer from Magraypora, Achabal, aspired to transform his small land holding into a sustainable and profitable enterprise. Coming from a traditional farming background, he initially faced challenges such as low income, limited technical knowledge, and strong market competition. The absence of modern orchard practices and low productivity further constrained the expansion of his horticultural activities. His situation improved when he received 500 rootstocks under a NABARD-supported project implemented through KVK Anantnag, which became the foundation for establishing a high-density apple orchard. With scientific guidance, training, and continuous support from KVK Anantnag, he successfully transitioned from low-yield traditional orchards to a modern, high-density apple production system supported by nursery plant production.

KVK Intervention

KVK Anantnag introduced high-density apple production techniques to the farmer under a NABARD-supported project. He received specialized training on improved apple varieties such as Super Chief, Red Delicious, Gala, and Fuji, along with scientific guidance on canopy management, fertigation, orchard floor management, pruning, and integrated pest and disease management, as well as nursery plant production. KVK support was further strengthened through regular on-farm visits, exposure tours, digital advisories, demonstrations, and farmer–scientist interactions. This continuous handholding enabled the successful establishment and gradual scaling of his high-density apple orchard and nursery enterprise.

Innovation/ Initiative

Mr. Ishfaq adopted several innovative practices, including high-density apple plantation using improved clonal rootstocks, drip irrigation with fertigation to enhance nutrient and water-use efficiency, and integrated pest management to reduce dependence on chemical pesticides. He also implemented scientific canopy and orchard floor management practices and established a horticulture nursery for producing elite planting material. These integrated innovations significantly improved fruit quality, nearly doubled yields per kanal, and strengthened the overall profitability of his orchard enterprise.

Socio-Economic Impact

High-density apple orcharding has doubled yield per kanal and improved fruit grade and market value, while drip fertigation and integrated pest management enhanced resource-use efficiency and reduced production costs. The enterprise generates employment for local youth and seasonal workers, strengthens market linkages, and serves as a demonstration model for modern apple farming, encouraging neighbouring farmers to adopt high-density plantation techniques. The year-wise economic performance of the high-density apple orchard and nursery enterprise indicates a steady and substantial increase in productivity and profitability over time (Table 1). In 2022, during the establishment phase, the combined orchard and nursery generated a net income of ₹2.52 lakh from 1.25 acre. With improved canopy development and expansion of nursery activity, net returns increased sharply to ₹8.30 lakh in 2023. By 2024, further yield stabilization and nursery scaling raised net income to ₹15.64 lakh from 1.50 acre. In 2025, the enterprise reached peak performance, generating a net income of ₹29.03 lakh, largely driven by higher apple yields and significant growth in nursery plant production.

Table 1: Year-wise economic performance of high-density apple orchard and nursery production venture of the entrepreneur

Year	Enterprises	Area (acre)	Production (kg/ No.)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2022	Apple Orchard	1.00	3,000 kg	2,72,000	1,40,000	1,32,000
	Nursery	0.25	2,300 No.	2,30,000	1,10,000	1,20,000
	Total	**1.25**		**5,02,000**	**2,50,000**	**2,52,000**
2023	Apple Orchard	1.00	7,800 kg	6,63,000	1,36,500	5,26,500
	Nursery	0.25	6,340 No.	3,90,400	87,250	3,03,150
	Total	**1.25**		**10,53,400**	**2,23,750**	**8,29,650**
2024	Apple Orchard	1.00	12,300 kg	12,05,400	2,22,000	9,83,400
	Nursery	0.50	13,337 No.	8,00,220	2,19,350	5,80,850
	Total	**1.50**		**20,05,620**	**4,41,350**	**15,64,250**
2025	Apple Orchard	1.00	17,711 kg	13,47,123	2,91,300	10,55,823
	Nursery	0.50	21,407 No.	32,11,050	13,63,720	18,47,330
	Total	**1.50**		**45,58,173**	**16,55,020**	**29,03,153**

Awards and Recognitions

Mr. Ishfaq Ahmad Hajam was conferred the Champion Farmer Award by SKUAST-Kashmir on the occasion of Kisan Diwas 2024 in recognition of his exemplary achievements in high-density apple cultivation and innovative horticultural practices.

Contributors: Ishtiyaq A. Khan, Shabeer Ah. Ganaie and Umer Bin Farook, Krishi Vigyan Kendra, Anantnag

6

ECONOMICALLY SUSTAINABLE ENTREPRENEURSHIP THROUGH THE PRODUCTION OF VEGETABLES SEEDS AND NURSERIES

Name	**S. Manjeet Singh**
Age	**41 years**
Address	**Vill. Gharangna, Teh. Mansa, Mansa-151 506 (PB)**
Qualification	**12th**
Mobile	**9877338076**
KVK	**Mansa**

Background/ Situation

S. Manjeet Singh, a 41 years-old resident of Village Gharangna of Mansa district, Punjab, represents a remarkable example of rural determination and resilience. The traditional paddy-wheat cropping system on his 5 acre land plot offered little respite amid rising costs and erratic yields. As a sole bread bearer for the family the income from this plot of land is merely enough to meet the family needs. During this, he grappled with ₹7 lakh debt that pushed him to search for new options in faming that promised both sustainability and profitability. A turning point came when he visited the Kisan Melas organized by Punjab Agricultural University, Ludhiana (PAU) and the agriculture department. As a young man accompanying his father, he observed farmers showcasing innovative farming practices there. Inspired by this and recalling how his father grew vegetables on a small scale, he decided to move beyond traditional paddy and wheat farming.

KVK Intervention

Manjeet's transformation began with guidance from Punjab Agricultural University (PAU) and Krishi Vigyan Kendra (KVK) Mansa. In the early 2010s, he attended multiple training sessions on diversified, high-value farming. KVK experts introduced him to hybrid onion seed production, nursery management, and water-efficient techniques. During this, in a bold move, he mortgaged his wife's earrings to start a new venture of onion nursery and seed production on just 25 m^2 piece of land. Gradually he turns his ancestral five-acre land into onion seed production unit and with time he also raised nursery of other vegetable crops like onion, cauliflower, chilli, tomato and brinjal. The mentorship from KVK Mansa through vocational training on vegetable nursery raising empowering him to experiment confidently on his land.

Innovation/ Initiative

Adopting KVK strategies, S. Manjeet innovated by transitioning to hybrid onion seed production and establishing nurseries for onions, cauliflower, brinjal, tomatoes, chillies, and short-duration paddy. In 2023-24, he introduced soybean seeds, expanding his portfolio. On his 5 acre Jot Nursery Farm, he implemented multi-cropping and drip irrigation, slashing water use by over 90 per cent compared to conventional crops. He focused on quality seed isolation, organic inputs, and staggered planting for year-round production. This initiative turned his tiny plot into a scalable enterprise, supplying seeds across states while minimizing environmental impact. He also visits several states to gain knowledge about seeds of staple crops of the respective states to experiment in his fields by growing seeds of different crops suitable in Punjab's land.

Socio-Economic Impact

Manjeet's efforts now yield ₹20-25 lakh annually from 5 acres, with net profits like ₹5 lakh per acre. He redeemed his wife's earrings swiftly, cleared debts, and upgraded to a

stable home, funding his children's education. The farm employs locals, including women, providing steady jobs and reducing rural migration. Sales span Punjab, Haryana, Himachal Pradesh, and Rajasthan, boosting regional economies. He inspires 20+ youth to adopt similar models, promotes water conservation, and sells surplus produce affordably to villagers, fostering community resilience and sustainable agriculture in debt-prone areas. He cultivates onions on 3 acres specifically for seed production. To plant one acre, he requires 12 quintals of onion bulbs as seed material, which costs approximately ₹70,000. Additional expenses, including labour and pesticides/sprays, bring the total cost to about ₹1.25 lakh per acre. From each acre, he harvests approximately 2 quintals of onion seeds, which fetch between ₹2.5 lakh and ₹3 lakh per quintal, resulting in earnings of roughly ₹5 lakh per acre.

Table 1: Year wise economics from vegetable nurseries and seed production

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2014	1,40,000	37,100	1,02,900	Onion seed production (1000m^2)
2015	1,45,000	38,100	1,06,900	Onion seed production (1000m^2)
2016	1,50,000	41,000	1,09,000	Onion seed production (1000m^2)
2017	3,05,000	90,500	2,14,500	Onion seed production (2000m^2), Chilli, Tomato & Brinjal nursery (Area = 400m^2)
2018	3,08,000	90,000	2,18,000	Onion seed production (5000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 600m^2)
2019	7,40,000	1,80,000	5,60,000	Onion seed production (5000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 600m^2)
2020	7,40,000	1,90,000	5,50,000	Onion seed production (5000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 600m^2)
2021	13,10,000	3,00,000	10,10,000	Onion seed production (8000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 1500m^2)
2022	13,00,000	2,90,000	10,10,000	Onion seed production (8000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 1500m^2)
2023	30,00,000	5,10,000	24,90,000	Onion seed production (12,000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 8000m^2)
2024	30,20,000	5,20,000	25,00,000	Onion seed production (12,000m^2), Onion, Chilli, Tomato, Brinjal & cucurbits nursery (Area = 8000m^2)

Awards and Recognitions

S. Manjeet Singh widely recognized for his work in vegetable nurseries. He received progressive farmer award by KVK Mansa (2021) followed by Progressive and sustainable farming award by Nabha Foundation (2022). He received Ujjagar Singh Dhaliwal award at PAU Kisan Mela (March, 2023) and 1st prize in onion produce competition at PAU & CCHAU Kisan Mela (March, 2024).

Contributors: Tejpal Singh, Ranvir Singh and Ajit Pal Singh Dhaliwal, Krishi Vigyan Kendra, Mansa

7

GENERATING OUTSTANDING ECONOMIC GAINS THROUGH INTEGRATED LAVENDER FARMING

Name	Mr. Touqeer Ahmad Bagwan
Age	40 years
Address	Vill. Vasak Dera, Bhaderwah, Doda-182 222 (J&K)
Qualification	12th
Mobile	9906045043
KVK	Doda

Background/ Situation

Mr. Touqeer Ahmad Bagwan, a resident of Vasak Dera, Bhaderwah in Doda district of Jammu and Kashmir, belongs to a marginal farming family owning less than 1.5 hectares of land. Choosing agriculture as a profession by choice, he aspired to build a career in the agriculture and allied sectors. Faced with recurring losses from traditional maize–rajmash cultivation and concerned about youth migration for low-paying jobs, he sought innovative alternatives to improve farm income. In 2016, he came in contact with Krishi Vigyan Kendra (KVK) Doda through a training programme on medicinal and aromatic plants, coinciding with the early phase of the Purple Revolution under the CSIR-led Aroma Mission. Although farmers were initially hesitant due to limited knowledge of lavender cultivation, processing, and marketing, KVK Doda, in collaboration with CSIR, provided systematic training, motivation, and grassroots support, particularly in Bhaderwah and Bhalla tehsils. After receiving training and institutional guidance, he adopted lavender cultivation, driven by strong determination to introduce innovative and impactful farming practices for the benefit of the wider farming community.

KVK Intervention

KVK Doda's major intervention to the success story of Touqeer was systematic hand holding through capacity building, guidance in planning and implementation of his vision conceived after the training. KVK Doda after witnessing Touqueer's interest in doing something innovative during the training programme held at Bhaderwah visited his farm and further provided him guidance for adoption of lavender cultivation. He was specifically taken to exposure visits and linked with the IIIM of CSIR which was implementing the Aroma Mission for promotion of Medicinal and Aromatic Plants in the State. When he stared lavender cultivation and oil extraction, the biggest challenge he confronted was marketing of lavender oil and bi-products. KVK assisted him in the formation of FPO on lavender cultivation, its registration and provided training to the members of FPOs in the smooth functioning.

Innovation/ Initiative

With scientific knowledge and confidence gained from KVK trainings, Mr. Touqeer started cultivation of lavender in 0.5 Ha area. Later on, he took more than 10 Ha land on lease and expanded the cultivation of lavender, established lavender nurseries and set up an oil extraction unit. He also motivated and linked more than 250 farmers with his FPO and assisted them by the way of providing trainings through KVK, input support and marketing to the farmers through FPO and linked them with CSIR. After few years of working in the field, he expanded the lavender cultivation through his FPO in more than 20 villages and established as essential oil extraction unit adopting traditional steam distillation of lavender that has been widely used for

producing essential oils used in aromatherapy, cosmetics, and pharmaceuticals. He also introduced agro – processing technology of lavender from the like Himachal Pradesh and Uttarakhand to improve planting material and supported farmer trainings. He also ventured into and Integrated floriculture with lavender as a high value crop under boosting rural income and sustainability. His efforts are not only giving name and fame to the district and region but also strengthening the livelihood of more than 250 farmers of Bhaderwah region.

Socio-Economic Impact

The socio-economic contribution of Mr. Touqeer's efforts is quite ostensible. He acted as a firm pillar of the Purple Revolution that has been widely applauded by the Govt. of India and even PM Sh. Narendra Modi mentioned the revolution in his Maan Ki Baat. Lives of more than 250 farmers linked with the FPO of Taouqeer have been transformed, on an average, farmers are earning 25-30 thousand per Kanal out of lavender oil and bi-products that has transmogrified their socio-economic status. Talking about his personal income he has rose to ₹23.93 lakh from mere ₹3.65Lakh annually. He is making huge profits not only from lavender oil extraction but also from lavender nursery, and value addition to the lavender oil. The horizonal spread of the lavender cultivation depicts its overall social impact that has been quite visible in the form of much talked Purple Revolution. More than 250 farmers reaping the benefits of the idea and vision of Tauqeer is the testimony of how a single man can lead a movement and make others' lives prosperous.

Table 1: Year wise expenditure and income in integrated lavender farming

Year	Area (acres)	Essential oil (L)	Gross income (₹)	Expenditure (₹)	Net income (₹)	Business activities
2016	2.00	35.28	6,88,062	3,22,280	3,65,782	Maize, Rajmash and Lavender
2017	3.13	62.50	8,60,078	4,02,850	4,57,227	Lavender, Oil extraction
2018	3.75	75.00	10,75,097	5,03,563	5,71,534	Lavender, Nursery, Oil extraction
2019	12.50	150.00	13,43,871	6,29,454	7,14,418	--do--
2020	20.00	200.00	16,79,839	7,86,817	8,93,022	--do--
2021	25.00	249.00	20,99,799	9,83,521	11,16,278	--do--
2022	30.00	312.00	26,24,749	12,29,401	13,95,347	Lavender, Nursery, Value addition
2023	31.25	340.00	32,80,936	15,36,752	17,44,184	--do--
2024	32.50	348.40	41,01,170	17,07,502	23,93,668	--do--
2025	32.75	360.50	42,18,900	17,25,800	24,93,100	--do--

Awards and Recognitions

The outstanding achievements of Mr. Touqeer Ahmad Bagwan have been extensively recognized. He received appreciation certificate from Dr Jitendra Singh, MoS PMO, Govt. of India for Entrepreneurship through startup in event of Industry participation in startups. He also got appreciation certificate from Geographical Indications (GIS) of North Western Himalayas for display of products in the workshop organized by Intellectual Property Rights (IPR) Cell, Directorate of research, Sher-e-Kashmir university of Agricultural Sciences and technology of Jammu, SBI Rural Self Employment Training Institute (RSETI) Doda, SKUAST-Kashmir for taking a lead in the Cultivation, Product Development & value Addition of Medicinal Plants in J&K. He also received an appreciation certificate from CSIR in occasion of Youth Conclave, Jammu, 2023 for new innovation in the field of science and technology. He has also been conferred with an appreciation certificate for KASHMIR EXPO Start-ups for livelihood 2022.

Contributors: Narinder Paul, AS Charak and GN Jha, Krishi Vigyan Kendra, Doda

LOWERING COST OF APPLE CULTIVATION FOR HIGHER PROFITABILITY THROUGH APPLICATION OF NATURAL FARMING

8

Name	Mr. Abhimanyu
Age	35 years
Address	Vill. Hurling, Teh. Kaza, Lahaul & Spiti-172 111 (HP)
Qualification	B.Tech. (Civil engineering)
Mobile	7876937834
KVK	Lahaul & Spiti-2 (Tabo)

Background/ Situation

Hurling village is situated at an altitude of about 3,200 metres above mean sea level and is characterized by a harsh climate with temperatures ranging from +27°C in summer to –30°C in winter, along with water scarcity, fragile soils and a short growing season from April to October. Mr. Abhimanyu owns about 17 bigha of land, primarily under apple orchards along with cultivation of other fruits and vegetables. Earlier, apple cultivation in the area relied heavily on chemical fertilizers and pesticides, and their continuous use led to declining soil fertility, increased incidence of insect pests and diseases, rising costs of cultivation and deterioration in fruit quality.

KVK Intervention

KVK Tabo organized awareness programmes on natural farming under the Out-scaling of Natural Farming through KVKs and the Tribal Sub-Plan during 2022-2025 and identified the farmer as a progressive adopter of natural farming practices. Regular field visits were conducted to provide technical support, including demonstrations on the preparation and use of jeevamrit, beejamrit, ghanjeevamrit and agniastra, along with supply of critical inputs. Soil testing and scientific advisories on nutrient management were also provided to improve soil health and crop performance. Initially, marketing of naturally grown apples posed a major challenge, with produce being sold through middlemen at lower prices; however, since 2024, KVK support facilitated marketing through a Farmer Producer Company (FPC). The farmer also obtained Two-Star Natural Farming Certification, strengthening market credibility and price realization.

Innovation/ Initiative

The farmer adopted natural farming practices in apple orchards by completely replacing chemical fertilizers and pesticides with bio-formulations. Soil fertility was improved through the application of ghanjeevamrit in March, while jeevamrit was applied regularly from the half-inch green stage to mid-September at 15-day intervals through soil drenching and at 10-day intervals as foliar spray. For insect and pest management, agniastra prepared from the local herb thuklang and neem oil was used, whereas khatti lassi was applied for disease management. In addition, integrated vegetable cultivation under natural farming was adopted to meet household nutritional needs, and crop diversification was initiated with plums, pears and

grapes to enhance farm sustainability and income resilience.

Socio-Economic Impact

In 2022, apple cultivation on 3 acre produced 25.8 tonne with a cost of cultivation of ₹3.49 lakh, generating a gross income of ₹18.06 lakh and a net income of ₹14.57 lakh. In 2023, although total production declined to 21.4 tonne, net income remained high at ₹13.98 lakh due to controlled input costs. A significant improvement was recorded in 2024, with production increasing to 30.5 tonne and gross income rising to ₹27.45 lakh, resulting in the highest net income of ₹23.75 lakh. In 2025, despite a slight reduction in production to 28.7 tonne, net income remained stable at ₹23.22 lakh. Overall, the table indicates that adoption of natural farming practices ensured stable production, controlled cultivation costs and sustained improvement in farm profitability over the years (Table 1). Regular application of natural farming inputs improved soil fertility and microbial activity, resulting in better orchard health and enhanced fruit quality in terms of firmness, taste and shelf life. Adoption of bio-formulations significantly reduced expenditure on chemical inputs, thereby lowering the overall cost of cultivation and improving profitability.

Table 1: Year wise economics of the entrepreneur in apple cultivation on 3 acres

Sr. No.	Year	Total production (tonne)	Cost of Cultivation (₹)	Gross Income (₹)	Net Income (₹)
1.	2022	25.8	3,49,413	18,06,000	14,56,587
2.	2023	21.4	3,56,537	17,54,800	13,98,263
3.	2024	30.5	3,69,922	27,45,000	23,75,078
4.	2025	28.7	3,75,612	26,97,800	23,22,188

Contributors: R.S. Spehia and Ankita Dhiman, Krishi Vigyan Kendra, Lahaul & Spiti-2; Kriti Gupta, ICAR-ATARI, Ludhiana

9

TRANSFORMING ORCHARD PRODUCTIVITY WITH INNOVATION AND MANAGEMENT

Name	Mr. Ishfaq Ahmad Mir
Age	31 years
Address	Vill. Ahan, Teh. Wakura, Ganderbal-191 131 (J&K)
Qualification	Postgraduate in Tourism
Mobile	9906949412
KVK	Ganderbal

Background/ Situation

Mr. Ishfaq Ahmad Mir, a progressive and well-educated youth from Ahan village of Wakura block in District Ganderbal, holds a postgraduate degree in Tourism. Despite his educational qualifications, Ishfaq chose agriculture as a livelihood option with the objective of improving his family income and making productive use of his available land resources. He owns a total landholding of 1 acre of land, out of which horticulture constitute the major component. Prior to the adoption of KVK interventions like crop geometry, package of practices and intercropping practices, Ishfaq followed conventional horticultural practices. His net returns were limited to around ₹60,000 per hectare, which proved economically unviable and discouraging. Dependence on a single crop and lack of diversification restricted income generation and failed to fully utilize land and other farm resources.

At the initial stage, higher income realization from the farm was constrained by several factors, including a lack of awareness and technical knowledge about scientific intercropping systems, reliance on traditional orchard management practices that resulted in low productivity and returns, absence of proper guidance on crop diversification and efficient use of resources, and seasonal dependence on a single crop, which left land idle for part of the year and caused income gaps.

KVK Intervention

Recognizing the farmer's potential, Krishi Vigyan Kendra (KVK) Ganderbal provided need-based technical guidance and capacity building. Ishfaq was trained and motivated to adopt scientific intercropping of watermelon in high-density apple orchards. The intervention included training on scientific intercropping techniques for watermelon, advisory support on improved packages of practices for vegetable cultivation after watermelon harvest from mid-August onwards. Technical guidance was provided on integrated farming systems, with special emphasis on sheep rearing, particularly the rearing of male sheep for sale during Muslim religious occasions. Overall, the KVK intervention focused on enterprise diversification, efficient land use, and enhancement of farm income from the same landholding.

Innovation/ Initiative

With continuous technical backstopping from KVK Ganderbal, Mr. Ishfaq adopted watermelon intercropping in 0.4 ha of his orchard area. After harvesting watermelon, he introduced seasonal vegetables from mid-August, ensuring

extended utilization of land and continuous income flow. In addition, he integrated sheep rearing as a complementary enterprise, focusing on male sheep breeds to tap the festive market demand. This integrated approach of horticulture, vegetable cultivation, and livestock rearing significantly improved resource use efficiency and farm profitability.

Socio-Economic Impact

The impact of adopting scientific intercropping and integrated farming practices was substantial. Net returns increased significantly from ₹3.6 lakh per hectare to about ₹19.83 lakh per hectare through watermelon intercropping. In addition, vegetable cultivation after the watermelon harvest generated an extra income of ₹1.48 lakh per hectare. Sheep rearing further contributed to farm income, providing an additional annual earning of ₹1.5 lakh (Table 1). Overall, these interventions helped Ishfaq achieve socio-economic stability by improving household income and reducing financial vulnerability. His success has inspired many farmers in the region to adopt intercropping and integrated farming systems as effective strategies for income enhancement.

Table 1: Farm income before and after kvk's intervention

Particulars	Before Intervention (Conventional Practices)	After KVK Intervention (Intercropping & Integrated Farming)
Main Enterprise	Apple orchard (monocropping)	Watermelon intercropping in HD apple orchard
Total Area	1 acre	1 acre
Total Production	Apple = 5-6 quintals	Watermelon: 25-30 quintals + Apple: ~30 quintals
Net Return (₹/ha)	3,60,000	3,25,000 (watermelon) + 13.60,000 (apple)
Additional Income from Vegetables (₹/ha)	Nil	1,48,000
Vegetables cultivation	Nil	Seasonal vegetables after watermelon/ Watermelon intercrop with apple HDP
Livestock Units	1 cow + 2 sheep	2 cows + 8 sheep
Income from Livestock	Nill	1,50,000 per year
Overall net income (₹)	**3,60,000**	**19,83,000**

Contributors: Ajaz A. Malik, Farooq A. Ahanger and Shuja N. Qureshi, Krishi Vigyan Kendra, Ganderbal

AN INSPIRING JOURNEY OF A NURSERY AGRIPRENEUR

10

Name	S. Amarjeet Singh
Age	45 years
Address	Vill. Behram Sarishta, Teh. Bhogpur, Jalandhar-144 201 (PB)
Qualification	12th
Mobile	8427598959
KVK	Jalandhar

Background/ Situation

S. Amarjeet Singh owned 4 hectares of land in Behram Sarishta, Jalandhar, where his family followed traditional wheat and paddy cultivation. Like many rural youths, he migrated abroad for better livelihood opportunities. Between 1999–2002, he worked in Cyprus, learning nursery management and grafting of olive, kinnow, citrus, and ornamental crops, and from 2002–2007 in Italy, gaining experience in rose plant cutting and export. Returning to India in 2010, his global exposure and entrepreneurial ambition led him to establish a nursery. In 2013, guidance from Krishi Vigyan Kendra (KVK) Jalandhar, inspired him to adopt scientific nursery raising and protected cultivation, marking his transformation into a successful agripreneur.

KVK Intervention

With guidance from KVK experts, S. Amarjeet Singh set up a 500 m² poly net house and adopted scientific practices including soil sterilization, pro-tray nursery raising, cocopeat-vermiculite-perlite media, low tunnel winter nursery, and protected cultivation. He diversified his nursery with vegetables (cauliflower, cabbage, brinjal, chilli, capsicum, tomato, cucurbits, onion), paddy and basmati, and tree species (poplar, eucalyptus), while continuously updating his practices with PAU-recommended technologies through regular KVK interactions.

Innovation/ Initiative

S. Amarjeet Singh implemented resource-efficient practices including a 500 m² poly net house, 150 m² shade net house, 100 m² propagation chamber, underground pipeline with sprinkler irrigation, bio-rational pest management, organic growth stimulants, variety testing, and customized nursery production. His nursery meets market demand for high-yield, space-saving hybrid vegetable varieties.

Socio-Economic Impact

S. Amarjeet Singh's income grew steadily from ₹3.45 lakh in 2017 to ₹15.6 lakh in 2024, demonstrating the economic success of scientific nursery practices (Table 1). To ensure market linkage, he opened a seed-

cum-pesticide outlet, promotes his nursery through pamphlets, and books orders in advance. He also serves as a resource farmer, training youth, guiding growers, and providing employment to seven rural workers.

Table 1: Year-wise economics of the entrepreneur

Year	Area (acre)	Nursery raised (crop)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Remarks
2017	4	Cauliflower, Cabbage, Brinjal, Chilli, Capsicum, Tomato, Cucurbits, Onion, Popular, Eucalyptus	6,45,000	3,00,000	3,45,000	Conventional nursery
2018	5	--do--	9,75,000	3,85,000	5,90,000	
2019	7	Cauliflower, Cabbage, Brinjal, Chilli, Capsicum, Tomato, Cucurbits, Onion, Popular, Eucalyptus, Paddy, Basmati	13,50,000	5,65,000	7,85,000	Scientific nursery
2020	9	--do--	15,50,000	6,10,000	9,40,000	
2021	11	--do--	18,90,000	7,40,000	11,50,000	
2022	12	--do--	25,55,000	11,95,000	13,60,000	
2023	14	--do--	28,60,000	14,10,000	14,50,000	
2024	15	--do--	31,50,000	15,90,000	15,60,000	

Awards and Recognitions

He received the Parwasi Bharti Award (Diversified Farming) from Punjab Agricultural University in 2016, and his achievements have been widely featured in agricultural publications.

Contributors: Balvir Kaur and Sanjeev Kumar Kataria, Krishi Vigyan Kendra, Jalandhar

11

CONTEMPLATING OUTSTANDING FUTURE PROFITABILITY THROUGH A DRAGON FRUIT ORCHARD

Name	S. Gurjodh Singh Ghumman
Age	27 years
Address	Vill. Mohalla Rajpur, Teh. Bhulath, Kapurthala-144 622 (PB)
Qualification	M.A., B.Ed
Mobile	7837632712
KVK	Kapurthala

Background/ Situation

S. Gurjodh Singh Ghumman, a 27-year-old progressive farmer from Mohalla Rajpur, Tehsil Bhulath, District Kapurthala, rural resilience and entrepreneurial thinking. He owns 12 acre of marginal land and practiced the traditional rice–wheat cropping system along with direct seeded rice (DSR) to reduce water use and production costs. Despite following recommended agronomic practices, he faced persistent financial difficulties due to rising input costs, increasing household expenses for his seven-member family, and the limited profitability of conventional cropping systems. Academically, S. Ghumman holds a Master's degree in Political Science and cleared the Teacher Eligibility Test (TET) in 2021. He also devoted several years to civil services preparation but was unable to secure a government job. As a result, he became dependent on agriculture and private employment for income, motivating him to explore innovative, high-value farming enterprises for improved income stability and sustainable livelihoods.

KVK Intervention

A major turning point in S. Ghumman's farming journey came when he attended a seminar on exotic fruit cultivation at Krishi Vigyan Kendra (KVK), Kapurthala. There, he learned about the production potential and market prospects of exotic fruits, with dragon fruit attracting his attention due to its high value, rising demand, and suitability for diversified farming. Motivated by the seminar, he visited several dragon fruit orchards to gain practical experience and stayed in regular contact with scientists from KVK Kapurthala and PAU, Ludhiana. He received technical guidance on land preparation, variety selection, planting, support structures, drip irrigation, nutrient management, and plant protection for successful dragon fruit cultivation.

Innovation/ Initiative

Following scientific guidance, S. Ghumman started dragon fruit cultivation in 2022 on one acre. He installed 500 concrete poles per acre, planting four plants per pole, totaling 2,000 plants. The Royal Red variety was planted, with planting material costing ₹80 per plant and poles ₹550 each. Drip irrigation was adopted to improve water-use efficiency and reduce labour. The total initial investment was about ₹5.0 lakh per acre, including ₹2.5 lakh each for planting material and support structures. As a first-time exotic fruit grower, he faced establishment challenges, with nearly 30% plant mortality due to low temperatures and

limited initial experience. Timely technical support from KVK scientists helped him successfully manage these issues.

Socio-Economic Impact

During the first two years, the crop produced limited yield (about 1.5 kg per pole) as the plants were not fully established. Despite low initial returns, S. Ghumman remained confident about the long-term potential of the crop. In 2023, based on market demand, he expanded cultivation by planting the Jumbo Red variety on another one acre due to its larger fruit size and higher market acceptability. After two years of establishment, the crop yielded an average of 10 kg per pole. From one acre, he harvested approximately 5,000 kg of dragon fruit and earned a net return of about ₹2.0 lakh per acre, selling the produce at an average price of ₹90 per kg. Encouraged by the economic viability, he expanded dragon fruit cultivation to six acres in 2024. He employed five labourers during the peak season (August–December) and two permanent labourers during the off-season, thereby generating a local employment. At present, after meeting all operational and management costs, Mr. Ghumman earns a net annual income of approximately ₹12 lakh from dragon fruit cultivation alone.

Table 1: Year and crop-wise production and income details

Year	Crop / Rotation Stage	Area (acre)	Production (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2020	Paddy-Wheat	6	270.0	5,67,000	1,82,000	3,85,000
2021	Paddy-Wheat	6	276.0	5,72,000	1,82,000	3,90,000
2022	Dragon Orchard (fix cost (39.2 K) + variable cost (92.4 K))	2	_	-	1,31,600	(-)1,31,600
	Paddy-Wheat	4	181.0	3,77,385	1,27,500	2,49,885
2023	Dragon orchard (fix cost (39.2 K) + variable cost (114.2 K))	2	_	-	1,50,400	(-)1,50,400
	Paddy-wheat	4	184.0	3,96,336	1,21,000	2,75,336
2024#	Dragon orchard (fix cost (39.2 K) + variable cost (222.57 K))	2	18.6	4,55,000	2,22,600	2,32,400
	Paddy-wheat	4	186.0	4,29,000	1,25,000	3,04,000
2025#	Dragon fruit (fix cost (122.56 K) + variable cost (608.45 K))	6	108.3	18,20,000	7,31,010	10,88,990

Note-The fixed cost of the dragon fruit plantation for each acre including expenditure on poles and rings, irrigation setup, and planting material, was ₹4,95,000 during 2022 and ₹5,21,000 during 2025. Considering an average life of 25 years, this cost was apportioned over the life cycle of the plantation and added to the other annual expenditure.

 # Partial bearing in 2024 and enhanced bearing (2 acre) in 2025

Contributors: Amandeep Kaur, Suman Kumari and Harinder Singh, Krishi Vigyan Kendra, Kapurthala; Rajesh K. Rana, ICAR-ATARI Ludhiana

UPSCALING FARM PRODUCTIVITY THROUGH NURSERY ENTREPRENEURSHIP

12

Name	Mr. Tahir Hussain
Age	32 years
Address	Vill. Kehnu, PO-Poonch, Teh. Poonch-185 101 (J&K)
Qualification	12th
Mobile	9149776186
KVK	Poonch

Background/ Situation

Mr. Tahir Hussain, a progressive farmer from village Kehnoo in district Poonch, located about 18 km from the district headquarters, represents the determination and innovation of rural youth. Born and raised in a remote border village, he faced limited employment opportunities due to the lack of industrial development in the region. Like most families in the area, his household depended on traditional agriculture, which offered low and uncertain income. Determined to improve his livelihood and make productive use of his two acres of land, Mr. Tahir Hussain explored improved and innovative farming practices. With hard work, a willingness to adopt new approaches, and guidance from agricultural institutions, he gradually transformed his small landholding into a sustainable source of income through fruit plant raising and floriculture nursery activities. His journey now serves as an inspiration for other farmers and rural youth in the district, demonstrating that scientific agriculture can be both profitable and rewarding.

KVK Intervention

Regular interaction with Krishi Vigyan Kendra (KVK) Poonch proved to be a turning point in Mr. Tahir Hussain's farming journey. Through on-campus and off-campus trainings, exposure visits, and advisory services, he received technical guidance on crop diversification, improved varieties, balanced nutrient management, integrated pest management, and efficient resource use for raising fruit and ornamental plants. In 2022, he underwent a vocational training programme titled “Skill Development Course for Garden Keepers”, where he gained hands-on skills in budding, grafting, nursery management, pruning, and plant propagation through seeds and cuttings. Following the training, he established an enterprise in fruit sapling production and later expanded to two additional nurseries for ornamental and flower plants, tapping the district's potential in temperate fruits and floriculture. He also strengthened his operations by procuring a power tiller with subsidy support from the Department of Horticulture.

Innovation/ Initiative

With strong family support, the youth initially established a fruit nursery on one acre of land in his ancestral village and began propagating quality fruit saplings with scientific guidance from KVK Poonch. In the initial phase, planting material was marketed through a roadside nursery at Chandak. The enterprise coincided with rising demand for quality planting material under the Holistic Agriculture Development Programme (HADP) in the Union Territory of

Jammu & Kashmir, which encouraged further expansion. He diversified into ornamental plants and floriculture and subsequently established two additional nurseries at Poonch city and Surankote. The nurseries cater to year-round demand from the army, government offices, HADP beneficiaries, and local farmers, particularly due to the district's border location, ensuring sustained livelihood opportunities and enterprise growth.

Socio-Economic Impact

The economic transformation achieved by Mr. Tahir Hussain has been substantial. In 2022, under conventional wheat–maize farming in 2 acre area, his net annual income was only ₹0.58 lakh, which increased to ₹2.30 lakh in 2023 after establishing a fruit nursery. With the expansion to two nurseries, his income rose to ₹4.80 lakh in 2024 and further reached ₹9.50 lakh in 2025 following the establishment of three nurseries for fruit, ornamental, and flower plants. Beyond improving his own livelihood, he has generated employment for four local youths and contributed to reducing migration from this hilly border district. His success has inspired other farmers and rural youth, leading to increased demand for skill-oriented training at KVK Poonch, demonstrating that scientific and enterprise-based agriculture can be both profitable and sustainable.

Table 1: Year-wise economic performance of the entrepreneur (2022–2025)

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2022	1,06,000	55,000	58,000	Conventional farming in 2 acres (wheat/ maize)
2023	4,10,000	1,80,000	2,30,000	One fruit nursery (450 m^2)
2024	10,00,000	5,80,000	4,80,000	Two fruit/ ornamental plants / flower plants nurseries (450 m^2 each)
2025	20,00,000	10,50,000	9,50,000	Three fruit/ ornamental plants/ flower plants nurseries (450 m^2 each)

Awards and Recognitions

Mr. Tahir Hussain's achievements have been widely recognized. He received the Best Garden Keeper District Award in 2025, followed by the Best Youth Progressive Farmer Award from Krishi Vigyan Kendra, Poonch.

Contributors: Sudhir Singh Jamwal, Ajay Gupta and MA Guroo, Krishi Vigyan Kendra, Poonch

13

DEMONSTRATING BUSINESS SKILLS IN THE MALES DOMINATED APPLE NURSERY PRODUCTION

Name	**Ms. Shaheena Majeed**
Age	**35 years**
Address	**Vill. Pattan, Baramulla-193 121 (J&K)**
Qualification	**Graduate**
Mobile	**7889570810**
KVK	**Baramulla**

Background/ Situation

Ms. Shaheena Majeed, a 35-year-old graduate from Pattan, Baramulla, has been engaged in apple nursery propagation as a source of livelihood along with other farm men from past three to four years. Despite her educational background and experience in nursery activities, the conventional methods of apple rootstock multiplication were not yielding satisfactory economic returns. The traditional propagation practices were time-consuming, resource-intensive, and resulted in low multiplication rates, thereby limiting profitability due to the igh prices of Clonal apple rootstocks especially M-9(T337). Rising input costs and low margins made nursery entrepreneurship less attractive and economically unsustainable. Recognizing the need for an improved and efficient propagation technique, Shaheena along with his team members sought technical guidance from ICAR KVK Baramulla to enhance productivity, optimize space utilization, and increase income from her nursery enterprise.

KVK Intervention

Krishi Vigyan Kendra (KVK) Baramulla played a pivotal role in transforming Shaheena Majeed from a conventional nursery grower into a confident and high-earning nursery entrepreneur by introducing the technology of vertical expansion in apple clonal rootstock multiplication through air layering. To overcome the low profitability and limitations of traditional propagation methods, KVK Baramulla selected her nursery under an On-Farm Trial (OFT) titled "Vertical Expansion in Multiplication of Apple Clonal Rootstocks" during 2024–25, ensuring that the technology was tested and demonstrated under real farm conditions.

The KVK team provided intensive technical backstopping through hands-on demonstrations on selection of mother plants, preparation of air layers, use of suitable rooting media, moisture regulation and aftercare in clonal rootstocks such as MM-106, M-9 and MM-111. Regular field visits and on-the-spot advisory support helped her gain confidence and precision in operations. In 2024, Shaheena successfully performed air layering on about 3,000 rootstocks and nearly performed 5000 air layers on it and obtained nearly 60 per cent success, generating additional net income of around ₹3 lakh from this technology. Encouraged by these results, she expanded the technology to about 5,000 rootstocks in 2025, performed about 7000 air layers and also improved the success rate to nearly 70 per cent and earned an additional profit of about ₹5.02 lakh. KVK Baramulla also organized a Field Day on 17 December 2024 at her nursery, showcasing the technology to other farmers and establishing Shaheena as a role-model woman nursery entrepreneur in the district.

Innovation/ Initiative

Under the OFT, air layering was performed on approximately 3,000 apple clonal rootstocks in Shaheena's nursery. The intervention resulted in a success rate of about 60%, with healthy and robust root development observed in the layered plants. This vertical expansion approach enabled faster multiplication, better root establishment, and efficient use of nursery space compared to conventional methods. Encouraged by the successful outcome and visible economic gains, Shaheena adopted the technology on a larger scale during 2025, performing air layering on nearly 5,000 rootstocks. With improved skill and confidence, the success rate increased to around 70%, demonstrating the scalability and reliability of the technology. A Field Day was organized on 17 December 2024, during which nursery entrepreneurs and progressive farmers were shown the air layering technique, management practices, and visible results directly in the field. The practical demonstration created strong interest among participants for adoption of the technology.

Socio-Economic Impact

The adoption of air layering under OFT resulted in a major economic turnaround for Ms. Shaheena Majeed. She earned an additional income of about ₹3 lakh in 2024 and ₹5.02 lakh in 2025 through expansion and higher success rates. The intervention enhanced nursery profitability, strengthened household financial security, and established her as a successful woman nursery entrepreneur, motivating wider adoption of the technology in the region.

Table 1: Year wise economics of apple nursery production

Year	Technology	Rootstocks (No.)	No of Air Layers Performed	Successful Grafts Obtained	Additional Roots obtained (No.)	Expenditure (₹)	Gross Income (₹)	Net Income (₹)
2024	Air Layering	3,000	5000		3,000	50,523	3,01,232	2,50,709
	Simple Grafting	7000		3500	-	6,00,200	10,10,700	4,10,500
	Total	**10,000**	**8500**			**6,50,723**	**13,11,932**	**6,61,209**
2025	Air Layering	5,000	7000		5,000	80,672	5,02,120	4,21,448
	Simple Grafting	7000		3600	-	5,50,320	10,70,620	5,20,300
	Total	**12,000**	**10600**			**6,30,992**	**15,72,740**	**9,41,748**
Note: Success rate was about 60% during 2024 and 70% in 2025								

Contributors: Wasim Hassan Raja, Sajad Ahmad Sheikh and Shoaib Nissar Kirmani, Krishi Vigyan Kendra, Baramulla

14

HARVESTING PROSPERITY WITH PROTECTED FARMING OF VEGETABLES

Name	S. Amrinder Singh
Age	42 years
Address	Vill. Guno Majra, Teh. Kharar, S.A.S. Nagar-140 110 (PB)
Qualification	M.Sc. Physics
Mobile	9317740044
KVK	Mohali

Background/ Situation

S. Amrinder Singh, a 42-year-old progressive farmer from Village Guno Majra of Mohali district, Punjab, stands as a remarkable example of rural determination, vision, and resilience. Born into a family with a strong service background-his father served in the Indian Army-he inherited ancestral land traditionally cultivated under the wheat–rice cropping system. He owns nearly 15 acres of agricultural land. Despite completing his M.Sc. in Physics, S. Amrinder Singh started his business of electrical appliances in Banglore and later in Mohali. Amrinder nurtured a deep passion for agriculture and chose farming as profession in year 2007. He started with traditional farming and later adopted vegetable farming. Driven by a desire to innovate and enhance farm profitability, he was inspired by the prospects of agribusiness requiring modest initial investment along with strong technical support. With this vision, he approached Krishi Vigyan Kendra (KVK) Mohali to receive specialized training and entrepreneurial guidance in polyhouse farming, marking the beginning of a transformative journey toward sustainable income and improved livelihood. He also visited many farmers of Sonipat and Gohana areas of Haryana who were already practicing polyhouse farming and gained knowledge.

KVK Intervention

KVK Mohali carefully assessed S. Amrinder Singh's interests, aptitude, and entrepreneurial potential before recommending polyhouse farming as a suitable and sustainable enterprise for him. Under the guidance of KVK experts, he regularly visited the centre to acquire scientific know-how and practical insights. He also underwent vocational training in polyhouse farming at KVK Mohali, which comprehensively covered critical aspects such as site selection, orientation, types of polyhouses, installation procedures, crop cultivation practices, operational management, and effective marketing strategies.

He also started cultivation of other vegetables like red cabbage, broccoli, spring onion, cauliflower, turnip and basil. These systematic interventions provided him with a strong scientific foundation to successfully manage a polyhouse farming enterprise. Demonstrating his commitment to continuous learning, S. Amrinder Singh actively participates in training programmes, kisan gosthis, field days, awareness programmes, kisan melas, and farmer–scientist interactions organized by KVK S.A.S. Nagar (Mohali) to stay updated on the latest advancements in polyhouse farming. He shows keen interest during various extension activities and proactively interacts with fellow farmers, sharing his experiences and motivating them to adopt protected cultivation practices. With consistent technical backstopping from KVK, he has effectively implemented the latest polyhouse technologies in his fields.

Innovation/ Initiative

To enhance his farm income, S. Amrinder Singh ventured into protected cultivation of vegetables in 2022 under the expert guidance of KVK Mohali. He established a one-acre unit of naturally ventilated polyhouses with financial support from the National Horticulture Mission (NHM) and the Department of Horticulture, S.A.S Nagar. By adopting advanced protected cultivation technologies, he began cultivating high-value vegetable crops such as seedless cucumber and colored capsicum. His polyhouse is well equipped with micro-irrigation facilities, enabling efficient water and nutrient management. This technology has empowered him to produce off-season crops and practice year-round cultivation, allowing him to fetch remunerative market prices and significantly improve farm profitability. Today, S. Amrinder Singh stands as a source of inspiration for farmers across Mohali district. Encouraged by the success of his polyhouse enterprise, he now plans to expand the area under protected cultivation and integrate organic farming practices with protected cultivation. With a strong commitment to knowledge sharing, he is keen to disseminate this technology among rural youth and fellow farmers, paving the way for wider adoption and scaling up of protected cultivation for the benefit of the farming community.

Socio-Economic Impact

He actively shares his experiences with fellow farmers from his own village as well as nearby villages of the district through various extension programmes organized by KVK Mohali, motivating them to adopt polyhouse farming practices. Through regular exposure visits to his farm, farmers are increasingly realizing that polyhouse farming offers higher returns per unit area while enabling the production of high value vegetables. He also actively exhibits his produce at Kisan Melas organized by different agencies. The economic transformation resulting from this intervention has been remarkable. After adopting scientific polyhouse farming under the guidance of KVK, his income increased to ₹5.45 lakh in 2022, ₹7.39 lakh in 2023, and ₹7.70 lakh in 2024. With further expansion, value addition through processing, and direct retailing, his income is expected to reach ₹8.0 lakh in 2025 (Table 1). This nearly increase in income has enabled him to expand his enterprise, upgrade infrastructure, and significantly improve his family's standard of living and socio-economic status. He is planning to increase area under polyhouse farming in coming years. He has successfully adopted direct marketing of his farm produce, at his own outlet (exotic mart) for fresh vegetables at Chandigarh. He also supplies his produce to online platforms like Blinkit. To further strengthen market linkages and expand his reach, he plans to leverage other social media platforms and ICT tools more effectively, enabling him to connect with a larger consumer base and build a sustainable farm-to-consumer supply chain.

Table 1: year wise economics of high value vegetable farming under protected conditions

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2022	13,00,560	7,55,005	5,45,555	Started polyhouse farming
2023	15,60,670	8,20,900	7,39,770	Polyhouse farming
2024	16,50,800	8,80,520	7,70,280	Polyhouse farming
2025	17,00,000*	9,00,000*	8,00,000*	Polyhouse farming

Expected figures

Contributors: Munish Sharma and B.S. Khadda, Krishi Vigyan Kendra, SAS Nagar (Mohali)

ENHANCING PROFITABILITY THROUGH HIGH-VALUE VEGETABLE CULTIVATION AND MARKETING SOLUTIONS

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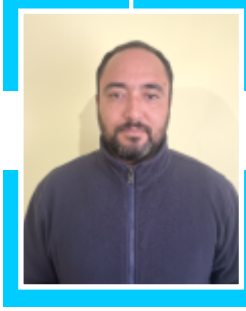

Name	**Mr. Mohammad Ali**
Age	**44 years**
Address	**Vill. Thasgam, Tehsil Sankoo, Kargil-194-301 (Ladakh)**
Qualification	**8th**
Mobile	**8492097218**
KVK	**Kargil–II**

Background/ Situation

Mohammad Ali, a progressive farmer from Thasgam village of Kargil district in the Union Territory of Ladakh, presents a remarkable example of technology-driven vegetable farming in a challenging cold-arid ecosystem. Born into a traditional farming family, his early life was shaped by limited economic opportunities. Due to a lack of interest in further studies and prevailing socio-economic constraints, he discontinued his education after middle school and began working as a seasonal agricultural labourer to support his parents. Seasonal wage labour remained the primary source of livelihood for the family, offering low and uncertain income. Mohammad Ali's interest in vegetable cultivation began in 2014 after attending awareness programmes jointly organized by the Department of Agriculture and KVK Kargil, which highlighted the scope of high-value vegetables in cold-arid regions. Initially, financial constraints, low risk-bearing capacity, and lack of family support prevented him from using his father's land. Recognizing his motivation, the Department of Agriculture and KVK Kargil provided critical support by supplying hybrid onion seeds from their own resources and assuring compensation in case of crop failure. Motivated by this support, he leased 0.5 kanal (250 m²) of land from a neighbour in 2015. Despite widespread scepticism, he cultivated onions with regular technical guidance. He harvested over 26 quintals of bulbs, earning about ₹1.65 lakh. His total annual income rose to nearly ₹2.10 lakh, transforming his livelihood.

KVK Intervention

With the establishment of KVK Kargil–II in 2017, focused interventions were initiated to promote non-traditional, high-yielding, and climate-resilient vegetable crops suitable for cold-arid regions. Mohammad Ali was actively engaged in capacity-building programmes including on-campus and off-campus trainings, method demonstrations, field visits, and video-based advisories. These interventions emphasized scientific crop selection, improved agronomic practices, pest and disease management, record keeping, and market-oriented production. KVK also facilitated his gradual transition towards natural farming practices by providing initial inputs and hands-on training on the preparation and use of natural formulations such as Ghanjeevamrut, Jeevamrut, Beejamrut, and Agniastra. Adoption of these practices reduced dependence on chemical inputs, improved soil health, and enhanced sustainability of vegetable production.

Innovation/ Initiative

Mohammad Ali adopted an intercropping system by cultivating short-duration crops such as radish, coriander, and knol-khol alongside long-duration, high-yielding crops like cabbage and cauliflower. This practice ensured better resource utilization and resulted in nearly 20 per cent higher income per unit area. He also innovatively utilized nitrogen-rich cattle urine-earlier wasted in open sheds-by

systematically collecting and applying it to comparatively weak plants, leading to improved vegetative growth and crop performance. Marketing emerged as a major constraint with increasing production due to the dominance of middlemen. To overcome this challenge, he purchased a scooter and initiated direct home delivery of vegetables in the town, offering produce at 10–15 per cent lower prices than retail markets. This eliminated intermediaries and substantially enhanced profitability. Over time, hotels and households began placing direct orders, strengthening market linkage and consumer trust.

Socio-Economic Impact

Encouraged by consistent results, Mohammad Ali expanded vegetable cultivation with full support from his family. Over the years, his annual income increased steadily-from about ₹50,000 under conventional farming to nearly ₹9.0 lakh through vegetable-based farming. Currently, he cultivates vegetables on approximately 0.25 ha and has also established his own vegetable shop. The enterprise has generated regular employment for one person in managing the shop and seasonal employment during peak periods. By aggregating and marketing vegetables produced by local youths at minimal margins, he improved price realization for small farmers and reduced exploitation by middlemen. His efforts have motivated several rural youths to adopt vegetable farming as a viable and sustainable livelihood option. Environment-friendly practices such as intercropping, natural farming inputs, and recycling of farm resources have contributed to improved soil health and production sustainability. Overall, Mohammad Ali's initiative demonstrates how technology-driven vegetable farming, supported by institutional interventions and innovative marketing, can significantly enhance income, employment, and resilience in the cold-arid region of Ladakh.

Table 1: Year-wise economics of the entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Remarks
2014	60,000	10,000	50,000	Conventional farming
2015	2,10,000	20,000	1,90,000	Initial adoption of vegetables
2019	3,05,000	30,000	2,75,000	Expansion of area under vegetables
2020	3,15,000	30,000	2,85,000	Expansion of area under vegetables
2021	5,30,000	1,50,000	3,80,000	About 10% area under vegetables
2022	8,70,000	2,30,000	6,40,000	About 20% area under vegetables
2023	9,50,000	2,80,000	6,70,000	Vegetable shop started
2024	10,60,000	3,25,000	7,35,000	Youth mobilization & aggregation
2025	11,10,000	3,30,000	7,80,000	Sustained diversification

Awards and Recognitions

Mohammad Ali's achievements have been widely recognized at the district and Union Territory levels. He has received several district-level awards from departments including the Ladakh Autonomous Hill Development Council (LAHDC) and appreciation certificates from the UT Administration for his innovative practices, entrepreneurial spirit, and contribution to promoting vegetable farming and rural livelihoods in the cold-arid region of Ladakh.

Contributors: Mohd Mehdi, Shabeer Hussain and Tashi Dawa, Krishi Vigyan Dendra, Zanskar (Kargil-II)

ENHANCING INCOME THROUGH VEGETABLE CULTIVATION AND NURSERY PRODUCTION

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Name	**Mr. Sunil Kumar Saini**
Age	**44 years**
Address	**Vill. Balla, PO-Nandher, Teh. Kangra-176 001 (HP)**
Qualification	**12th**
Mobile	**7018755255**
KVK	**Kangra**

Background/ Situation

Mr. Sunil Kumar Saini, a 44-year-old farmer from Village Balla in Tehsil and District Kangra, Himachal Pradesh, belongs to a small farming family owning less than one hectare of land. He faced severe financial constraints while supporting a family of five and carrying a debt burden of ₹2.5 lakh. After working in a private company in Baddi, he returned to his village in 2020 due to the COVID-19 pandemic and could not find stable local employment. Seeking a sustainable livelihood, he approached Krishi Vigyan Kendra (KVK), Kangra, where he gained exposure to nursery raising and vegetable cultivation under open and protected conditions. Encouraged by the low investment requirement and assured technical support, he maintained close liaison with KVK Kangra to develop skills and initiate a profitable agri-enterprise.

KVK Intervention

Scientists from Krishi Vigyan Kendra (KVK), Kangra conducted a strengths and weaknesses analysis of Mr. Sunil Kumar Saini's technical and managerial capabilities and found him well-suited for vegetable cultivation and nursery raising enterprises. Accordingly, he was enrolled in focused training programmes, where he received hands-on guidance on land and bed preparation, sowing techniques, nutrient management, pest and disease management, and marketing. KVK Kangra also facilitated exposure visits to progressive vegetable farms and supplied seedlings of various vegetable crops to build his initial confidence. Encouraged by the results, he gradually adopted commercial vegetable farming and entered into contract farming with the Venky People Group. Further training in vegetable processing and value addition enabled him to diversify beyond contract farming, resulting in improved profitability and greater income stability.

Innovation/ Initiative

With scientific backstopping and confidence gained through KVK trainings, Mr. Sunil Kumar Saini introduced several innovations that strengthened his enterprise. He adopted improved nursery raising techniques such as pro-tray nursery raising, which enabled the production of healthy and uniform seedlings and ensured year-round income, thereby improving productivity and sustainability. He also shifted from traditional cereal-based farming to modern, market-oriented vegetable cultivation in 2020. Initially taken up on a small area, vegetable cultivation was gradually expanded by adopting improved production practices and direct marketing. He initially sold produce in the local Sabji Mandi and later established his own retail vegetable outlet, which significantly enhanced market access. As a result, the area under vegetable cultivation increased from 0.08 ha in 2020 to 0.6 ha in 2022 and further to 0.8 ha by 2024.

Socio-Economic Impact

The economic transformation that followed was substantial. In 2020, when he depended on conventional farming practices, his net annual income was only ₹1.60 lakh. After adopting scientific farming techniques and technical guidance from KVK Kangra, his income increased to ₹2.10 lakh in 2021, ₹3.20 lakh in 2022, and ₹4.50 lakh in 2023 (Table 1). With further expansion of cultivation area, adoption of vegetable processing, and establishment of retail marketing, his income reached ₹6.20 lakh in 2025.

Table 1: Year wise economics of Mr. Saini's farm

Year	Gross Returns (₹)	Expenditure (₹)	Net Returns (₹)	Comments
2020	5,20,000	3,60,000	1,60,000	Conventional farming
2021	7,20,000	5,10,000	2,10,000	Nursery raising & vegetables cultivation
2022	8,90,000	5,70,000	3,20,000	Nursery raising & vegetables cultivation
2023	10,60,000	6,10,000	4,50,000	Nursery raising & vegetables cultivation
2024	12,60,000	6,80,000	5,80,000	Nursery raising & vegetables cultivation
2025	13,40,000	7,20,000	6,20,000	Nursery raising & vegetables cultivation

Awards and Recognitions

Mr. Sunil Kumar Saini has received wide recognition for his achievements in nursery raising and vegetable cultivation. He has emerged as an important resource person in the district, and his expertise is being utilized by farmers across the state and adjoining regions. His farm has become a preferred site for exposure visits organized by Krishi Vigyan Kendras (KVKs), the Department of Agriculture, Himachal Pradesh, and institutions from neighbouring states. His farm has been developed as a Model Farm, attracting farmers, students, and agricultural professionals to observe scientific production technologies. He actively disseminates these technologies among fellow farmers and has shared his entrepreneurial journey and innovations on various platforms. Several dignitaries have also visited his farm to witness the technologies adopted by him in cereal and vegetable cultivation.

Contributors: Deep Kumar, Neetu Sharma and Sanjay Sharma, Krishi Vigyan Kendra, Kangra

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PROTECTED CULTIVATION OF HIGH-VALUE FLORICULTURAL CROPS

Name	S. Gurjeet Singh
Age	32 years
Address	Vill. Jagdishpur, Teh. Rudrapur, U.S. Nagar- 263 153 (UK)
Qualification	M. Tech (Mechanical Eng.)
Mobile	8077568641
KVK	Udham Singh Nagar

Background/ Situation

S. Gurjeet Singh, a resident of Village Jagdishpur, Rudrapur, Uttarakhand, has been a progressive farmer for the past seven years. He completed his Master's degree in Thermal Engineering (Mechanical Engineering) from G. B. Pant University of Agriculture and Technology, Pantnagar in 2017. After completing his studies, he ran a coaching institute for two years while continuing traditional farming of wheat and paddy on 6 acre of land. However, conventional farming practices failed to generate sufficient income to meet family needs and also led to declining soil fertility. During his studies at Pantnagar, he attended several lectures and seminars and interacted with professors and researchers, which exposed him to the concept of protected cultivation. He learned that crops could be grown under controlled environments using greenhouse technology, irrespective of climatic conditions. After further enquiry and interactions with experienced farmers, he decided to adopt floriculture under protected cultivation, selecting gerbera as a high-value flower crop.

KVK Intervention

With technical guidance from officials of the Department of Horticulture, scientists of Krishi Vigyan Kendra (KVK), Udham Singh Nagar and experts from G. B. Pant University, the farmer established a gerbera crop in September 2021 by planting 3,000 plants in a 500 m² polyhouse. During the initial phase of floriculture, he actively participated in Farm School programmes on protected cultivation jointly conducted by the Department of Horticulture, KVK Udham Singh Nagar and progressive farmers. These programmes provided training on floriculture practices, advantages of protected cultivation, the role of farmer groups, clusters and FPOs in the agriculture sector, and marketing aspects, enabling systematic adoption of the technology.

Innovation/ Initiative

Before entering floriculture, S. Gurjeet Singh interacted with farmers practicing protected cultivation and observed excessive use of chemical fertilizers and pesticides, which increased production costs and degraded soil health. Instead of following this approach, he adopted an organic-based cultivation strategy to reduce costs and improve soil health, texture and structure. Prior to planting, the soil was prepared using Farm Yard Manure (40–50 kg per m2), rice husk (4 kg per m2) and neem cake (1 kg per m2), thoroughly mixed to develop a porous, well-drained growing medium with adequate root aeration. Adoption of polyhouse cultivation further enhanced resource-use efficiency by conserving water, reducing pest and disease incidence and minimizing chemical pesticide use, thereby ensuring environmentally safe, climate-resilient and sustainable floriculture production.

Socio-Economic Impact The economic transformation following the adoption of floriculture was substantial. The annual expenditure and income from floriculture under protected cultivation is presented in Table 1, highlighting the economic performance of gerbera and Dutch rose grown in a 500 m² polyhouse. Gerbera cultivation involved planting 3,000 plants with one-time investments on planting material, polyhouse structure and raw materials, along with an annual crop management cost of ₹1.00 lakh. It produced an average yield of 1.10 lakh flower sticks per year, which were sold at about ₹4 per stick, resulting in a gross annual income of ₹4.40 lakh and a net profit of ₹3.20 lakh, with a plant lifespan of 4–5 years. In comparison, Dutch rose cultivation with 4,000 plants required a similar one-time investment but a slightly higher annual management cost of ₹1.20 lakh. It yielded 65,000 flower sticks per year, sold at an average price of ₹8 per stick, generating a higher gross income of ₹ 5.20 lakh and a net profit of ₹ 3.80 lakh per year, supported by a longer plant lifespan of 5–6 years. His success demonstrates how scientific knowledge, innovation and sustainable practices can enhance farm income, improve livelihoods and promote resilient agriculture.

Table 1: Economic performance of gerbera and Dutch rose under protected cultivation

Crop name	Gerbera	Dutch Rose
No. of plants (500 m2)	3,000 plants	4,000 plants
Cost of planting material	1,20,000	48,000
Proportional cost of the structure (polyhouse, motor etc.)	1,42,000	1,42,000
Lifespan of Gerbera Plant (years)	4	5
Total one-time cost in ₹	2,62,000	1,90,000
Annualised one-time cost in ₹	65,500	38,000
Inputs including paddy husk and FYM etc.	20,000	20,000
Annual crop management cost in ?	1,00,000	1,20,000
Annual expenditure in ₹	**1,85,500**	**1,78,000**
Average yield/ year (Flower sticks No.)	1,10,000	65,000
Average market price per stick	₹4 per stick	₹8 per stick
Annual Gross income (₹)	**4,40,000**	**5,20,000**
Annual Net Profit (₹) per year	**2,54,500**	**3,42,000**

Awards and Recognitions

- Honoured with tag 'Kisan Shri' for his contribution in agriculture farming from support to extension program for extension reforms in 2022- 23.
- Awarded with first price at state level in specific category of flower cultivation in SPRING Festival 2022-23 at Raj Bhawan, Dehradun.
- Honoured with SDG Achiever Award 2023-24 by CM Shri P S Dhami at Dehradun.
- Awarded with first price at state level in specific category of flower cultivation in SPRING Festival 2024-25 at Raj Bhawan, Dehradun.
- Honoured with 'Kisan Samman' by CM Shri P S Dhami at GBPUAT Pantnagar-2025.

Contributor: Anil Chandra, Krishi Vigyan Kendra, US Nagar

TRANSFORMING HOBBY INTO SUSTAINABLE LIVELIHOOD BY DEVELOPING COMMERCIAL NURSERY OF ORNAMENTAL PLANTS

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Name	Ms. Rukhsana Ismail
Age	21 years
Address	Rainawari, Srinagar-190 001 (J&K)
Qualification	Graduation
Mobile	9906601039; 9469138467
KVK	Srinagar

Background/ Situation

Ms. Rukhsana Ismail, a creative and enthusiastic young entrepreneur from Rainawari, Srinagar, possessed a deep passion for nursery raising as a means to meet household needs and achieve economic stability, despite facing several hardships. From a young age, she nurtured a strong desire to transform her hobby into a sustainable source of livelihood. In pursuit of this goal, she actively sought opportunities to learn entrepreneurship and enhance her skills in nursery management and floriculture-based enterprise development.

KVK Intervention

Krishi Vigyan Kendra (KVK) Srinagar played a pivotal role in strengthening the entrepreneurial capabilities of Ms. Rukhsana Ismail by providing comprehensive technical guidance and handholding support. She was imparted structured skill-based training on protected cultivation of bulbs, corms, and annual flowering plants, with special emphasis on the production of high-value ornamental crops under controlled conditions. The training modules also covered advanced fertigation techniques, efficient nutrient management, and Integrated Pest Management (IPM) practices to ensure sustainable and cost-effective production while minimizing chemical inputs. In addition, she received specialized exposure to the raising and management of perennial flowering shrubs, enabling diversification of nursery products and year-round income generation.KVK Srinagar further facilitated polyhouse subsidy support under relevant government schemes, enabling the establishment of protected structures for quality nursery production. The KVK also provided quality planting material and continuous technical backstopping, helping her adopt scientific nursery practices, improve plant health, enhance survival rates, and ensure uniform growth. Through this integrated intervention approach, KVK Srinagar successfully empowered the beneficiary to establish a resilient and market-oriented nursery enterprise, transforming her passion into a sustainable livelihood opportunity.

Innovation/ Initiative

Ms. Rukhsana Ismail established her enterprise, titled New Lucky Nursery, in 2022 as an integrated online and offline business platform, with a clear vision of promoting unique and high-quality ornamental plants. The nursery focuses on the production and sale of annual, biennial, and perennial flowering plants, ornamental shrubs, pot plants, and

seasonal bulbs, catering to the growing demand from households, gardeners, and landscaping agencies. By leveraging digital platforms alongside direct customer engagement, she has successfully expanded her market reach and strengthened the sustainability of her enterprise.

Socio-Economic Impact

Ms. Rukhsana Ismail's enterprise, "New Lucky Nursery," has created a significant socio-economic impact by promoting self-employment and financial independence. The venture has provided her with a sustainable source of income, thereby enhancing her economic stability and reducing dependence on traditional employment avenues. Over the years, the enterprise has demonstrated consistent and encouraging growth in net income, reflecting improved technical skills, efficient resource utilization, and strengthened market linkages. Overall, the income trend highlights the successful transformation of a skill-based initiative into a profitable and sustainable nursery enterprise, serving as an inspiration for youth and women entrepreneurs in the region and demonstrating the potential of nursery-based floriculture as a viable livelihood option.

Table 1: Year-wise financial performance of entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2022	2,35,631	1,19,954	1,15,677
2023	2,54,324	46,690p	2,07,634
2024	3,43,532	50,209	2,93,323
2025	5,91,346	65,583	5,25,763

Awards and Recognitions

The successful establishment of New Lucky Nursery has led to significant economic and social empowerment of Ms. Rukhsana Ismail. Through scientific nursery management and entrepreneurship, she has secured a sustainable income, improved household financial stability, and gained self-confidence, decision-making ability, and social recognition as a role model for women and youth. Her efforts were recognized by KVK Srinagar during Kisan Melas and exhibitions, where her innovative nursery products and entrepreneurial skills were widely appreciated. These acknowledgements enhanced her visibility, confidence, and motivation to scale up her enterprise and expand market outreach, strengthening the long-term sustainability of her nursery-based entrepreneurship.

Contributors: Shamim A. Simnani, Ishtiyak A Mir and Aasima Rafiq, Krishi Vigyan Kendra, Srinagar

BREAKING ALTITUDE BARRIER BY MANGO FARMING AT HIGH ALTITUDE OF DEHRADUN

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Name	Mr. Mahabal Singh
Age	40 years
Address	Vill. Samog, Block-Chakrata, Dehradun-248 123 (UK)
Qualification	10th
Mobile	6397168721
KVK	Dehradun

Background/ Situation

Dehradun district exhibits diverse topography ranging from mountainous and sub-mountainous regions to the plains of the Doon Valley. The hilly areas are characterized by steep slopes, shallow soils, water scarcity, and harsh climatic conditions, making horticultural activities highly challenging. Sri Mahabal Singh, a resident of Samog village in Chakrata block, previously worked as an apple sorter in local orchards. Despite limited resources, fragmented landholdings, and difficult terrain, he envisioned utilizing barren dryland slopes for fruit cultivation. Cultivation of mango, a tropical crop, at an altitude of 1,500 meters above mean sea level was considered impossible in this region.

KVK Intervention

Krishi Vigyan Kendra (KVK), Dehradun played a decisive role in the successful establishment of high-altitude mango cultivation by Sri Mahabal Singh through continuous technical guidance, capacity building, and field-level handholding. The KVK provided systematic advisory support on land development, contour bunding, terracing, orchard layout, and soil and water conservation measures suitable for steep and dry hill slopes. Sri Mahabal Singh was imparted a 15-day intensive training on nursery management and scientific horticultural practices, which enhanced his understanding of crop selection, pit preparation, nutrient management, and plant protection. Regular field visits by KVK scientists ensured timely diagnosis of problems and adoption of need-based interventions. KVK also guided him in selection of suitable mango varieties and diversification into other fruit crops by exploiting the local microclimate. Through continuous mentoring, KVK enabled scientific planning, risk minimization, and sustainable resource use, ultimately transforming barren land into a productive horticultural enterprise.

Innovation/ Initiative

The major innovation undertaken by Sri Mahabal Singh was the scientific transformation of steep, dry, and barren hill slopes into a productive mango orchard at an altitude of about 1500 meters above mean sea level. He adopted contour-based land development by constructing inward bunds and terraces along natural hill slopes using locally available stones and soil, which effectively controlled soil erosion and conserved moisture. Scientific pit digging of 1 × 1 × 1 m was carried out on leveled terraces, and the pits were

enriched with farmyard manure, organic inputs, and micronutrients to improve soil fertility and root establishment. To overcome acute water scarcity, rainwater harvesting structures and storage tanks were constructed even on steep slopes, ensuring year-round moisture availability. By utilizing the favorable microclimate of south-facing slopes, he successfully cultivated mango varieties generally considered unsuitable for high altitudes, thereby demonstrating an innovative, climate-resilient, and replicable model for hill horticulture.

Socio-Economic Impact

The economic performance presented in the table reflects the overall success of Sri Mahabal Singh's high-altitude mango cultivation initiative and diversified horticultural enterprise. The fruit nursery spread over two acres generated gross returns of ₹2.36 lakh with a net income of ₹1.05 lakh, while the mango orchard recorded significantly higher gross returns of ₹7.45 lakh and a net income of ₹4.15 lakh, resulting in a total net income of ₹5.20 lakh. These strong financial outcomes are supported by the production of 16 mango varieties along with guava, avocado, citrus fruits, walnuts, and stone fruits, backed by a licensed and accredited fruit nursery supplying quality planting material. Availability of premium late-season mangoes with superior colour, flavour, and shelf life has improved market realization. The enterprise has ensured year-round livelihood security, generated regular and seasonal employment for local youth, reduced outward migration, and encouraged neighbouring farmers to adopt similar horticultural practices. Overall, the initiative has enhanced household income, strengthened rural stability, and contributed to sustainable horticultural development in the high-altitude regions of Dehradun district..

Table 1: Year wise economics of the entrepreneur

S. No.	Particulars	Fruit Nursery (2 acres)	Mango Orchard	Total
1	Gross Returns (₹)	2,36,000	7,45,000	9,81,000
2	Cost of Cultivation (₹)	1,31,000	3,30,000	4,61,000
3	Net Income (₹)	1,05,000	4,15,000	5,20,000

Awards and Recognitions

Sri Mahabal Singh was awarded Progressive Farmer of Dehradun by G.B. Pant University of Agriculture & Technology, Pantnagar for his innovative high-altitude mango cultivation. His farm is recognized as a model and demonstration unit for hill horticulture. The success of his initiative also contributed significantly to KVK Dehradun receiving the Best KVK Zonal Award from NAAS, New Delhi, highlighting effective farmer–scientist collaboration and extension efforts..

Contributors: A. K. Sharma, Kiran Pant, Bijeta, Krishi Vigyan Kendra, Dehradun

TRANSFORMING FARM PROFITABILITY BY TRANSITIONING FROM CEREALS BASED FARMING TO COMMERCIAL FLORICULTURE

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Name	Mr. Shiv Kumar
Age	44 years
Address	Vill. Gupwal, Teh. Vijaypur, Samba-184 120 (J&K)
Qualification	10th
Mobile	9858276858
KVK	Samba

Background/ Situation

Mr. Shiv Kumar is a progressive farmer from Village Gupwal, Tehsil Vijaypur, owning 2.5 hectare of land. With 30 years of farming experience and education up to class tenth, he shifted from traditional cereal crops to marigold cultivation after guidance from Krishi Vigyan Kendra (KVK) Samba in 2021–22. Starting from two kanals, he now cultivates marigold on over 20 kanal, earning about ₹5.05 lakh annually. Through floriculture, he has achieved self-employment, generated local employment, and become a role model for farmers in the region.

KVK Intervention

KVK Samba introduced scientific marigold cultivation by training farmers on nursery raising, seed treatment, improved cultural practices, bio-inputs, harvesting, marketing, and value addition. Marigold requires less land and offers higher returns, with two kanal of marigold yielding income equal to eight kanal of cereal crops. Through trainings, demonstrations, skill development programmes, and awareness activities, KVK motivated farmers to adopt floriculture as a supplementary income source. The success of farmers like Mr. Shiv Kumar has inspired other farmers, farm women, and rural youth to adopt marigold cultivation profitably.

Innovation/ Initiative

With scientific knowledge gained from KVK trainings, Mr. Shiv Kumar adopted round the year marigold cultivation under KVK Samba's guidance, earning higher profits from short-duration crops with no storage requirement. Marigold cultivation reduced the use of fertilizers, water, and pesticides while improving environmental sustainability through natural pest control. Adoption of natural farming practices ensured regular income, improved family livelihood, and enhanced ecological balance.

Socio-Economic Impact

The adoption of scientific marigold cultivation significantly transformed the economic status of Mr. Shiv Kumar. His net income increased steadily from ₹24,000 in 2021–22 to ₹1,20,000 in 2022–23, ₹2,65,000 in 2023–24, and ₹5,05,000 in 2024–25. This income growth improved his

family's living standards, enabled debt repayment, and strengthened his enterprise. His success has inspired over 30 neighboring farmers to adopt floriculture-based entrepreneurship, promoting income diversification and rural livelihood enhancement.

Table 1: Year wise economics of the commercial floriculture of the entrepreneur

Year	Area (kanals)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2021-22	2	32,000	8,000	24,000
2022-23	8	1,49,500	29,500	1,20,000
2023-24	18	3,63,500	98,500	2,65,000
2024-25	26	6,43,500	1,38,500	5,05,000

Awards and Recognitions

He has been honored on several occasions by the University and the Department of Agriculture. He received the Best Farmer Award at the block level and was also conferred with the Innovative Farmer Award by Sher-e-Kashmir University of Agricultural Sciences and Technology and the Department of Agriculture.

Contributors: Sanjay Khajuria, Neerja Sharma and Saurav Gupta, Krishi Vigyan Kendra Samba

B. INTEGRATED FARMING SYSTEM

Integrated Farming System (IFS) has emerged as a holistic and practical approach to address the complex challenges confronting Indian agriculture today. Declining landholdings, rising input costs, climate uncertainties, market volatility, and limited employment opportunities have made it increasingly difficult for farm families to rely on a single enterprise for livelihood security. The Integrated Farming System approach responds to these challenges by intelligently combining multiple farm and allied enterprises—such as crops, livestock, horticulture, composting, fisheries, and value-added activities—into a mutually supportive and resource-efficient production system. This section of the book presents inspiring success stories that demonstrate how IFS can transform farming into a sustainable, profitable, and dignified livelihood. The success stories compiled under this theme reflect the real-life experiences of progressive farmers and agri-entrepreneurs who have adopted integration as a strategy for income enhancement and risk reduction. Spread across diverse agro-climatic regions, including plains, hills, and rainfed areas, these stories highlight the flexibility and adaptability of Integrated Farming Systems under varied socio-economic and environmental conditions. Each narrative showcases how thoughtful enterprise selection, efficient resource recycling, and scientific management can lead to remarkable improvements in farm income and livelihood security.

Several stories in this section underline the economic strength of diversification achieved through IFS. Farmers who earlier depended on monocropping or a single enterprise have successfully integrated crops with dairy, poultry, vermicomposting, vegetable cultivation, or other allied activities. This integration has not only ensured multiple income streams throughout the year but has also reduced dependency on external inputs by recycling farm residues and by-products. For instance, the integration of vermicomposting with crop production has enhanced soil fertility while generating additional income, demonstrating the synergy that lies at the core of the IFS approach. A prominent theme emerging from these success stories is the ability of Integrated Farming Systems to overcome landholding constraints. Small and marginal farmers, often limited by fragmented and shrinking land resources, have shown that profitability does not necessarily

depend on farm size but on efficient planning and enterprise integration. By intensifying production, optimizing space, and linking farm and non-farm activities, these farmers have achieved impressive economic returns even on small holdings. Such examples challenge conventional perceptions and offer hope to countless smallholders across the country. The section also brings to light the role of Integrated Farming Systems in enabling economic stability and social transformation. Several narratives highlight how farmers were able to secure steady incomes, reduce seasonal unemployment, and improve their overall quality of life through integration. In some cases, IFS has facilitated reverse migration, drawing individuals back from urban or overseas employment to agriculture by making farming economically viable and socially rewarding.

These stories serve as powerful testimonies to the potential of agriculture as a sustainable livelihood option when supported by innovation and entrepreneurship. An important dimension covered in these success stories is the involvement of youth and women in Integrated Farming Systems. Young farmers and women entrepreneurs have successfully adopted integrated approaches to create stable income sources while balancing household responsibilities. Their journeys reflect how IFS can empower rural youth and women by providing year-round employment, enhancing decision-making roles, and fostering self-reliance. These stories emphasize that integrated farming is not merely a production strategy but also a tool for inclusive rural development.

The success stories further demonstrate the environmental sustainability benefits of Integrated Farming Systems. By promoting on-farm resource recycling, organic manure production, reduced chemical input use, and efficient water management, IFS contributes to soil health improvement and ecological balance. Farmers practicing integration have reported better crop resilience, improved soil structure, and reduced production risks. Such outcomes align closely with the broader goals of sustainable agriculture and climate-resilient farming systems. Another key feature highlighted in this section is the critical role of innovation, capacity building, and institutional support. Krishi Vigyan Kendras (KVKs) have played a pivotal role in guiding farmers toward suitable enterprise combinations, providing technical backstopping, and facilitating skill development. The success stories illustrate the impact of continuous handholding, exposure visits, and need-based training in building farmers' confidence to adopt integrated models. These examples reaffirm the importance of strong research–extension–farmer linkages in translating scientific knowledge into field-level success.

The narratives presented in this section also underline the importance of entrepreneurial thinking in farming. Integrated Farming Systems thrive not only on technical integration but also on market awareness, financial planning, and timely decision-making. Farmers featured in this section have demonstrated foresight in selecting enterprises with assured demand, adopting value-enhancing practices, and responding proactively to market signals. Their experiences provide valuable lessons for others seeking to transition from subsistence farming to agribusiness-oriented models. Collectively, the Integrated Farming System success stories presented in this section serve as a rich repository of practical insights, motivation, and replicable models. They illustrate that integration is not a rigid formula but a flexible framework that can be tailored to local resources, farmer preferences, and market opportunities. By documenting these diverse experiences, this section aims to inspire farmers, extension professionals, planners, and policymakers to promote Integrated Farming Systems as a pathway toward resilient agriculture, enhanced farm incomes, and sustainable rural livelihoods. In essence, the stories that follow reaffirm a simple yet powerful message: when farming enterprises are thoughtfully integrated, agriculture evolves from a struggle for survival into a journey of prosperity, dignity, and long-term sustainability.

REALISING ECONOMIC DREAMS THROUGH INTEGRATED FARMING SYSTEMS

21

Name	Ms. Syed Shazia
Age	35 years
Address	Mole Chitragam, Shopian-192 303 (J&K)
Qualification	Post-Graduate (LLM)
Mobile	9697520811
KVK	Shopian

Background/ Situation

Ms. Syed Shazia, a law post-graduate young enthusiastic lady, highly motivated and determined towards establishment of a business enterprise in agriculture sector, despite several hurdles. She approached all agricultural and allied departments to seek opportunity in different fields. She decided to establish an Integrated Farming System. In 2019 she approaches the Head Krishi Vigyan Kendra (KVK) Shopian for training regarding the establishment of IFS. After getting training from KVK Shopian, she initially established a Poultry farm in 2019 in her ancestral land of 24 kanals and year after year she added many enterprises. In the year 2024, she had well established IFS including Poultry, Vegetable, Dairy, Fishery and High-density Apple Orchard.

KVK Intervention

Scientists of Krishi Vigyan Kendra (KVK) played a pivotal role in building the technical and entrepreneurial capacity of the young lady entrepreneur through systematic and need-based trainings. She was provided hands-on and theoretical training in scientific poultry rearing, including breed selection, housing, feeding, health management, and biosecurity measures. Specialized trainings were also imparted on fish farming, covering pond management, species selection, feeding practices, and disease control, along with scientific dairy management focusing on breed improvement, balanced nutrition, reproductive management, and animal health care. In addition, she received intensive guidance on modern apple production technologies, particularly high-density planting systems, canopy management, pruning, nutrient and pest management practices aimed at enhancing productivity and sustainability. Beyond production aspects, KVK scientists educated her on value addition, post-harvest handling, and marketing strategies for farm produce and by-products, enabling her to identify market opportunities, improve profitability, and ensure efficient commercialization of her integrated farming enterprises.

Innovation/ Initiative

The young entrepreneur introduced several innovations to modernize and diversify her farm. She adopted new poultry breeds and exotic vegetable varieties to enhance productivity and meet market demand. High milk-yielding cows were integrated into her dairy enterprise, while trout and carp were introduced to develop a profitable fishery component. Traditional apple orchards were converted into high-density planting systems, optimizing land use and increasing output per unit area. She implemented scientific interventions for efficient resource utilization, including water, feed, and farm inputs. Nutrient management practices were applied to maintain soil fertility and crop health. Additionally, proper pruning techniques and human resource management strategies were adopted in both traditional and high-density orchards, ensuring

sustainable and high-quality production.

Socio-Economic Impact

With the adoption of exotic crop varieties, improved livestock breeds, high-density apple planting, and the innovative Horti-poultry system, her business expanded remarkably, growing from ₹8 lakh in 2019 to ~ ₹96 lakh by 2024. The enterprise also created opportunities for nearly 10 other beneficiaries who are associated with her farm. Her success and leadership have made her a role model for educated young women across the district, inspiring them to view agriculture as a profitable and respectable profession.

Table 1: Year wise economics of integrated farming system of the entrepreneur

Year	Component	Production	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2019	Commercial Poultry	Broiler 12000, Backyard 2000	10,00,000	7,50,000	2,50,000
2020	Commercial Poultry	Broiler 12000, Backyard 2000	17,00,000	9,00,000	8,00,000
	Vegetables (Broccoli/ Lettuce/ Chinese Cabbage/ Parsley etc)	5 q			
	Dairy Farming	10000 L			
2021	Commercial Poultry	Broiler 1400, Backyard 3000	32,00,000	15,50,000	16,50,000
	Vegetable (Broccoli/ Lettuce/ Chinese Cabbage/ Parsley etc)	10 q			
	Dairy Farming	17000 L			
	Fish Farming	5 q			
2022	Commercial Poultry,	Broiler 16000, Backyard 3000	48,90,000	25,30,000	23,60,000
	Vegetable (Broccoli/ Lettuce/ Chinese Cabbage/ Parsley etc)	12 q			
	Dairy Farming	24000 L+ Sold 3 Heifers			
	Fish Farming	10 q			
	Vermi-composting	300 q			
	HDP Apple	500 boxes			
2023	Commercial Poultry	Broiler 16000, Backyard 3000	70,60,000	20,70,000	49,90,000
	Vegetables (Broccoli/ Lettuce/ Chinese Cabbage/ Parsley etc)	12 q			
	Dairy Farming	29500 L			
	Fish Farming	12 q			
	Vermi-composting	300 q			
	HDP Apple	2000 boxes			
2024	Commercial Poultry	Broiler 16000, Backyard 3000	95,60,000	21,50,000	74,10,000
	Vegetables (Broccoli/ Lettuce/ Chinese Cabbage/ Parsley etc)	12 q			
	Dairy Farming	29500 L+ sold 5 Heifers			
	Fish Farming	15 q			
	Vermi-composting	450 q			
	HDP Apple	3600 boxes			

Awards and Recognitions

- Best innovative farmer Award By ATARI Ludhiana
- Awarded By Hon'ble Vice chancellor SKUAST-K as a champion farmer

Contributors: Z A Badri, Mir Shabir Ahmad and Shaiq A Ganai, Krishi Vigyan Kendra, Shopian; Nihar Gupta, ICAR-ATARI, Ludhiana

22

ENSURING ECONOMIC SUSTAINABILITY THROUGH DIVERSIFIED FARMING ENTERPRISES

Name	**Mr. Arshid Hussain Baba**
Age	**45 years**
Address	**V.P.O. Hutmurah Mattan, Anantnag-192 125 (J&K)**
Qualification	**Post-Graduation**
Mobile	**9906640020**
KVK	**Anantnag**

Background/ Situation

Mr. Arshid Hussain Baba, a progressive entrepreneur from Hutmurah Mattan, Anantnag, manages a diversified 2.5-acre farm integrating dairy, poultry, vermicomposting, hydroponics, and horticulture. With a postgraduate degree, he sought to build a sustainable, low-input farming system that could ensure stable income, efficient resource utilization, and year-round productivity. Prior to diversification, the farm operated traditionally with limited profitability and rising input costs impacting overall viability.

Recognizing the need for innovation, he initiated systematic improvements in dairy management, resource recycling, and organic input production. His existing walnut orchard provided a horticultural base, but he aimed to develop a circular farming model capable of generating consistent income across enterprises. The absence of irrigated land and lack of water bodies posed additional challenges, prompting him to adopt water-efficient interventions such as hydroponic green fodder production. Today, Baba Farms has evolved into a model of integrated and sustainable agriculture in South Kashmir.

KVK Intervention

Krishi Vigyan Kendra (KVK) Anantnag supported Mr. Arshid by providing scientific advisory services on dairy nutrition, fodder management, waste utilization, and organic input production. Technical backstopping was provided for establishing a systematic vermicomposting unit using *Eisenia foetida*, including training on pre-decomposition, moisture regulation, aeration practices, and harvesting of high-quality compost. KVK further facilitated the adoption of hydroponic fodder systems to address fodder scarcity, reduce feeding costs, and improve dairy performance. Demonstrations on the preparation and field application of cow urine-based Zero Budget Natural Farming (ZBNF) formulations enabled him to minimize dependency on chemical pesticides and transition toward eco-friendly production across enterprises. Advisories on enterprise integration, resource recycling, and cost-benefit optimization helped him structure his farm as a sustainable Integrated Farming System (IFS). Continuous mentoring allowed him to scale dairy production, expand vermicomposting output, and improve marketability of produce.

Innovation/ Initiative

Mr. Arshid has implemented several innovations that strengthened productivity, profitability, and sustainability on his farm. His scientifically managed vermicomposting unit converts dairy and poultry waste into 1,500–2,000 quintals of nutrient-rich compost annually, generating ₹15–20 lakh and reducing external input dependency. Under ZBNF, he prepares cow urine–based botanical formulations that serve

as safe, residue-free pest management solutions across all cropping components. This ensures chemical-free production and holistic farm health. His hydroponic green fodder unit supplies fresh, chemical-free fodder daily with minimal water use, significantly reducing feed cost and supporting improved milk yield. A robust Integrated Farming System-combining horticulture (walnut orchard), dairy, poultry, vermicomposting, has created a circular, resource-efficient model with adoption of hydroponics too.

Socio-Economic Impact

The integrated approach adopted by Mr. Arshid has transformed his farm into a highly profitable and resource-efficient enterprise. With systematic vermicomposting, hydroponic fodder production, and commercial dairy management, his annual turnover has reached about ₹38 lakh, with significant year-round income stability. Input costs have reduced considerably through on-farm nutrient recycling and ZBNF-based pest management.

His farm has emerged as a learning site for sustainable agriculture, attracting farmers from Anantnag and adjoining districts. As a Farmer Master Trainer (FMT), he regularly demonstrates scientific vermicomposting, hydroponic systems, and integrated farming practices, enabling many farmers to adopt low-cost organic techniques. His innovations have contributed to improved soil health, reduced chemical dependency, and higher profitability among neighboring farming communities.

Table 1: Activity-wise income and cost–benefit ratio

Farm enterprises	Area/ No.	Gross Income (₹)	Net Income (₹)	B:C Ratio
Walnut orchard	10 kanals	2,00,000	1,50,000	1:4.0
Dairy unit	16 cows	40,00,000	24,00,000	1:2.5
Vermicomposting unit (7x2x2 ft)	20 No.	18,00,000	12,00,000	1:3.0
Total		**60,00,000**	**37,50,000**	

Awards and Recognitions

- Received best progressive farmer award from Hon'ble LG UT of J&K.
- Received certificate of appreciation from Hon'ble Vice Chancellor SKUAST-Kashmir during 12th SAC Meeting of KVK-Anantnag.
- Featured in “Inspiring Stories of Farming Excellence” published by Directorate of Extension, SKUAST-K (2025 revision).

Contributors: Ishtiyaq A. Khan, Malik Raies and Shabeer Ahmad Ghanai, Krishi Vgyan Kendra, Anantnag

23 ADDING WINGS TO PROFITABILITY OF A NATURAL WARM WITH VERMICOMPOSTING

Name	Mr. Mohd Iqbal Bhat
Age	38 years
Address	Vill. Koil, Pulwama-192 301 (J&K)
Qualification	Post Graduate in Geography
Mobile	9622545160
KVK	Pulwama

Background/ Situation

Mr. Mohd Iqbal Bhat, a progressive farmer from Koil, Pulwama, left a government job to adopt natural farming after witnessing the negative effects of chemical inputs on soil health. Following poor results with commercial vermicompost, he sought guidance from Krishi Vigyan Kendra (KVK) Pulwama and began producing his own high-quality vermicompost. Starting with two beds in 2021, he expanded to a 50-bed unit by 2025, producing 307.5 MT annually. Through integration of indigenous cows and bio-formulations, he restored soil health, reduced costs, and nearly doubled farm profits, becoming a role model for sustainable agriculture.

KVK Intervention

Mr. Mohd Iqbal Bhat, guided by KVK Pulwama, received training on vermicompost and bio-agents, which inspired him to establish a vermicompost unit and produce natural bio-products. He now practices natural farming across fruits, cereals, and vegetables, integrating two indigenous cows to maintain a self-sustaining system, demonstrating how science and dedication can transform traditional farming into a profitable, sustainable enterprise.

Innovation/ Initiative

In 2019, Mr. Mohd Iqbal Bhat received training at KVK Pulwama on vermicomposting and bio-agent production, learning to use cow dung, crop residues, and microbial inoculants, and prepare bio-agents like Trichoderma, PSB, and Azotobacter. Applying this knowledge, he established a vermicompost unit using farm waste and dung from two indigenous cows, producing bio-fortified compost for fruits, cereals, and vegetables. He also prepared natural bio-products such as Jeevamrit, Bijamrit, botanical extracts, compost teas, and bio-pesticides, adopting mulching, intercropping, and IPM for sustainable farming across orchards, cereals, and vegetables.

Socio-Economic Impact

Adoption of natural farming improved soil health, crop performance, and farm sustainability. Recycling organic biomass enhanced soil carbon, microbial activity, and nutrient cycling, supporting better root growth and moisture retention. Crop yields and quality increased—apples and plums fetched premium prices, rice and maize showed better grain filling and resilience, and vegetables were in high demand. Sales of vermicompost and bio-products provided additional income, while cultivation costs dropped

35–40 per cent. Maintaining two indigenous cows ensured raw materials, reduced waste, and turned the farm into a model for neighbouring farmers.

Table 1: Year wise annual economic growth of sustainable natural farming enterprise

Year	Components	Area (ha)/ Beds (No.)	Production	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2021	Paddy	0.25	20 q	45,135	25,075	20,060
	Maize	0.15	6 q	18,054	7,522	10,532
	Vegetable	0.1	18 q	95,285	50,150	45,135
	Apple	0.5	400 Boxes	2,80,840	1,20,360	1,60,480
	Vermicomposting	2	6 t	72,936	30,390	42,546
	Total			**5,12,250**	**2,33,497**	**2,78,753**
2022	Paddy	0.25	22 q	1,10,330	45,270	65,060
	Maize	0.15	6.5 q	20,060	14,042	6,018
	Vegetable	0.1	22 q	2,65,790	1,10,660	1,55,130
	Apple	0.5	450 Boxes	4,06,215	1,45,435	2,60,780
	Vermicomposting	10	45 t	5,47,020	2,12,730	3,34,290
	Total			**13,49,415**	**5,28,137**	**8,21,278**
2023	Paddy	0.25	23 q	1,15,345	42,250	73,095
	Maize	0.15	6.8 q	22,066	15,045	7,021
	Vegetable	0.1	25 q	2,95,885	1,05,630	1,90,255
	Apple	0.5	480 Boxes	4,57,368	1,40,420	3,16,948
	Vermicomposting	25	150 t	18,23,400	7,59,750	10,63,650
	Total			**27,14,064**	**10,63,095**	**16,50,969**
2024	Paddy	0.25	24 q	1,20,360	40,120	80,240
	Maize	0.15	7.2 q	24,072	16,048	8,024
	Vegetable	0.1	28 q	3,25,975	1,00,300	2,25,675
	Apple	0.5	520 Boxes	5,21,560	1,35,405	3,86,155
	Vermicomposting	40	246 t	29,90,320	11,64,950	18,25,370
	Total			**39,82,287**	**14,56,823**	**25,25,464**
2025	Paddy	0.25	25 q	1,30,390	38,114	92,276
	Maize	0.15	7.5 q	26,078	17,051	9,027
	Vegetable	0.1	30 q	3,75,000	95,285	2,79,715
	Apple	0.5	550 Boxes	6,01,800	1,30,390	4,71,410
	Vermicomposting	50	307.5 t	43,05,250	18,34,125	24,71,125
	Total			**54,38,518**	**21,14,965**	**33,23,553**

Awards and Recognitions

Mohd Iqbal Bhat's journey illustrates how scientific training, innovation, and resource recycling can build a profitable, eco-friendly farm. With KVK Pulwama's guidance, he developed a self-reliant system producing fruits, cereals, vegetables, and organic inputs, exemplifying KVK-led empowerment that unites economic gain, soil health, and community leadership.

Contributors: Syed Shujat Hussain and Javeed A. Mugloo, Krishi Vigyan Kendra, Pulwama

MAKING FARMING PROFITABLE WITH INNOVATIVE DIVERSIFICATION MEASURES

24

Name	S. Gurnek Singh
Age	35 years
Address	Vill. Shahdra, Teh. Saroya, SBS Nagar-144 514 (PB)
Qualification	Post Graduate
Mobile	9780730131
KVK	Nawanshahar

Background/ Situation

S. Gurnek Singh, a 35-year-old postgraduate from Village Shahdra, Tehsil Saroya, Punjab, has transformed 10 years of farming into a model of sustainability and innovation. Starting with 35 acres of medium-textured soil, he expanded to 50 acres, diversifying beyond the traditional wheat-rice cycle to grow paddy, sugarcane, maize, wheat, mustard, black gram, potatoes, vegetables, and orchards of peach and plum. Engaged with Krishi Vigyan Kendra (KVK) SBS Nagar, he adopted modern technologies, integrated oilseed and poplar cultivation, and implemented crop residue management to address stubble burning.

KVK Intervention

KVK SBS Nagar introduced Gurnek to advanced CRM techniques, improved sesame variety (Pb. Til No. 2), and scientific practices like line planting, optimal sowing time, weed/insect-pest/disease management, planting of peach and plum orchard and poplar. Technical guidance, inputs, and trainings equipped him with tools like super seeders for residue incorporation. Exposure to demonstrations showed higher yields and soil benefits, motivating his shift from burning to ex-situ removal of paddy straw (14 ha, 2019–2023), incorporation (14 ha, 2020), and retention (3-5 ha sugarcane after mustard). All straw removed with Baler (100 per cent in 2019, 2021–2023) became feed/fodder for dairy animals, ensuring clean fields.

Innovation/ Initiative

Gurnek's innovations transformed challenges into opportunities. He pioneered CRM, yielding clean fields for easy sowing via ex-situ removal, soil health via incorporation, and organic matter via retention. For sesame, line planting boosted yields from 3.75 q per ha (broadcasting) to 5.13 q per ha by 36.8 per cent rise. Despite a 21.74 per cent rise in cultivation costs from added operations like thinning, his net income jumped to 51.56 per cent. In 2022, he launched a farmer producer organization (FPO) with 2 super seeders, 1 mulcher, and 1 MB plough, renting them at minimal rates to villagers alongside a fertilizer shop. He also owns a drone for rental spraying, mainly on sugarcane fields, amplifying community impact and has completed

various trainings.

Socio-Economic Impact

Gurnek's practices cut burning costs, improved soil fertility, and diversified income via FPO rentals and drone services. Sesame trials alone hiked net returns by over 50 per cent, with additional income from peach, plum and poplar, while CRM sustained 50 acres productively. His model inspires locals, with KVK using his fields for demonstrations. Trainings polished his skills, fostering resilience and zero-burn farming. Socially, the FPO empowers villagers with affordable machinery, reducing costs and pollution. Gurnek's journey from 35 to 50 acres shows how youth can revitalize agriculture, blending tradition with tech for shared prosperity. His journey inspires a shift from rice-wheat dominance to diversified crops, including orchards and oilseeds. Through zero-burn CRM, he has built prosperity while nurturing both soil and community.

Table 1: Year wise economics of the diversified farming system of the entrepreneur

Year	Crops	Area (acre)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2018	Paddy, sugarcane, wheat	35	20,00,000	9,10,000	10,90,000
2019	2018 (+) kharif maize	35	20,50,000	9,35,000	11,15,000
2020	2019 (+) mustard, black gram	35	24,50,000	9,70,000	14,80,000
2021	2020 (+) sesame	35	25,80,000	10,50,000	15,30,000
2022	2020 (+) peach, plum, poplar, cucurbits, peas, potato (-) mustard	50	37,90,000	13,20,000	24,70,000
2023	--do--	50	36,85,000	14,30,000	22,55,000
2024	--do--	50	40,20,000	15,10,000	25,10,000

Awards and Recognitions

In 2024, he received the National Best Farmer Award from ICAR, New Delhi, for outstanding contributions to agricultural development. In the same year, he also earned the Award for In Situ Management of paddy straw from Punjab Agricultural University, Ludhiana, in collaboration with Clean Air Punjab. Recently, he received the Award for Sustainable Agriculture in 2025 from Punjab Agricultural University, Ludhiana, followed by the Progressive Farmer Award from Department of Agriculture in 2025. He continuously marches ahead on the road of innovation and sustainability for achieving higher incomes.

Contributors: Pardeep Kumar, Arti Verma and Rajinder Kaur, Krishi Vigyan Kendra, Nawanshahar

25

SHOWING EXCEPTIONAL ECONOMIC PERFORMANCE WITH INNOVATIVE INTEGRATION OF FARM-BUSINESS ACTIVITIES

Name	**S. Taranjit Singh Mann**
Age	**38 years**
Address	**Vill. Bugra, Teh. Mahilpur, Hoshiarpur-146 105 (PB)**
Qualification	**Graduation**
Mobile	**9815781925**
KVK	**Hoshiarpur**

Background/ Situation

S. Taranjit Singh Mann is a progressive and graduate farmer from village Bugra, Block Mahilpur, District Hoshiarpur, with about 18 years of farming experience. He owns 12.8 ha of land and additionally cultivates 84 ha on lease, growing wheat, paddy, potatoes, and sugarcane on a large scale. Rising labour costs and delays in farm operations motivated him to adopt complete mechanization using PAU-recommended farm machinery, both to improve efficiency on his own farm and to establish custom hiring services as an additional income source while supporting other farmers. Since associating with PAU–Krishi Vigyan Kendra, Hoshiarpur, in 2022, he has actively participated in training programmes and demonstrations on paddy mechanization, residue management machinery, laser land levellers, and other advanced implements. He also aims to diversify income through vocational training in jaggery processing for value addition in sugarcane. With continuous technical guidance from PAU-KVK Hoshiarpur, he is steadily adopting modern, efficient, and sustainable farming practices and emerging as a role model in the region.

KVK Intervention

With sustained technical guidance from Krishi Vigyan Kendra (KVK) Hoshiarpur, S. Taranjit Singh Mann adopted scientific paddy residue management practices, managing residue in situ using a Super SMS–fitted combine, mulcher, and reversible mould board plough before potato planting to improve soil organic matter and fertility. KVK established a Strategic Learning Platform at his farm to demonstrate and compare residue management technologies with conventional practices, and he actively participated in KVK training programmes. With continued technical backstopping, he expanded mechanization through in-situ and ex-situ residue management machinery and initiated custom hiring services, including combine harvesting of wheat and paddy (₹5,000–5,500/ ha), Super Seeder sowing under full residue (₹5,500/ha), paddy residue baling ₹250/ q), wheat straw chopping (₹1,200 per trolley), laser land levelling (₹1,000/h), and mould board ploughing (₹6,250/ ha). These interventions reduced labour drudgery, improved efficiency, and promoted sustainable mechanized farming.

Innovation/ Initiative

The Strategic Learning Platform at his farm demonstrated in-situ paddy residue management technologies, enabling farmers to compare them with conventional practices under real field conditions. Weed density under conventional sowing was 45–50 weeds/m², while residue-based technologies, especially Happy Seeder and Smart Seeder, reduced it to 20–35 weeds/m². Wheat yield under

conventional practice ranged from 51–56 q/ha, whereas higher and more stable yields were recorded with Happy Seeder (56.5–57.5 q/ha) and Smart Seeder (56–57 q/ha). With technical support from PAU–KVK, Hoshiarpur, he also established a modern steam-operated jaggery unit producing about 9 q/day with 55–60 per cent fuel savings. Income diversification through dairy (6 cows and 13 buffaloes) and poultry (300 chicks) further strengthened this integrated and sustainable farming model.

Socio-Economic Impact

The sustained association of S. Taranjit Singh Mann with PAU–Krishi Vigyan Kendra, Hoshiarpur has delivered clear and substantial socio-economic impact at both household and community levels. Adoption of advanced mechanization and scientific paddy residue management reduced labour dependence and enhanced wheat productivity by 3–4 q/ha, generating an additional income of ₹6,000–8,000/ha. The custom hiring services of modern farm machineries generates an annual income of about ₹5.0–5.5 lakh while creating local employment. Establishment of a modern steam-operated jaggery processing unit improved fuel efficiency by 55–60 per cent and added significant value to sugarcane, contributing nearly ₹5.5 lakh per season. Further income stability is achieved through diversified allied enterprises, including dairy and poultry, generating ₹2.0–2.5 lakh annually. Collectively, these KVK-supported interventions have elevated his net annual income to ₹22.5 lakh, strengthened farmer confidence in mechanization, promoted resource-efficient farming practices, and positioned him as a lead farmer driving technology adoption and sustainable rural development in the region.

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2015	52,00,000	38,50,000	13,50,000	CHC, Farming, Dairy
2016	53,50,000	39,50,000	14,00,000	--do--
2017	54,20,000	40,00,000	14,20,000	--do--
2018	56,50,000	41,00,000	15,50,000	--do--
2019	58,00,000	42,00,000	16,00,000	--do--
2020	61,50,000	44,00,000	17,50,000	--do--
2021	64,00,000	46,00,000	18,00,000	CHC, Farming, Dairy, Poultry
2022	72,00,000	50,00,000	22,00,000	--do--
2023	72,45,000	50,25,000	22,20,000	CHC, Farming, Dairy, Poultry, Jaggery
2024	72,85,000	50,35,000	22,50,000	--do--

Table 1: Year wise annual economics of the entrepreneur

Awards and Recognitions

The outstanding efforts of KVK-associated farmer S. Taranjit Singh Mann have received wide recognition. He was honoured with the prestigious CRI Pumps Award at Kisan Mela, PAU on 14th March 2024 for promoting farm mechanization, and earlier received the Innovative Farmer Award at ICAR-ATARI, Zone-I during ICAR Foundation Day on 11th January 2024.

Contributors: Ajaib Singh and Maninder Singh Bons, Krishi Vigyan Kendra, Hoshiarpur

ACHIEVING ECONOMIC PROSPERITY THROUGH INTEGRATED FARMING SYSTEM APPROACH

26

Name	Mr. Kapil Sharma
Age	40 years
Address	Vill. Timariya, August Muni, Rudraprayag-246 421 (UK)
Qualification	Graduation
Mobile	9720402990
KVK	Rudraprayag

Background/ Situation

Mr. Kapil Sharma, a 40-year-old science graduate from village Timariya, Ukhimath block, Rudraprayag (Uttarakhand), manages 1.10 ha land and belongs to a traditional farming family. With limited rural job opportunities and unstable income from conventional farming, he aimed to create a sustainable livelihood through agriculture. He started traditional vegetable cultivation in 2013 but faced repeated failures. A turning point came in 2014 after exposure to KVK, Jakhdhar, where guidance on scientific vegetable production, protected cultivation, integrated farming, and resource recycling motivated him to redesign his farm. With continuous KVK support, he developed a diversified integrated farming system comprising vegetables on 0.061 ha (30 nali), floriculture on 0.041 ha (20 nali) with three polyhouses (0.03 ha / 300 m²), orchard on 0.041 ha (20 nali), fisheries with three ponds (300 m² water spread area), and dairy with 7 milch cows (Red Sindhi and Jersey crossbred) and 7 heifers. This transformation turned his small hill farm into a resilient, profitable, and replicable model for rural youth in the Kedarnath pilgrimage region.

KVK Intervention

The major turning point in Mr. Kapil Sharma's farming journey came through sustained support from KVK, Rudraprayag. Through regular trainings, demonstrations, and field advisories, KVK guided him toward a scientific integrated farming system suited to the hill ecology, improving productivity while conserving soil and the environment. To ensure year-round income, an integrated model of dairy, vegetables, floriculture, and fisheries was developed, with emphasis on recycling crop residues and livestock waste to reduce input costs. Considering the farm's location on the Kedarnath pilgrimage route, KVK promoted staggered marigold cultivation to meet seasonal demand. Exposure visits, continuous agro-advisories, and market-oriented guidance transformed his farm into a diversified, resilient, and economically viable integrated organic farming model for the region.

Innovation/ Initiative

With KVK support, Mr. Sharma integrated dairy into his farming system and innovatively utilized cattle dung and urine to produce FYM, vermicompost, and liquid organic formulations, reducing external inputs and improving soil fertility. He also established a vegetable nursery with KVK guidance, producing quality vegetable and marigold seedlings for his farm and nearby farmers. In 2022, he expanded entrepreneurship by opening a local agri-dairy input shop supplying seeds, seedlings, organic inputs, milk, and basic farm tools. This venture generated additional income and improved input accessibility for village farmers.

Socio-Economic Impact

The integrated farming system significantly improved Mr. Kapil Sharma's socio-economic status. Diversification of enterprises ensured year-round income and reduced the risk associated with crop failure. Over the years, his farm income steadily increased, and he now earns an annual net income of ₹14.47 lakh. The model has generated local employment and strengthened household livelihood security. His success has encouraged neighbouring farmers and rural youth to adopt integrated farming practices. The farm has become a demonstration and learning site, contributing to sustainable agriculture and rural economic growth in the region.

Table 1: Year-wise economics of the entrepreneur from Integrated Farming (2023–2025)

Year	Component	Area (Ha)	Production	Gross income (₹)	Expenditure (₹)	Net income (₹)
2023	Off-season Vegetables-capsicum, tomato, cucumber, pumpkin (2 polyhouses)	0.081	1,300 q	3,25,000	1,05,000	2,20,000
	Floriculture-marigold (1 polyhouse)	0.051	875 q	4,40,000	1,45,000	2,95,000
	Orchard-Peach, Plum, Walnut	0.041	375 q	1,88,000	68,000	1,20,000
	Fisheries	0.03	6.75 q	68,000	23,000	45,000
	Dairy	14 No.	2,40,000 L	9,60,000	3,75,000	5,85,000
	Agri Shop	-	Sales	2,00,000	1,40,000	60,000
	Total		-	**21,81,000**	**8,56,000**	**13,25,000**
2024	Off-season Vegetables-capsicum, tomato, cucumber, pumpkin (2 polyhouses)	0.081	1,400 q	3,50,000	1,15,000	2,35,000
	Floriculture-marigold (1 polyhouse)	0.051	950 q	4,75,000	1,60,000	3,15,000
	Orchard-Peach, Plum, Walnut	0.041	400 q	2,00,000	80,000	1,20,000
	Fisheries	0.03	7.5 q	75,000	25,000	50,000
	Dairy	14 No.	2,50,000 L	10,00,000	3,95,000	6,05,000
	Agri Shop	-	Sales	2,50,000	1,75,000	75,000
	Total		-	**23,50,000**	**9,50,000**	**14,00,000**
2025	Off-season Vegetables-capsicum, tomato, cucumber, pumpkin (2 polyhouses)	0.081	1,450 q	3,62,500	1,17,500	2,45,000
	Floriculture-marigold (1 polyhouse)	0.051	975 q	4,87,500	1,63,000	3,24,500
	Orchard-Peach, Plum, Walnut	0.041	410 q	2,05,000	81,000	1,24,000
	Fisheries	0.03	7.75 q	77,000	25,500	51,500
	Dairy	14 No.	2,55,000 L	10,20,000	4,00,000	6,20,000
	Agri Shop	-	Sales	2,60,000	1,78,000	82,000
	Total		-	**24,12,000**	**9,65,000**	**14,47,000**

Awards and Recognitions

Mr. Kapil Sharma's successful adoption of integrated farming has earned him wide recognition. He has been acknowledged by KVK, Rudraprayag, and the local administration, including the District Magistrate, Rudraprayag. He received the Progressive Farmer Award at the GBPUAT Pantnagar Kisan Mela in 2019 and was honored with the "Millionaire Farmer" award by "Krishi Jagran" in 2024 for his outstanding contribution to integrated organic farming in the hill ecosystem.

Contributors: Sanjay Sachan, Anshul Arya and Ankit Dongariyal, Krishi Vigyan Kendra, Rudraprayag; Nihar Gupta, ICAR-ATARI, Ludhiana

AGRI-ENTREPRENEUR LED REVERSE MIGRATION OF A GULF WORKER

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Name	S. Harnek Singh
Age	36 years
Address	Vill. Alma, Teh. Batala, Gurdaspur-143 505 (PB)
Qualification	12th and Diploma in Mechanical Technician (1-year)
Mobile	7355234295
KVK	Gurdaspur

Background/ Situation

S. Harnek Singh, a determined young man from Alma village, always dreamed of building a better future for his family. Like many others seeking greater opportunities, he traveled to the Middle East in search of improved prospects. Although he earned a steady income there, Harnek faced harsh working conditions, rising living expenses, and limited opportunities for growth. In 2018, driven by a desire for long-term stability and a vision for his own enterprise, he returned home with his savings and a strong determination to succeed. Back in his village, Harnek owned 4 acre of land and leased an additional 3 acre. He initially cultivated sugarcane on his own land and followed the traditional wheat–rice rotation on the leased fields. However, Harnek's passion extended beyond conventional farming. He was particularly interested in horticulture and began experimenting with nursery raising. Despite his enthusiasm, he encountered repeated setbacks due to a lack of technical knowledge. Undeterred, Harnek aspired to diversify his agricultural activities by integrating a subsidiary occupation alongside traditional farming, aiming to secure a better future for himself and his family.

KVK Intervention

S. Harnek's agricultural journey took a positive turn after visiting Krishi Vigyan Kendra (KVK) Gurdaspur. Although he was keen on hydroponics, KVK advised him to start with commercial vegetable farming considering his land resources. With their guidance, he grew bitter gourd and other vine crops but continued to face labour challenges. Participation in local kisan melas and regular advice from KVK encouraged him to transition into nursery production. In 2019, he completed training on “Nursery Raising in Horticulture Crops” organized by KVK, Gurdaspur. In the same year, with support from the Horticulture Department, he also attended training on “Protected Cultivation on Vegetable Production” from center of excellence, Kartarpur, Jalandhar. Recently, in 2024, he completed a remote pilot course on drone operation to enhance his farm management.

Innovation/ Initiative

Before investing in a nursery, Harnek conducted a local market survey and identified a significant gap: there were no nurseries in close proximity to his village, forcing farmers to travel to Gurdaspur for quality planting material. Seizing this opportunity, he established a nursery in 2020 that produces high-quality flower, fruit, and vegetable seedlings, using improved seed varieties well-suited for kitchen gardens. He named his enterprise Punjab Agro Nursery. To broaden his market reach, Harnek opened a roadside nursery outlet and also sells plants at kisan melas (farmer fairs) and agricultural camps using a small van, enabling him to connect directly with customers and increase sales.

Harnek has also adopted modern agricultural practices, such as drip irrigation for chilli and bitter gourd, and he plans to install a mist irrigation system for his nursery to improve water use efficiency. For crop protection, he uses a drone for spraying, especially in tall sugarcane fields where conventional spraying methods are challenging. Demonstrating his commitment to sustainability, Harnek is the first farmer in his area to use a mulcher to manage crop residues without burning, an environmentally friendly practice that helps reduce air pollution and retain soil organic matter.

Socio-Economic Impact

Harnek's enterprise has created permanent employment for 2–3 local women and has inspired youth in his village to explore agricultural entrepreneurship. With his support, several agricultural awareness camps have been organized locally. His village has been adopted as a Nutrition Smart Village by KVK, and many farmers have begun adopting PAU-recommended varieties and practices. Harnek sources vermicompost from local suppliers, boosting the rural economy, and has established his own vermicompost unit with plans to expand. His efforts have significantly improved his family's livelihood and provided enhanced educational opportunities for his children. Through his business success, he has also purchased 2 kanals of land dedicated to nursery operations.

Table 1: Economic analysis before and after KVK intervention

Economics (2019-20) before KVK intervention					
Crop/Subsidiary occupation	**Acre**	**Yield (q)**	**Gross Income (₹)**	**Expenditure (₹)**	**Net Income (₹)**
Paddy	3.0	78	1,67,700	65,000	1,02,700
Wheat	3.0	63	1,29,150	45,000	84,150
Sugarcane	4.0	1,600	6,24,000	1,08,000	5,16,000
Nursery	Nil		Nil		Nil
Total					**7,02,850**
Economics (2024-25) after KVK intervention					
Paddy	3.0	90	2,07,000	73,000	1,34,000
Wheat	3.0	69	1,65,600	50,000	1,15,600
Sugarcane	4.0	1,600	6,65,600	1,12,000	5,53,600
Nursery	-	-	9,95,000	3,80,000	6,15,000
Total					**14,18,200**

Table 2: Year wise economic analysis of commercial nursery production business

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2020	2,05,000	1,10,000	95,000
2021	6,00,000	3,00,000	3,00,000
2022	7,20,000	2,50,000	4,70,000
2023	9,20,000	3,50,000	5,70,000
2024	9,95,000	3,80,000	6,15,000

Awards and Recognitions

Harnek was honoured with the Progressive Farmer Award at the Kisan Mela organized by PAU, Regional Research Station, Gurdaspur in the year 2024. He has also actively participated in Mango and Pear exhibitions in 2024, submitting entries that reflect his keen interest in horticulture. In addition he is been recognized with an appreciation certificate for his contribution.

Contributors: Yamini Sharma, Ankush Proch and Sarbjit Singh Aulakh, Krishi Vigyan Kendra, Gurdaspur

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COMBATING LANDHOLDING CONSTRAINT WITH INTEGRATED FARMING MODEL TO ACHIEVE DESIRED FARM PROFITABILITY

Name	**Mr. Gowhar Ali Lone**
Age	**32 years**
Address	**Vill. Khoechipora, PO-Kunzer Baramulla-193 404 (J&K)**
Qualification	**9th**
Mobile	**9797131268**
KVK	**Baramulla**

Background/ Situation

Mr. Gowhar Ali Lone, from Khoechipora in Tangmarg, Baramulla, is a great example of how small farmers in the Himalayan region can succeed. Gowhar owns a small piece of land—only about 0.25 hectares (5 kanals)—located along the Srinagar-Gulmarg Highway. In the beginning, he struggled because his land was so small. He followed old farming methods that depended entirely on the weather, which meant his income was low and unpredictable. It was barely enough to support his family. In the mountains, the weather is a major challenge. Sudden snow, frost, or heavy rain can destroy a whole season's work in an instant. Gowhar realized that growing only one type of crop on such a small plot would not work. He decided to change his approach. Instead of just trying to survive, he wanted to turn his farm into a smart, year-round business. By using new technologies and better planning, he aimed to make every inch of his land productive, ensuring a steady income for his family regardless of the weather.

KVK Intervention

The turning point in Mr. Gowhar Ali Lone's journey came when he started working with ICAR–CITH Krishi Vigyan Kendra (KVK), Baramulla, where he was introduced to the Integrated Farming System (IFS). With continuous technical guidance, he acquired specialized skills in mushroom cultivation, vertical farming, and scientific resource management, enabling him to generate high returns from limited land. A major contributor to his success has been the use of weather-based Agromet Advisories provided by the District Agromet Unit (DAMU). Regular five-day forecasts received twice a week through WhatsApp and SMS help him plan sowing, irrigation, and plant protection operations efficiently. Weather alerts also assist him in maintaining optimum temperature and humidity inside mushroom sheds, protecting the crop during frost, heat waves, or heavy rainfall. Timely advisories have reduced losses of fertilizers and pesticides, saving ₹5,000–₹20,000 per season. Starting with only 70 mushroom trays in a small room, Gowhar now manages over 500 trays and earns nearly ₹2.64 lakh annually from mushroom production. In addition, he produces and sells about 4,000 bags of spent mushroom compost each year, creating an additional income stream and promoting organic farming. Popularly known as the “Mushroom Man of North Kashmir,” he now mentors and trains farmers and students visiting his unit along the Srinagar–Gulmarg Highway.

Innovation/ Initiative

Building on expert guidance, Mr. Gowhar transformed his small landholding into a high-tech Integrated Farming System (IFS) that ensures efficient resource use and year-round income. In a land-scarce region, he adopted vertical farming by growing vegetables such as potato, tomato, and kale in stacked trays. He also utilized his rooftop to cultivate pear trees along with cauliflower and pumpkin, effectively expanding his productive area. Alongside crop diversification, he strengthened the livestock component by introducing improved “Vanraja” poultry birds for higher meat and egg production and designing a low-cost wooden feeding tray for goats to reduce fodder wastage. By integrating crops, livestock, and allied enterprises, Gowhar ensured continuous income, minimized risk, and promoted efficient recycling of farm resources.

This holistic IFS model has significantly enhanced household income, improved nutritional security, and generated on-farm employment. Today, his farm stands as a successful example of climate-smart, resource-efficient agriculture, inspiring small and marginal farmers to adopt sustainable and integrated livelihood models.

Socio-Economic Impact

By adopting an Integrated Farming System, Mr. Gowhar has developed a highly efficient, zero-waste and income-secure farming model. Crop enterprises on just 0.16 ha generate steady returns, with horticultural crops outperforming field crops. Livestock rearing (120 sheep and 20 goats) contributes over ₹2.00 lakh net income, while poultry broiler farming emerges as the most profitable component, yielding about ₹2.32 lakh annually. Mushroom cultivation and compost production together add nearly ₹5.80 lakh net income, supported by apiculture generating ₹15,500. Recycling animal, poultry, and mushroom waste into organic manure further adds ₹1.50 lakh while reducing fertilizer costs and improving soil health. Overall, this diversified IFS model generates an annual gross income of ₹17.39 lakh and a net income of ₹12.07 lakh, significantly improving livelihood security, resource efficiency, and farm sustainability.

Table 1: Business activity wise economics of entrepreneur following integrated farming model

S. No.	Activity	Area/ Capacity	Gross Income (₹)	Gross Cost (₹)	Net Income (₹)	C:B Ratio
1	Field Crops	0.08 ha	9,000	4,500	4,500	1:2.00
2	Horticultural Crops	0.08 ha	34,500	9,500	25,000	1:3.63
3	Sheep: 120; Goats: 20	140 No.	2,70,000	69,600	2,00,400	1:3.88
4	Broiler Farming	2100 birds	3,78,000	1,46,000	2,32,000	1:2.59
5	Mushroom	600 trays	2,64,000	84,000	1,80,000	1:3.14
6	Mushroom Compost	4000 bags	6,00,000	2,00,000	4,00,000	1:3.00
7	Apiculture (Colonies)	15 No.	33,000	17,500	15,500	1:4.40
8	Animal/ Poultry/ Spent Mushroom Substrate sale		1,50,000		1,50,000	
Total	**Annual Integrated Income**		**17,38,500**	**5,31,100**	**12,07,400**	

Awards and Recognitions

Mr. Gowhar Ali Lone's transformation from a small farmer to a nationally recognized agricultural leader reflects years of dedication and learning. His achievements earned him the Innovative Farmer Award in New Delhi in 2021. In 2022, the Lieutenant Governor of Jammu and Kashmir, Sh. Manoj Sinha, commended his work in mushroom cultivation, and he also received a formal appreciation from the Director of Agriculture in 2021.

Contributors: Vishal Vihan, Neeraj and Anjali gairola, Krishi Vigyan Kendra, Baramulla

AN INSPIRING TALE OF REVERSE MIGRATION THROUGH INTEGRATION OF VARIOUS FARM AND NON-FARM ACTIVITIES

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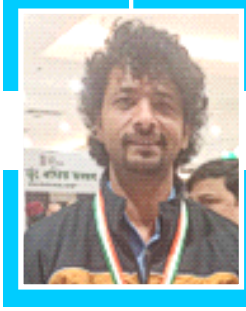

Name	Mr. Rakesh Chandra Upadhyay
Age	41 years
Address	Vill. Bunga Fartyal, Block-Lohaghat, Champawat-262524(UK)
Qualification	MBA
Mobile	999210301
KVK	Champawat

Background/ Situation

Mr. Rakesh Upadhayay, a 41 years old resident of Vill. Bunga Fartyal, Block Lohaghat, District Champawat, Uttarakhand having MBA degree with work experience for over 13 years in multinational company and was a freelance insurance officer at Delhi for 03 years. But during covid 19 pandemic his financial situation collapsed and he along with his wife and kid was compelled to return to their ancestral land and decided to initiate new livelihood that promised sustainability and profitability in his three acres of land.

KVK Intervention

In year 2021-22, Mr. Rakesh reached out to scientists of KVK, Champawat. He interacted with scientist & attended various on-campus and off-campus training programs. KVK scientist accessed Mr. Rakesh interests, potential, aptitude and recommended to adopt integrated farming model including protected cultivation, dairy farming, mushroom production, apiculture, fisheries and based on scenery location he was advised to apply for home stay as a part of agri-tourism. Apart from technical guidance he was also provided critical inputs such as HYV seeds and seedling, mineral mixture, acaricide, dewormer etc. under FLD & OFT. In coordination with KVK scientists Mr. Rakesh, he now practice natural farming and is selected as master trainer under NMNF project.

Innovation/ Initiative

With the aid of KVK, Champawat Mr. Rakesh successfully adopted integrated farming model consisting of introduction of high yielding varieties of vegetable crops such as green capsicum (Huntington, Bharat), colored capsicum (Swarna, Natasha), tomato (Naveen 2000+, Himsona), poll bean (Padmini, Ragini), strawberry (Chandler, Camroza) under protected cultivation. In dairy sector Mr. Rakesh went for breed improvement by replacing low yielding (2-3 lit./day) cow by high yielding cross breed cows (5-6 lit/day) cow and feeding of silage as a substitute of fodder during lean period. This results in better yield resulting in increased earning and improved enterprise efficiency. However, a pivotal innovation adopted by Mr.

Rakesh was the integration of agriculture with tourism. In this regard, he developed a homestay project on one acre of previously barren land. Agri-tourism provides a serene and peaceful escape from urban life, allowing visitors to connect with nature while experiencing a unique blend of recreation, learning, and rural living. Through this initiative, Mr. Rakesh not only improved his socio-economic status but also strengthened the concept of reverse migration by effectively promoting the culture, cuisine, and traditional lifestyle of Uttarakhand.

Socio-Economic Impact

Mr. Rakesh entrepreneurial journey started in 2021-22 & 2022-23 in barren piece of land in which he initially invested ₹5 lakhs. In year 2023-24 Mr. Rakesh gross income raised to ₹15 lakhs against ₹8 lakhs of expenditure through natural farming, dairy products, apiculture etc. In year 2024-25 he started agri-tourism enterprise, by which his income increased exponentially in the year 2024-25 to ₹22 lakhs against expenditure of ₹10 lakhs. Going by this trend Mr. Rakesh income in 2025-26 is expected to increase many folds. His entrepreneurial journey is inspiration for rural youth and fellow farmers from nearby village. Many villagers are now adopting integrated farming and agro-tourism as evident by number of farmers approaching KVK Champawat for trainings and skill development. His farm is now a model site for exposure visits by government officials, farmers and NGOs.

Table 1: Year wise Economics of the entrepreneur

Year	Gross Income	Expenditure	Net Income	Comments
2021-22	3,50,000	3,00,000	50,000	Started farming in barren piece of land
2022-23	3,50,000	3,00,000	50,000	
2023-24	15,00,000	8,00,000	7,00,000	Natural farming, dairy & dairy products
2024-25	22,00,000	10,00,000	12,00,000	Homestay, natural farming, dairy & dairy products, fisheries, apiculture, pomology.

Awards and Recognitions

Mr. Rakesh Upadhyay has received numerous awards and recognition. He has received 2nd prize for highest milk production in Champawat district in year 2023-24. Awarded and recognized by Hon'ble Chief Minister of Uttarakhand Shri Pushkar Singh Dhami for his work in agritourism, providing employment to local youth and promotion of Uttarakhand culture. He is also recipient of Progressive farmer award in Farmer fair organized by GBPUAT, Pantnagar in 2023. Based on his successful entrepreneurial venture recently in 2025 he got opportunity to meet Hon'ble Prime Minister Shri Narendra Modi. Apart from these Mr. Rakesh has received numerous awards by district line departments such as district horticulture, agriculture.

Contributors: Sachin Pant, Rajni Pant and Avikal Kumar, Krishi Vigyan Kendra, Champawat

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ACHIEVING ECONOMIC STABILITY BY YOUNG WOMEN ENTREPRENEUR WITH INTEGRATED FARMING APPROACH

Name	Mrs. Premlata
Age	37 years
Address	Vill. Safri PO-Badsu, Teh. Balh, Mandi-175 002 (HP)
Qualification	12th
Mobile	8219387946 & 9459630946
KVK	Mandi

Background/ Situation

Mrs. Premlata, a 37-year-old progressive woman farm entrepreneur from Safri village in Balh Valley of Mandi district, faced economic hardship as her family depended on a monthly income of only ₹5,000 from her husband's private bank job. Like many women farmers of her age group, she struggled with low productivity, high labour drudgery, limited access to modern technologies, and climate-related risks. She practiced traditional cereal-based farming of wheat, maize, and local pulses on 1.60 ha, which resulted in low income and weak livelihood security due to lack of diversification and allied activities. In this situation, adoption of an integrated farming system became essential to enhance productivity, optimize resources, and ensure year-round income through diversification into horticulture, vegetables, and livestock, thereby converting subsistence farming into a sustainable agri-enterprise.

KVK Intervention

Mrs. Premlata associated with KVK, Mandi in 2017 through vocational trainings, on-farm trials, and frontline demonstrations. With continuous technical guidance, she adopted an Integrated Farming System on her small holding to enhance productivity, diversify income, and strengthen livelihood security. She integrated summer and winter vegetables, off-season crops like cauliflower, garden pea, and radish, field crops (paddy, wheat, maize), and fodder crops (chari/bajra and berseem). A planned vegetable sequence helped her secure better market prices and year-round income. Advanced training in vegetable cultivation, horticulture, dairy, poultry, water management, and post-harvest value addition transformed her into a progressive and empowered farmwoman, inspiring other farmers in the region.

Innovation/ Initiative

Mrs. Premlata converted her traditional farm into a diversified and sustainable agri-enterprise through adoption of an Integrated Farming System integrating crops, horticulture, dairy, poultry, goatery, and rabbitry, ensuring efficient resource use and year-round income. Diversification with cereals, pulses, seasonal and off-season vegetables, a planned vegetable sequence, and introduction of persimmon as a high-value fruit crop improved profitability and income security. Bore

well–based sprinkler and rain gun irrigation, improved farm machinery, and on-farm resource recycling through vermicomposting reduced labour drudgery, lowered input costs, and enhanced soil health. Direct marketing and her leadership as Pradhan of the SHG "Dev Kamru Nag" further strengthened the enterprise and inspired other women to adopt sustainable, income-oriented farming.

Socio-Economic Impact

Mrs. Premlata has emerged as a successful and replicable example of an Integrated Farming System suited to smallholders in hill agriculture. By integrating rabi crops such as wheat, chickpea, and vegetables, and kharif crops including maize, paddy, soybean, and diverse vegetables, along with limited kitchen garden crops for household use, she achieved efficient diversification and resource use. The integrated system generated a net annual income of about ₹5.93 lakh from a total input cost of ₹2.02 lakh, with vegetable cultivation alone contributing the highest net returns (₹3.85 lakh), followed by dairy (₹0.72 lakh) and poultry (₹0.69 lakh) (Table 1). This clearly demonstrates the economic viability of integrated farming. Integration of crops, vegetables, dairy, poultry, vermicomposting, and fruit crops ensured year-round employment, regular cash flow, and food and nutritional security. Her improved socio-economic status is reflected in better family nutrition, education, and investment in labour-saving assets such as a motorcycle, submersible pump, and power sprayer. With sustained capacity building and leadership support from KVK Mandi, she now serves as Pradhan of SHG "Dev Kamru Nag," leading 10 women and motivating more than 50 women farmers to adopt integrated and sustainable farming practices.

Table 1: Component wise economic performance of entrepreneur's integrated farming system (2024-25)

Farm component	Number/Area (ha)	Input cost (₹)	Gross Returns (₹)	Net Returns (₹)
Maize, soybean & paddy in Kharif; wheat in Rabi	0.20	15,042	45,602	30,560
Cucurbits in Kharif; garden pea, cauliflower & radish in Rabi	0.40	72,575	4,57,575	3,85,000
Dairy (2 Sahiwal cows and 3 goats)	5 No.	45,500	1,17,500	72,000
Poultry eggs/ chicken	100 No.	25,680	94,330	68,650
Persimmon fruit plants (200 No.)	0.40	35,000	60,000	25,000
Rabbits	10 No.	8,250	20,750	12,500
Total		**2,02,047**	**7,95,757**	**5,93,710**

Awards and Recognitions

In recognition of her outstanding achievements, Mrs. Premlata was honoured by the Hon'ble Defence Minister of India, Shri Rajnath Singh, during the Kisan Samman Programme-cum-Kisan Mela organised by CSKHPKV, KVK Mandi on 26th February 2025.

Contributors: Shakuntla Rahi, Pankaj Sood and DS Yadav, Krishi Vigyan Kendra, Mandi

SECURING ECONOMIC SECURITY THROUGH INTEGRATED FARMING SYSTEM APPROACH

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Name	Mr. Zubair Ahmad Sohail
Age	35 years
Address	Vill. Chamalwas, Teh. Banihal, Ramban-182 146 (J&K)
Qualification	Graduation
Mobile	7006867801
KVK	Ramban

Background/ Situation

Mr. Zubair Ahmad Sohail belongs to a remote hilly village of Chenab Valley where employment opportunities are limited and agriculture is mostly traditional. After completing his graduation, he worked part-time in an office, but he did not want to remain dependent on a job. The region faces many challenges such as poor road connectivity, water scarcity, harsh climate, and lack of modern farming exposure. Initially, his family was hesitant about adopting modern agricultural practices. Financial constraints and lack of skilled labour made the situation more difficult. Despite these challenges, Mr. Zubair Ah. Sohail had a strong desire to create self-employment and generate livelihood opportunities for local youths. With determination and interest in farming, he decided to convert traditional agriculture into an integrated and profitable farming system.

KVK Intervention

Krishi Vigyan Kendra (KVK) Ramban and allied departments played a key role in guiding Mr. Zubair Ahmad Sohail towards scientific and modern farming practices. Through training programmes, exposure visits, and technical guidance, he gained knowledge about natural farming, high-density plantations, integrated farming systems, and crop diversification. KVK experts also provided advisory support on weather, pest control, and diversification into poultry, fish, and horticultural crops. With their continuous support, he established High-Density Apple Plantation, kiwi cultivation, and diversified vegetable production, making his farm a model integrated farm in the region.

Innovation/ Initiative

Mr. Zubair Sohail's major innovation is the adoption of an integrated farming model, moving beyond reliance on a single crop. He successfully combined horticulture, vegetable cultivation, poultry, beekeeping, and livestock rearing on the same farm, introducing practices previously considered unsuitable in the Chenab region. By emphasizing seasonal vegetable production, he secured a steady year-round income. Through efficient use of local resources, family labor, and scientific techniques, he minimized costs and maximized returns, proving that modern, profitable farming is possible even in remote, hilly areas with careful planning and commitment.

Socio-Economic Impact

Mr. Zubair Sohail's integrated and diversified farming model has significantly increased his family income and created employment for local people. His farm has become a regional model, attracting youths, farmers, and students for learning and practical exposure, while providing jobs in activities like planting, harvesting, marketing, and agro-tourism. He also motivates rural youth to pursue agriculture through social media and field interactions, helping reduce migration and promote sustainable livelihoods in the Chenab Valley. Economically, his income rose from ₹65,000 in 2019 with traditional maize farming to ₹5.15 lakh in 2025 through modern, diversified practices-nearly eight times higher-enabling debt repayment, enterprise expansion, and improved family living standards. (Table 1).

Table 1: Year-wise annual expenditure and income from integrated farming

Year	Component	Area	Production	Gross income (₹)	Expenditure (₹)	Net income (₹)
2023	Vegetables-capsicum, tomato, cucumber, pumpkin	0.25 ha	15 q	40,000	6,000	34,000
	Orchard- Apple, Walnut, Kiwi, Peach, Plum etc.	1.50 ha	40 q	100,000	14,000	86,000
	Dairy (cows)	02 No.	2800 L	1,20,000	20,000	100,000
	Poultry (Kadaknath)	100 No.	150 q	60,000	15,000	45,000
	Maize, Fodder etc.	0.25 ha	15 q	30,000	5,000	25,000
	Total	**2.0 ha**	**-**	**3,50,000**	**60,000**	**2,90,000**
2024	Vegetables-capsicum, tomato, cucumber, pumpkin	0.25 ha	30 q	80,000	25,000	55,000
	Orchard- Apple, Walnut, Kiwi, Peach, Plum etc.	1.50 ha	50 q	2,00,000	60,000	1,40,000
	Dairy (cows)	02 No.	2800 L	1,20,000	20,000	1,00,000
	Poultry (Kadaknath)	200 No.	300 q	1,20,000	30,000	90,000
	Maize, Fodder etc.	0.25 ha	15 q	30,000	5,000	25,000
	Total	**2.0 ha**	**-**	**5,50,000**	**1,40,000**	**4,10,000**
2025	Vegetables-capsicum, tomato, cucumber, pumpkin	0.25 ha	30 q	80,000	25,000	55,000
	Orchard- Apple, Walnut, Kiwi, Peach, Plum etc.	1.50 ha	60 q	2,40,000	40,000	2,00,000
	Dairy	02 No.	2800 L	1,20,000	20,000	1,00,000
	Poultry (Kadaknath)	300 No.	450 q	1,80,000	45,000	1,35,000
	Maize, Fodder etc.	0.25 ha	15 q	30,000	5,000	25,000
	Total	**2.0 ha**	**-**	**6,50,000**	**1,35,000**	**5,15,000**

Awards and Recognitions

Mr. Zubair Ahmad Sohail is recognized as a progressive farmer of the Chenab Valley and is frequently invited by schools and colleges to share his success and promote integrated, organic, and sustainable farming practices. He has been appreciated by the Lieutenant Governor of Jammu and Kashmir on Awam ki Awaz and awarded by the District Administration of Ramban (2024) and SDM Banihal (2025).

Contributors: Raj Kumar, Krishi Vigyan Kendra, Ramban

C. LIVESTOCK AND DAIRY FARMING

Livestock and dairy farming form the backbone of the rural economy in India, providing a steady source of income, employment, and nutritional security to millions of farm families. In the face of shrinking landholdings, climate variability, and increasing pressure on crop-based agriculture, livestock-based enterprises have emerged as a resilient and reliable pathway for enhancing farm incomes. This section of the book, devoted to the theme of Livestock and Dairy Farming, presents inspiring success stories that demonstrate how scientific management, technological adoption, and entrepreneurial vision can transform traditional livestock practices into profitable and sustainable rural enterprises. The success stories compiled under this theme reflect the diversity and vast potential of allied agricultural activities such as dairy farming, poultry, piggery, and aquaculture. Drawn from different regions and supported by Krishi Vigyan Kendras (KVKs), these narratives highlight how farmers have successfully leveraged livestock resources to achieve economic stability and self-reliance. The impressive net incomes achieved by these farmers clearly demonstrate that livestock enterprises, when managed professionally, can rival and even surpass returns from conventional crop farming. Dairy farming occupies a central place in this section, with multiple success stories showcasing the earning potential of hi-tech and commercial dairy enterprises. Farmers from Tarn Taran and Bathinda have demonstrated how the adoption of modern dairy infrastructure, scientific feeding practices, genetic improvement, mechanization, and clean milk production can substantially enhance productivity and profitability. These stories highlight a transition from subsistence-level dairying to market-oriented dairy entrepreneurship, where quality, efficiency, and scale play a decisive role. The emphasis on clean milk production also reflects growing consumer awareness and the importance of quality assurance in modern dairy markets.

The narratives also underscore the importance of technology-driven dairy farming, where innovations such as automated milking systems, balanced ration formulation, improved housing, and health management have led to reduced operational costs and improved animal welfare. These success stories illustrate how strategic investments and timely technical guidance can turn dairy farming into a highly rewarding

enterprise, even in regions traditionally dominated by crop agriculture. Poultry farming emerges as another powerful income-generating enterprise highlighted in this section. The success stories from Amritsar, Ropar, and Pathankot demonstrate how poultry farming has provided farmers with rapid income generation, diversification opportunities, and year-round employment. These narratives emphasize the role of scientific flock management, biosecurity measures, and market linkages in ensuring consistent returns. Poultry farming, with its relatively low land requirement and quick turnover, has proven to be an ideal enterprise for farmers seeking diversification and for youth aspiring to enter agribusiness. A noteworthy aspect of these poultry success stories is their role in diversification and income stabilization. Farmers who integrated poultry with existing agricultural activities were able to reduce income fluctuations and create multiple revenue streams. Such diversification has enhanced resilience against crop failures and market uncertainties, reinforcing the importance of livestock-based enterprises in risk mitigation strategies.The section also brings attention to piggery as an emerging rural enterprise, particularly in regions where traditional crop farming offers limited returns. The success story from Mansa illustrates how pig farming, when managed scientifically and linked to assured markets, can be transformed into a profitable and socially acceptable enterprise. By overcoming social and psychological barriers, the farmer showcased in this story has turned piggery into a sustainable livelihood option, contributing to income enhancement and employment generation at the local level. Aquaculture, both inland and cold-water, is another significant component of this section. The success stories from Bandipora and Jammu highlight the untapped potential of fisheries as a high-return enterprise in suitable agro-climatic regions. Trout farming in cold-water areas and inland aquaculture in plains have provided rural youth and farmers with lucrative livelihood opportunities. These stories emphasize the importance of species selection, water quality management, and technical support in achieving economic success in aquaculture. A recurring theme across all these success stories is the empowerment of rural youth and the breaking of traditional mindsets. Several narratives highlight how young farmers and entrepreneurs have adopted livestock and dairy farming as a dignified and profitable profession. By embracing modern practices and viewing livestock farming as a business rather than a subsistence activity, these individuals have not only improved their own livelihoods but have also inspired others in their communities.

The role of KVKs and extension services is prominently reflected throughout this section. Continuous technical guidance, skill development, exposure visits, and problem-solving support provided by KVKs have enabled farmers to adopt improved livestock management practices with confidence. These success stories underscore the importance of research–extension–farmer linkages in unlocking the full potential of livestock-based enterprises. Beyond economic gains, the stories presented in this section highlight the social and nutritional benefits of livestock and dairy farming. Improved household nutrition, enhanced social status, employment generation for family members, and strengthened community resilience are some of the broader impacts documented through these narratives. Livestock enterprises have thus emerged as instruments of holistic rural development. In conclusion, the success stories under the theme of Livestock and Dairy Farming serve as compelling evidence that allied agricultural enterprises hold the key to sustainable income enhancement and rural prosperity. By showcasing real-life examples of innovation, resilience, and entrepreneurship, this section aims to motivate farmers, youth, extension professionals, and policymakers to recognize and promote livestock-based farming systems as vital components of a vibrant and inclusive agricultural economy. The journeys that follow reaffirm that with the right knowledge, support, and determination, livestock and dairy farming can transform lives and secure a prosperous future for rural India.

DEMONSTRATING EARNING POTENTIAL OF A HI-TECH BIG DAIRY FARM

32

Name	**S. Harpreet Singh**
Age	**41 years**
Address	**Vill. Sohal, Teh. Tarn Taran, Tarn Taran-143 302 (PB)**
Qualification	**12th**
Mobile	**8195048787, 9877848203**
KVK	**Tarn Taran**

Background/ Situation

S. Harpreet Singh, a 41-year-old progressive dairy farmer from the resource-poor border belt of Punjab, represents a remarkable example of a successful hi-tech dairy entrepreneur. Belonging to a small farming family of village Sohal situated at the Indo-Pak border with less than 2.5 hectares of land, he has set an inspiring example for young farmers. He started his dairy farming venture in 2008 along with his father and younger brother, beginning with just 10 Holstein Friesian (HF) cows. Now they maintain a herd of approximately 150 cattle, supported by well-developed infrastructure comprising 20,000 square feet of covered area and an additional 12,000 square feet of open space. The farm achieves an average daily milk production of around 1,800 litres, with seasonal variations-approximately 1,200 litres per day during summer and up to 2,400 litres per day during winter. To ensure year-round availability of quality fodder, the farm has four silage pits, each having a volume of 14,400 cubic feet, providing a combined storage capacity of about 1,200 tonnes for the preparation of high-quality silage. Animals are fed a balanced Total Mixed Ration (TMR) under the guidance of Krishi Vigyan Kendra (KVK) experts, ensuring optimal nutrition at a reduced feeding cost. The herd is monitored using the MSD-Allflex AI system, which tracks critical health and productivity parameters such as heat detection, rumination, body temperature, and heat stress, enabling timely management decisions. The farm is equipped with a modern milking parlour and a bulk milk chilling tank, ensuring hygienic milk extraction and storage. For waste management, a mechanized scraper system is used to remove dung from the shed floors, which is then composted and reused as organic manure for fodder cultivation, reducing dependence on chemical fertilizers and promoting sustainable and eco-friendly farming practices. Remarkably, the entire dairy operation with 150 cattle is efficiently managed by only five trained personnel, reflecting the effectiveness of scientific and mechanized dairy management.

KVK Intervention

He regularly participates in training programmes, demonstrations, and awareness camps organized by KVK Tarn Taran, which have played a vital role in strengthening his technical skills and decision-making capacity. Initially, he faced difficulties in ensuring a regular supply of quality green fodder and silage for his expanding dairy herd. To address this challenge, KVK experts provided hands-on guidance on scientific silage production, enabling round-the-year availability of high-quality silage at a lower cost. This timely intervention significantly reduced fodder expenditure and enhanced the milk production potential and health of the dairy animals. Furthermore, KVK scientists regularly visit his dairy farm to provide on-site technical support and to update him on emerging dairy technologies. Several Front Line Demonstrations (FLDs) and On-Farm Trials (OFTs) have been conducted at his farm, facilitating the adoption and validation of improved

practices under real farm conditions.

Innovation/ Initiative

On his 70-acre farm, S. Harpreet Singh cultivates corn for high-quality silage, ensuring year-round nutrition for the dairy herd. An AI monitoring system tracks all animals in real time, allowing early detection of health issues such as heat stress, illness, and behavioural changes. A modern milking parlour with a bulk milk chilling tank ensures hygienic milking and safe milk storage, while a mechanized scraper system efficiently removes dung, which is then reused in Integrated Nutrient Management for fodder cultivation, reducing chemical fertilizer use and promoting sustainable farming.

Socio-Economic Impact

S. Harpreet Singh's dairy farm has shown significant economic and social impact through modern management and high-quality production. Milk is procured by Nestlé at a premium, reflecting excellent hygiene, while an AI-based system monitors herd health and reproduction, boosting productivity and reducing labour. From 2015 to 2025, his herd grew from 80 to 150 animals, daily milk production increased from 900 to 1,500 litres, and net income rose from ₹27.98 lakh to ₹62.37 lakh (Table 1). High-quality maize silage and TMR feeding ensured year-round nutrition and efficiency. His farm serves as a model for exposure visits, inspiring local youth and farmers and promoting rural skill development and entrepreneurship.

Table 1: Year wise annual expenditure and income of dairy farm

Year	No. of dairy animals	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2015	80	91,98,000	64,00,000	27,98,000
2016	80	98,55,000	67,00,000	31,55,000
2017	120	1,31,40,000	95,00,000	36,40,000
2018	120	1,40,16,000	98,00,000	42,16,000
2019	130	1,66,07,500	1,25,00,000	41,07,500
2020	140	1,68,63,000	1,32,00,000	36,63,000
2021	150	1,83,96,000	1,42,00,000	41,96,000
2022	150	2,02,84,875	1,58,00,000	44,84,875
2023	150	2,11,70,000	1,62,00,000	49,70,000
2024	150	2,35,42,500	1,75,00,000	60,42,500
2025	150	2,46,37,500	1,84,00,000	62,37,500

Awards and Recognitions

S. Harpreet Singh has received several accolades for his excellence in dairy farming, including the Chief Minister Award for Cattle from Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (2024), a Recognition Certificate from Nestlé India for supplying maximum milk (2022), and the Best Dairy Farmer Award from Progressive Dairy Farmers Association, Ludhiana (2019).

Contributors: Navjot Singh Brar, Prabhjeet Singh and Prabhjinder Singh Mann, Krishi Vigyan Kendra, Tarn Taran

MAKING FORTUNES WITH HI-TECH DAIRY FARM AND CLEAN MILK PRODUCTION

33

Name	S. Manjodh Singh
Age	25 years
Address	Vill. Nabipur, Teh. Patti, Tarn Taran- 143 416 (PB)
Qualification	12th
Mobile	9814533060
KVK	Tarn Taran

Background/ Situation

S. Manjodh Singh, a 25-year-old progressive dairy farmer from Village Nabipur, Tehsil Patti of Tarn Taran district, Punjab, represents a remarkable example of a successful hi-tech dairy entrepreneur. Belonging to a small farming family with less than 2.5 hectares of land, he has set an inspiring example for young farmers. He started his dairy farming venture in 2012 along with his father and elder brother, beginning with just five Holstein Friesian (HF) cows. In 2015, he came into contact with Krishi Vigyan Kendra (KVK) Tarn Taran, which proved to be a turning point in his dairy enterprise. Under the guidance of experts and as per GADVASU recommendations, he began adopting advanced dairy farming technologies. S. Manjodh Singh laid special emphasis on breed improvement, balanced feeding, and scientific housing of his cattle. He expanded his dairy farm gradually and systematically by adopting artificial insemination (AI) using high-quality semen from progeny-tested bulls. Through consistent application of scientific practices, he steadily increased his herd strength. From an initial herd of just five animals, he now manages a well-established dairy farm with 124 high-yielding HF cattle, producing an average of 1,350 litres of milk per day. His journey highlights how scientific dairy farming and timely technical guidance can transform small landholders into successful dairy entrepreneurs.

KVK Intervention

S. Manjodh Singh regularly participates in various training programmes, demonstrations, and awareness camps organized by KVK Tarn Taran, which have played a crucial role in strengthening his technical knowledge and management skills. Initially, he faced major challenges in ensuring a regular supply of quality green fodder and silage for his expanding dairy herd, particularly during lean periods. Recognizing this constraint, KVK experts provided hands-on guidance on scientific silage production techniques, enabling him to ensure round-the-year availability of high-quality silage at a reduced cost. This timely intervention significantly reduced fodder expenses and simultaneously enhanced the milk production potential and health of the dairy animals. In addition, KVK scientists regularly visit his dairy farm to provide on-site technical support and update him on emerging dairy technologies. These consistent and need-based KVK interventions have contributed substantially to the sustainable growth and profitability of his hi-tech dairy enterprise.

Innovation/ Initiative

With knowledge gained from KVK trainings, S. Manjodh Singh modernized his dairy enterprise by adopting scientific breeding, balanced feeding, and improved herd management, boosting milk yield and profitability. He established a 30,000 sq. ft. covered dairy shed with an equal open area, built three silage pits (1,000 t

capacity) for year-round fodder, and uses a TMR machine for balanced feeding. A modern milking parlour with a bulk milk chilling tank ensures hygienic milk handling. He also installed a biogas plant powering a 15 kW generator, promoting renewable energy and reducing costs, and uses a pneumatic planter for maize cultivation over 40 acres, improving efficiency and lowering input costs.

Socio-Economic Impact

The adoption of scientific breeding, balanced feeding, and improved management transformed the dairy enterprise, raising annual income from ₹19.32 lakh in 2016 to ₹56.81 lakh in 2025; nearly a five-fold increase. This growth enabled debt repayment, modernization of the farm, and a significant improvement in family living standards. The expansion of the herd from 35 to 124 animals and the increase in average daily milk production from 400 to 1,350 litres reflect enhanced productivity and efficiency (Table 1). Socially, his success inspired local youth and farmers to pursue dairy farming, with many approaching KVK Tarn Taran for training. His farm now serves as a model site for exposure visits, promoting rural skill development, entrepreneurship, and sustainable livelihoods in the region.

Table 1: Year wise expenditure and income of the dairy farm

Year	No. of animals	Milk production/ day (L)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2015	35	400	43,80,000	29,00,000	14,80,000
2016	40	525	61,32,000	42,00,000	19,32,000
2017	42	550	68,25,500	44,00,000	24,25,500
2018	45	575	75,55,500	49,00,000	26,55,500
2019	60	600	78,84,000	50,00,000	28,84,000
2020	75	625	77,56,250	54,00,000	23,56,250
2021	75	665	92,23,550	58,00,000	34,23,550
2022	98	867	1,26,58,200	90,00,000	36,58,200
2023	90	937	1,36,80,200	97,00,000	39,80,200
2024	98	1092	1,71,38,940	1,16,00,000	55,38,940
2025	124	1350	2,16,81,000	1,60,00,000	56,81,000

Awards and Recognitions

S. Manjodh Singh's achievements have been widely recognized in various Kisan Melas.

Contributors: Navjot Singh Brar, Prabhjeet Singh and Prabhjinder Singh Mann, Krishi Vigyan Kendra, Tarn Taran

ADDING WINGS TO PROFITABILITY THROUGH SCIENTIFIC POULTRY FARMING

34

Name	S. Karamjit Singh
Age	40 years
Address	Vill. Ramana Chakk, Teh. Majitha, Amritsar-143 006 (PB)
Qualification	10th
Mobile	9779631157
KVK	Amritsar

Background/ Situation

In Punjab, shrinking landholdings and rising input costs have reduced the profitability of traditional farming, particularly for small and marginal farmers. S. Karamjit Singh (aged 40) from village Ramana Chakk, district Amritsar, owned only three acres of land, which limited his income from traditional cropping. Inspired by neighbouring poultry units, he decided to diversify into broiler farming. In 2023, he established Mand Poultry Farm with 5,000 birds under a contract arrangement with the private company "Sampoorna," which supplied chicks, feed, and medicines. Initially, due to lack of technical knowledge in feed, breed, and disease management, he experienced high mortality rates and poor profitability despite approaching several agencies for support.

KVK Intervention

During this challenging period, Karamjit Singh learned about a vocational training course on "Scientific Poultry Farming" at PAU's Krishi Vigyan Kendra (KVK), Amritsar and enrolled in the seven-day training programme in year 2024. The training covered scientific management of poultry housing, breeds, feed formulation, vaccination and deworming schedules, record keeping, marketing strategies and exposure visits to successful farms. He also participated in a method demonstration on egg candling and joined the "KVK Poultry Farming" WhatsApp group for continuous advisory support. Regular on-farm visits and mentoring by KVK scientists helped him implement recommended scientific practices and boosted his confidence.

Innovation/ Initiative

After receiving the training and continuous guidance from KVK expert, he modified and expanded his poultry farm from 5,000 to 20,000 poultry birds. Now, his birds (broiler) reach to the marketable weight earlier due to improvement in FCR (Feed Conversion Ratio) and he sells more broiler birds to the company than before with higher benefit cost ratio (Table 1). After a gap of 15 days, now he brings a new batch of birds and again sells them after they reach the marketable weight and this cycle keeps on repeating. Now, he properly follows the deworming and vaccination schedule, and biosecurity measures without fail, due to which mortality rate decreases in his poultry farm (Table 1).

He also established an Azolla cultivation unit on his farm, providing fresh Azolla as a natural feed supplement for the birds. This practice not only significantly reduced the overall feed costs but also enhanced the birds' health and immunity, promoting better growth and productivity. His family members also provide him helping hands in routine farm work, thus reducing labour cost at their farm.

Socio-Economic Impact

Within a short period, S. Karamjit Singh was recognized as one of the best poultry farmers in Amritsar district by Sampoorna Company. He now earns around ₹3,00,000 per batch after deducting all expenses and has generated employment for local youth. Due to carrying out the practices in a scientific manner, he is preparing and selling 6 batches in a year and earning good profit around ₹18.48 lakh/year in this enterprise (Table 1). His farm is frequently visited by farmers, extension workers, and dignitaries for exposure visits and Farmer Field Schools. He remains actively engaged with KVK Amritsar through meetings, trainings, and Kisan Melas, inspiring over 50 fellow farmers and relatives to adopt poultry farming as a profitable enterprise. He exemplifies a new generation of educated farmers who bridge traditional wisdom with modern practices, contributing to food security, rural employment, and economic growth in Punjab. Beside this, his success motivates poultry farmers of the region, who have shut down their units to restart their venture. His future plans include expanding to 50,000 broilers, establishing a layer-cum-fish integrated unit, and exploring value addition in poultry meat.

Table 1. Business performance before and after kvk intervention

Parameter	Before intervention (2023)	After KVK intervention (2024)
Number of birds	5,000	20,000
FCR	1.72	1.48
Mortality (%)	7.20	3.42
No. of batches/year*	5	6
Gross cost (₹/batch) **	61,400	2,04,000
Gross income (₹/batch)	1,36,100	5,12,050
Net return (₹/batch)	74,700	3,08,050
Benefit-Cost Ratio	2.22	2.51
Annual Net Income (₹)	3,73,500	18,48,300

** Each batch has a duration of approximately 35 days.*

***Includes cost of labour, electricity, bedding, and other miscellaneous inputs; excludes cost of birds, feed, medicine, and transportation as provided by the company under contract farming. The cost of expanded shed (2024) is also excluded.*

Awards and Recognitions

S. Karamjit Singh's journey illustrates how hard work combined with scientific knowledge and technical guidance can transform livelihoods. His remarkable progress earned him the "Award of Honour" from Punjab Agricultural University, Ludhiana, during the Kisan Mela at KVK Amritsar (March 2025). Today, he serves as a guest speaker in KVK's vocational trainings, sharing his experiences with aspiring poultry farmers.

Contributors: Kanwarpal Singh Dhillon and Bikramjit Singh, Krishi Vigyan Kendra, Amritsar

DIVERSIFICATION ON THE WINGS OF POULTRY FARMING

35

Name	S. Sukhjinder Singh
Age	45 years
Address	Vill. Mahlan, Teh. Rupnagar, Ropar-140 001 (PB)
Qualification	12th
Mobile	9878187104
KVK	Ropar

Background/ Situation

S. Sukhjinder Singh, a progressive farmer from Mahlan village, initially practiced conventional agriculture and maintained a small poultry unit. Until 2018, his farming system was largely traditional, with limited diversification and modest income streams. Recognizing the need for stable and enhanced earnings, he sought opportunities to upgrade his skills and expand his enterprises. In 2018, he underwent formal training in poultry farming, which became a turning point in his entrepreneurial journey. Equipped with scientific knowledge and improved management practices, he scaled up his poultry enterprise to a commercial unit of 10,000 birds. Building on this success, he further diversified his farming system by cultivating mustard, establishing poplar plantations, and adopting intercropping practices within the poplar block to optimize land use and income. Alongside these ventures, he continues to maintain a small domestic dairy unit, contributing to household nutrition and supplementary income. To reduce irrigation costs and promote sustainable resource use, he has installed a 10 KW solar pump, ensuring reliable and eco-friendly water supply for his diversified farm.

KVK Intervention

KVK provided skill-oriented training in scientific poultry management in 2018, enabling him to adopt improved housing, feeding, brooding, and health care practices. Technical backstopping was provided by the KVK for scaling the poultry unit to 10,000 birds, including advice on breed selection, biosecurity, litter management, and marketing strategies. KVK Ropar encouraged the entrepreneur for diversification into mustard cultivation and poplar-based agroforestry, offering guidance on spacing, nutrient management, and intercrop selection. Demonstrations and field visits helped him adopt suitable intercrops in poplar plantations to enhance productivity and soil health. KVK also suggested him the use of renewable energy solutions, leading to the installation of a 10 kW solar pump for cost effective irrigation. Regular advisory support was also provided for feeding, health care, and hygienic milk production in his domestic dairy unit.

Innovation/ Initiative

S. Sukhjinder Singh's journey from conventional farming to a diversified, resource efficient enterprise reflects a strong spirit of innovation and adaptability. His most significant breakthrough began in 2018, when he shifted from a small household poultry unit to a scientifically managed

commercial enterprise after receiving formal training. By adopting improved brooding, feeding, and biosecurity practices, he successfully expanded to a 10,000 bird capacity-an uncommon scale for his village. This transition not only enhanced his income stability but also demonstrated how skill-based training can transform rural livelihoods. His innovative mindset is equally visible in crop diversification. Instead of relying solely on traditional wheat - paddy rotations, he introduced and integrated sarson in 3 acre, sugarcane in 5 acre, potato in 2 acre, poplar in 3.5 acre, and intercrops to maximize land productivity. This approach improved, ensured year-round income. A staunch follower of PAU recommended CRM practices he is also ministering to climate friendly C-sequestration. The strategic use of intercropping in poplars shows his ability to combine ecological principles with economic goals.

Socio-Economic Impact

S. Sukhjinder Singh's diversified farming model has created a meaningful socio economic impact within his village. By expanding his poultry enterprise to 10,000 birds, he has generated regular employment for one local youth, contributing to rural livelihood security. His shift from conventional farming to an integrated system-combining poultry, poplars, intercrops, mustard, and a small dairy unit-has significantly enhanced household income and resilience. S. Sukhjinder Singh has been closely associated with the KVK, actively participating in exposure visits and consistently supporting trainees during practical sessions. His involvement has strengthened hands on learning and contributed to enhancing the socio economic resilience of fellow farmers in the region. His visible success has inspired neighbouring farmers to explore diversification, adopt scientific practices, and reduce dependence on the wheat-paddy cycle. As a result, he stands as a role model for progressive, sustainable, and employment generating agriculture in the region.

Table 1: Year wise and enterprise-wise economic analysis

Year	Crop	Area (in acre)	Net income (₹)	Total income (₹)
2018 (before KVK intervention)	Wheat- paddy	8.0	3,60,000	4,47,500
	Poultry unit	2500 birds	87,500	
2022 (after KVK intervention)	Wheat paddy	8.0	4,80,000	21,41,870
	Poplar	3.0	14,00,000	
	Gobhi sarson	2.5	61,870	
	Poultry unit	5000 birds	2,00,000	
2024-25 (current status)	Wheat paddy	8.0	5,20,000	14,64,690
	Poplar	3.5	*	
	Sugarcane	3.5	2,43,000	
	Gobhi sarson	2.0	61,690	
	Potato	2.0	90,000	
	Poultry unit	10000 birds	5,50,000	

Poplars to be harvested in 2027

Contributors: Aparna Gupta and Satbir Singh, Krishi Vigyan Kendra, Ropar

TRANSFORMING PIG FARMING INTO A PROFITABLE RURAL ENTERPRISE

36

Name	S. Amandeep Singh
Age	39 years
Address	Vill. Bhai Desa, Teh. Mansa, Mansa-151 509 (PB)
Qualification	MBA
Mobile	9501110015
KVK	Mansa

Background/ Situation

S. Amandeep Singh, a 39-year-old from Bhai Desa village in Mansa district, Punjab, comes from a traditional farming family owning 26 acres of land. Despite a successful corporate career as Deputy Manager at HDFC Bank after completing his MBA, he sought more meaningful work rooted in rural development. Exploring innovative agri-enterprises, he identified piggery farming as a high-potential alternative to traditional crops. With strong family support, especially from his father, he transitioned from corporate life to pig farming, embarking on an entrepreneurial journey aimed at diversification, innovation, and rural prosperity.

KVK Intervention

After evaluating various business options, S. Amandeep Singh chose piggery farming for its strong profitability and sustainability potential in Punjab. He gained practical exposure by visiting successful pig farms and sought expert guidance from Krishi Vigyan Kendra (KVK) Mansa, where his aptitude was assessed and pig farming was recommended as a suitable enterprise. He then underwent comprehensive vocational training in scientific pig farming, covering breed selection, feeding, healthcare, disease management, record-keeping, and marketing. Equipped with this scientific knowledge, he established a modern piggery unit, "G I Farm," in May 2020, marking his transition into a successful agri-entrepreneurship venture.

Innovation/ Initiative

Equipped with scientific knowledge and confidence from KVK trainings, S. Amandeep Singh introduced ground breaking innovations that elevated his piggery enterprise to new heights. He implemented advanced feeding regimes and superior management practices, resulting in remarkable growth performance: pigs achieving average body weights of 70-75 kg within just seven to eight months, and sows producing 12-14 piglets per cycle. This enhanced productivity significantly boosted earnings per cycle and optimized overall operational efficiency, setting a benchmark for scientific pig farming in the region. A standout innovation was his sustainable approach to waste management. Recognizing the value of piggery manure, Amandeep repurposed it as an organic fertilizer for his family's fields, enriching soil fertility naturally and substantially reducing reliance on costly chemical inputs.

Surplus manure was generously distributed free of cost to neighbouring farmers, promoting community-wide adoption of eco-friendly practices and contributing to broader environmental sustainability. As his expertise grew, Amandeep ventured into value addition by diversifying into pig processing, transforming raw produce into higher-value products. These forward-thinking initiatives not only strengthened the economic viability of G I Farm but also exemplified how innovation in piggery can drive rural prosperity and sustainable agriculture.

Socio-Economic Impact

The piggery unit model developed by S. Amandeep Singh has proven to be a successful and profitable livelihood venture. Beyond benefiting him financially, it has inspired unemployed youth and professionals from neighboring villages to seriously consider pig farming as a viable income-generating option, as it is one of the most profitable enterprises in livestock farming. His net income showed consistent growth over the years, amounting to ₹63,400 in 2020, ₹5,47,200 in 2021, ₹6,09,600 in 2022, ₹8,07,524 in 2023, ₹8,33,394 in 2024, and ₹13,89,169 in 2025 (Table-1). He marketed piglets within Punjab and Haryana, while fattener pigs were supplied to Andhra Pradesh through middlemen.

Table 1: Economics Information

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2020	5,17,200	4,53,800	63,400	Commercial pig farming
2021	19,45,600	13,98,400	54,72,00	Commercial pig farming
2022	11,24,500	5,14,900	6,09,600	Commercial pig farming
2023	36,14,695	28,07,171	8,07,524	Commercial pig farming
2024	44,92,523	36,59,129	8,33,394	Commercial pig farming
2025	41,68,875	27,79,706	13,89,169	Commercial pig farming

Awards and Recognitions

S. Amandeep Singh is widely recognized for his contributions to piggery farming. He received the progressive farmer award at the district level kisan mela of PAU-KVK, Mansa, in 2022. In 2023, he was honored with the Chief Minister Award at the Pashu Palan Mela of GADVASU, Ludhiana.

Contributors: Ajay Godara, Alok Gupta and Ajit Pal Singh Dhaliwal, Krishi Vigyan Kendra, Mansa

ENSURING ECONOMIC SUSTAINABIITY THROUGH COMMERCIAL DAIRY

37

Name	S. Jagtar Singh
Age	39 years
Address	Vill. Killi Nihal Singh, Bathinda-151 201 (PB)
Qualification	10th
Mobile	7355267855
KVK	Bathinda

Background/ Situation

S. Jagtar Singh, a 39-year-old resident of Village Killi Nihal Singh in Tehsil Bathinda, Punjab, is a notable example of determination and resilience. Coming from a small farming family with less than 2.0 hectares of land, he faced persistent financial challenges while supporting his household. After completing his education up to matriculation, he was unable to secure stable employment. As a result, he continued with traditional farming practices, which provided meagre income and proved insufficient to meet his family's growing needs. Constrained by limited landholdings and the family's hesitation to make heavy financial investments, Jagtar decided to explore alternative livelihood options that could offer both sustainability and profitability. He began dairy farming on a small scale, utilizing minimal resources. Although he possessed basic technical knowledge, he encountered several challenges during the initial stages of the venture. A major turning point in his journey came when he started regularly visiting the PAU Krishi Vigyan Kendra (KVK) Bathinda. The expert guidance, training, and practical support he received there helped him overcome early obstacles and gradually transform his dairy enterprise into a successful and sustainable business.

KVK Intervention

KVK Bathinda assessed S. Jagtar Singh's skills and recommended dairy farming. Enrolled in NICRA in 2019, he received technical support, including inputs, fodder preparation, breeding, feeding, vaccination, and marketing guidance. He adopted balanced feeding, silage preparation, and vermicomposting for waste management, improving animal health and productivity. Exposure visits to GADVASU and dairy farms enhanced his knowledge of commercial dairy management. Additionally, he mechanized his farm with laser land leveling and diversified crops to ensure fodder security and farm sustainability.

Innovation/ Initiative

With the scientific knowledge and confidence gained through KVK trainings, Jagtar introduced several innovations that significantly strengthened his dairy enterprise. In 2018, he began his journey with just five Holstein Friesian (HF) cows, which together produced about 90 litres of milk per day. This marked a major turning point in his life, as he started earning approximately ₹72,900 per month by selling milk locally within the village. At present, S.

Jagtar Singh has over 7 years of experience in dairy farming and is recognized as a successful dairy entrepreneur. His herd now consists of 22 Holstein Friesian (HF) cows and 2 Sahiwal cows. Out of these, 17 are milking animals producing nearly 3.5 quintals of milk per day, while the remaining cows are in different reproductive stages. In addition, he maintains 4 healthy calves, ensuring the continuous growth and sustainability of his enterprise. Jagtar follows a scientifically balanced feeding regime, including 20kg per day of dried maize fodder (Makki ka Achar) with added mineral mixture, boosting milk yield and fat content. He also uses foggers and misters in the shed to reduce heat stress, enhancing animal comfort, health, and productivity.

Socio-Economic Impact

The economic transformation that followed was remarkable. In 2018, when Jagtar depended on conventional farming, his net income was only ₹3.16 lakh. After adopting scientific dairy farming practices through training at KVK Bathinda, his income increased to ₹3.56 lakh in 2019 and further rose to ₹4.22 lakh in 2020. At present, Jagtar's dairy farm supplies 3.6 quintals of milk daily to AMUL. With a monthly income of ₹3.45 lakh, his dairy enterprise has become highly profitable. In 2024, his net income reached ₹13.27 lakh- more than four times his income in 2018 (Table 1). This significant growth enabled him to repay debts, upgrade his enterprise, and substantially improve his family's standard of living. His success inspired local youth and farmers to seek KVK Bathinda's dairy training, with his farm serving as a model unit for exposure visits, promoting rural skills and entrepreneurship.

Table 1: Year wise annual expenditure and income in dairy farming

Year	Milking Animals (No.)	Milk Production ('000 L)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2018	05	32.4	8,74,800	5,58,620	3,16,180	Started dairy enterprise with 5 HF cows
2019	06	39.6	10,50,000	6,94,000	3,56,000	Interaction with KVK experts under NICRA TDC
2020	07	46.8	13,18,800	8,96,800	4,22,000	Strengthening of dairy unit
2021	10	77.4	22,36,500	15,20,900	7,15,600	Application of scientific methods
2022	12	95.04	28,44,000	19,34,000	9,10,000	Breed improvement
2023	15	113.76	35,28,200	23,99,000	11,29,200	Focus on quality milk production
2024	17	129.6	41,47,200	28,20,200	13,27,000	Focus on self-marketing and value addition

Awards and Recognitions

S. Jagtar Singh is widely recognized for his outstanding contributions to dairy farming. In recognition of his achievements, he was awarded the Young Progressive Farmer Award by PAU–Krishi Vigyan Kendra, Bathinda in 2022.

Contributors: Tejbir Singh Buttar, Gurdeep Singh and APS Dhaliwal, Krishi Vigyan Kendra, Bathinda

ENSURING ECONOMIC SUSTAINABILITY THROUGH POULTRY FARMING

38

Name	Mr. Bikramjit Bharyal
Age	35 years
Address	Vill. Bharyal, Block Gharota, Pathankot-143 534 (PB)
Qualification	12th
Mobile	9463490159
KVK	Pathankot

Background/ Situation

Mr. Bikramjit, a marginal farmer from village Bharyal, Pathankot was running a small tentage shop in his village. But the changing mindset of people from tentage to palace arrangement had a serious setback on his business. The returns were slow from his business lately. He was incurring heavy losses and low income which, took a toll on his financial stability. In-order to meet the family needs, he started searching for alternative source to supplement his income and support his family. During a village level camp, he came in contact with the Krishi Vigyan Kendra (KVK) Pathankot experts who briefed him about the different vocational training programmes organized by KVK for the farmers and unemployed rural youth. During the discussion, he came to know about poultry farming business which has low startup costs and high returns. He found that poultry farming has high demand in the nearby areas and fetches quick returns to the farmer. The wide scope motivated him to undertake poultry farming as an additional source of. He started a poultry farm on small scale with rearing capacity of 5000 birds. But due to lack of technical management skills, he started facing losses. So, he approached KVK scientists for poultry farming training.

KVK Intervention

Mr. Bikramjit undertook 5 days vocational training from KVK in the year 2021. During the training, the KVK scientists guided him about the poultry farm managemental skills to improve birds' production performance and minimize the disease problem in birds. He was also guided about the different government schemes (i.e., Prime Minister Employment Generation Programme scheme, PMEGP) for the benefit of rural youth followed by exposure visit to progressive poultry farmer's farm. The local bank officials also guided him about the procedure for availing loan. KVK experts also added him to the poultry farmers WhatsApp group to daily updates about the market rate and other advisories. The practical hand on training at KVK boosted his confidence to start up poultry farm. He expanded his poultry farm which, presently has a rearing capacity of 32,000 birds.

Innovation/ Initiative

Mr. Bikramjit's success in poultry farming is due to the timely implementation of the biosecurity measure in his poultry farm along with regular checking of the water quality. He took utmost care regarding clean and hygiene method for the disposal of poultry litter. Regular cleansing and disinfection of the bird's feeder and drinker greatly improved the birds

feed conversion ratio and gradually decreased disease incidence. Employment of family labour for farm management significantly helped him in increasing the farm income and decrease of input cost. Mr. Bikramjit followed one week gap between bird flocks which has further helped in maintenance of steady income. He keeps himself updated regarding the daily broiler rate which, has helped in the sale of birds at better prices.

Socio-Economic Impact

The timely shift from tentage business to poultry farming helped Mr. Bikramjit and his family to sustain their living. Presently he, along with his family, rear 32,000 poultry birds on contract farming and earns handsome profit from this venture. His work has motivated the unemployed rural youth of his village and nearby areas who have also approached KVK for training in poultry farming. Bikramjit's visionary approach along with the right guidance from KVK and allied departments helped him finding the way in difficult time. Presently he has provided employment to 7 persons in addition to his own family members.

Table 1: Year wise economics of the entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2021	2,20,000	60,000	1,60,000	Tentage + Small Scale Broiler Farming
2022	9,63,700	3,00,000	6,63,700	17,000 Broiler Poultry Farm+ Tentage
2023	12,34,500	5,50,000	9,54,500	22,000 Broiler Poultry Farm+ Tentage
2024	16,58,000	6,50,000	10,08,000	32,000 Broiler Poultry Farm + Tentage
2025	18,84,000	7,00,000	11,84,000	32,000 Broiler Poultry Farm+ Tentage

Awards and Recognitions

Mr. Bikramjit was awarded progressive poultry farmer by KVK Pathankot during district Kisan mela-2025.

Contributors: Surender Singh, Manu Tyagi and Ravinder Singh Chhina, Krishi Vigyan Kendra, Pathankot

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EMPOWERING RURAL YOUTH THROUGH TROUT FARMING: A MODEL OF COLD-WATER AQUACULTURE ENTREPRENEURSHIP

Name	**Mr. Nayeem Hussain Bhat**
Age	**33 years**
Address	**Vill. Sumlar, Bandipora-193 502 (J&K)**
Qualification	**10th**
Mobile	**9797140371**
KVK	**Bandipora-I**

Background/ Situation

Mr. Nayeem Hussain Bhat, a resident of Sumlar village in District Bandipora, Jammu & Kashmir, lives in an area endowed with pristine glacier-fed streams and perennial spring water resources. Inspired by the natural abundance of cold water and driven by a strong entrepreneurial spirit, he envisioned utilizing these resources for trout farming as a sustainable livelihood option. In 2016, with financial assistance from the Department of Fisheries, Government of J&K, Mr. Nayeem established a trout farming unit comprising two small raceways (70 ft × 7 ft). Notably, he was the first farmer to initiate trout farming in District Bandipora. The farm was developed on the left bank of Arin Nallah, carved out of rocky orchard land that was otherwise unsuitable for conventional agricultural activities. However, the initial phase of the enterprise was fraught with challenges. The hilly terrain, lack of road connectivity, limited technical know-how, and inadequate experience in scientific trout farming practices led to heavy mortality of fingerlings and financial losses. Despite these setbacks, Mr. Nayeem's determination and willingness to learn kept him committed to the enterprise.

KVK Intervention

Recognizing his potential and commitment, Krishi Vigyan Kendra (KVK) Bandipora-1 adopted Mr. Nayeem as a progressive farmer under its extension and advisory programmes. KVK interventions focused on addressing the critical gaps that were affecting farm performance. KVK Bandipora conducted Front Line Demonstrations (FLDs) at his farm and provided systematic training on scientific trout culture practices, including disease diagnosis and management, water quality management, feed preparation, feeding schedules, and overall farm management. Regular technical guidance, on-site visits, and diagnostic and advisory support enabled the farmer to significantly reduce mortality rates and improve survival and growth performance of trout. With enhanced technical competence and confidence gained through KVK support, Mr. Nayeem successfully revived his enterprise and gradually expanded his farm from two to six raceways, transforming it into a well-established and profitable trout farming unit.

Innovation/ Initiative

Mr. Nayeem Hussain Bhat's initiative goes beyond conventional trout rearing. After mastering trout culture through dedication and hands-on experience, he took a pioneering step by establishing a trout fish hatchery unit at the village level. Utilizing the uncontaminated, perennial spring waters of Sumlar, he developed a reliable hatchery system to ensure the availability of quality fingerlings. A strong foundation at the early life stages is crucial for long-term fish health and productivity, as trout are highly vulnerable to disease and stress during the initial rearing phases. Mr. Nayeem's technical expertise in hatchery operations ensured

better survival, quality seed production, and self-reliance in fingerling supply. This hatchery has emerged as a pioneering model of cold-water rural aquaculture and has attracted attention from regional fisheries departments. It has opened new avenues for replication of trout hatchery units in other spring-rich villages of the region, positioning Sumlar as a model village for sustainable aquaculture development.

Socio-Economic Impact

The successful establishment and expansion of trout farming and hatchery operations have made Mr. Nayeem Hussain Bhat fully self-reliant and financially stable. At present, he operates a trout farm with six raceways and produces more than two lakh trout fingerlings annually, which he sells at ₹5 per fingerling to other farmers in the region. His annual net income from trout farming and hatchery operations exceeds ₹10 lakh (Table 1). Beyond individual gains, his success has had a profound ripple effect on the socio-economic fabric of the area. Inspired by his achievements, 24 youth from District Bandipora have adopted trout farming as an income-generating enterprise, leading to the establishment of 24 new trout farms in and around Sumlar village. By converting natural cold-water resources into sustainable economic opportunities, Mr. Nayeem has not only improved his own livelihood but has also emerged as a role model for rural youth. His journey stands as a shining example of how scientific interventions, institutional support, and innovative thinking can transform challenges into opportunities and promote long-term rural prosperity in cold-region ecosystems.

Table 1: Cost of production and returns from trout farming

Particulars	Amount (₹)
A. Cost of Production	
Fingerlings / Brood Management	30,000
Feed Cost	2,10,000
Labour Charges	42,000
Medicines & Water Management	8,000
Maintenance & Miscellaneous	10,000
Total Cost (A)	**3,00,000**
B. Returns	
Total Fish Production (Trout)	9,50,000
Sale of Trout Fingerlings	4,00,000
Gross Income (B)	**13,50,000**
Net Income (B-A)	**10,50,000**
Benefit-Cost Ratio	**4.5**

Awards and Recognitions

Mr. Nayeem Hussain Bhat's contributions have received national and state-level recognition. He was awarded at the India International Science Festival 2020 organized by the Ministry of Science & Technology, Ministry of Earth Sciences, and CSIR. He also received the Best Farmer Award from the Department of Fisheries, J&K in 2018 and was honoured by SKUAST-Kashmir in 2021 for his outstanding contribution to fisheries development.

Contributors: Tariq Sultan, Tahir Saleem, Nazir Ahmad Mir, Krishi Vigyan Kendra, Bandipora-I

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BREAKING PSYCHOLOGICAL SHACKLES TO SUCCEED IN MALES DOMINATED DAIRY VENTURE

Name	Mrs. Parmjeet Kaur
Age	42 years
Address	Vill. Bhahawal Basi, Teh. Abohar, Fazilka-152 117 (PB)
Qualification	10th
Mobile	9646240366
KVK	Fazilka

Background/ Situation

Mrs. Parmjeet Kaur, a 10th pass rural woman from Bhahawal Basi village of Abohar block, Fazilka district, Punjab, belongs to a small farming family owning 7 acre of land. Due to limited and seasonal income from agriculture, she adopted dairy farming as a supplementary livelihood to support her family and achieve economic independence. She began with just three HF cows using traditional practices, which resulted in low productivity and income due to poor feeding, health management, and weak market linkages. Despite these constraints, her strong motivation and willingness to learn scientific dairy practices laid the foundation for transforming her small dairy unit into a sustainable commercial enterprise.

KVK Intervention

In 2022, Mrs. Parmjeet Kaur underwent scientific dairy farming training at Krishi Vigyan Kendra (KVK), Fazilka, which significantly enhanced her technical and entrepreneurial skills. The programme provided hands-on training in scientific feeding, balanced ration formulation, use of mineral mixtures, clean milk production, shed design, vaccination, disease prevention, calf management, and record keeping. She was also exposed to market linkages, contract dairy models, and cost-effective management practices, motivating her to adopt commercial dairy farming. Continuous technical backstopping and regular field visits by KVK experts ensured timely problem-solving and effective adoption of recommended practices, playing a crucial role in transforming her traditional dairy activity into a sustainable and profitable enterprise.

Innovation/ Initiative

After completing training, Mrs. Parmjeet Kaur joined the Nestlé Dairy Network in 2022 and rapidly expanded her enterprise. Starting with three cows, she now manages 25 HF cows and supplies 155 litres (1.5 quintals) of milk daily. By adopting clean milk production, balanced feeding, health protocols, proper record-keeping, milking hygiene, and calf management, she ensured high-quality milk and productivity. This partnership provided a stable income, enabling steady growth of her dairy unit.

Socio-Economic Impact

From 2018 to 2024, Mrs. Parmjeet Kaur transformed her small traditional dairy into a fully commercial enterprise. Starting with 3 HF cows and a modest net income of ₹0.97 lakh in 2018, improved feeding and management gradually increased herd size, milk production, and profitability. By 2020, she had 8 cows with a net income of ₹3.98 lakh, and semi-commercial operations in 2021 brought ₹5.73 lakh. In 2022, KVK training and Nestle linkage boosted marketing and income to ₹7.75 lakh, rising to ₹11.04 lakh in 2023 through clean milk practices. By 2024, managing 25 HF cows and producing 150–155 litres per day,

her enterprise achieved a gross income of₹23.44 lakh and a net income of ₹9.84 lakh. This growth highlights the impact of capacity building, continuous handholding, and institutional linkages, ensuring regular income, local employment, women empowerment, improved productivity, adoption of scientific practices, youth-led rural development, and enhanced family livelihood.

Table 1: Year-wise income and expenditure of dairy enterprise

Year	No. of Cows	Annual Gross Income (₹)	Annual Expenditure (₹)	Net Annual Income (₹)	Remarks
2018	3	2,26,800	1,30,000	96,800	Initial stage, traditional practices
2019	5	5,18,400	2,65,000	2,53,400	Improved feeding & management
2020	8	7,77,600	3,80,000	3,97,600	Increase in herd size
2021	12	11,62,800	5,90,000	5,72,800	Semi-commercial dairy
2022	16	15,04,800	7,30,000	7,74,800	KVK training & Nestlé linkage
2023	20	19,44,000	8,40,000	11,04,000	Assured market, clean milk practices
2024	25	23,43,600	11,60,000	11,83,600	Established dairy with Nestlé

Contributors: Rupender Kaur, Arvind Kumar Ahlawat and Prakash Chand Gurjar, Krishi Vigyan Kendra, Fazilka; Jaskirandeep Kaur, ICAR-ATARI, Ludhiana

ACHIEVING ECONOMIC STABILITY THROUGH INLAND AQUACULTURE

41

Name	Mr. Kuldeep Raj
Age	39 years
Address	Vill. Kotli Charkhan, Teh. Bishnah Jammu-181 132 (J&K)
Qualification	10th
Mobile	9906282126
KVK	Jammu

Background/ Situation

Mr. Kuldeep Raj had a life deeply rooted in traditional agriculture before starting fish farming. He cultivated rice, maize, and wheat, supported by seasonal rainfall and local irrigation, along with rearing goats and cattle for supplementary income. Despite strong knowledge of soil health, crop cycles, and active participation in village cooperatives, his earnings remained modest due to unpredictable weather, pests, rising input costs, and fluctuating market prices. Recognizing the limitations of crop farming alone, and encouraged by his proximity to water resources and exposure to government training programs, he decided to diversify into aquaculture to improve income, nutrition, and efficient use of resources.

KVK Intervention

After deciding to diversify into fish farming, Mr. Kuldeep Raj approached Krishi Vigyan Kendra (KVK) Jammu for guidance. The KVK organized an awareness program and provided hands-on training on pond preparation, water quality management, feeding, stocking density, and disease control. He was supported through frontline demonstrations, supply of quality fingerlings and feed, and guidance on government subsidies. Regular monitoring, on-farm trials of suitable fish species, and integration of fish farming with crop cultivation helped improve his yields. Fish farming soon became a reliable income source and inspired neighboring farmers to adopt aquaculture.

Innovation/ Initiative

After receiving training from KVK Jammu, Mr. Kuldeep Raj went beyond basic practices and introduced several innovations. He adopted an integrated farming approach by using nutrient-rich pond water for crop irrigation, reducing chemical inputs and improving soil health. To cut costs, he formulated low-cost feed using locally available materials like rice bran, mustard oil cake, kitchen waste, and livestock excreta for pond fertilization. He optimized resources through polyculture of Rohu, Catla, and Common Carp to enhance pond productivity. He also promoted a community approach by encouraging neighboring farmers to form a cooperative for shared inputs and marketing. By establishing direct market linkages with local buyers and restaurants and engaging in value addition through fish pakora and fish cutlet preparation, he significantly increased his income.

Socio-Economic Impact

Mr. Kuldeep is regarded as one of the most innovative fish farmers in Jammu, playing a key role in spreading composite fish farming technology among farmers in his area and nearby regions. His unit serves as a demonstration site for extension agencies, encouraging new adopters. Fish farming has ensured him a stable and higher income than crops alone while generating employment for local youth and rural women. The increased availability of fresh fish has improved household nutrition and diversified diets. His success has inspired neighboring farmers, leading to wider adoption of aquaculture, while eco-friendly pond management and reduced chemical use have strengthened environmental sustainability.

Table 1: Enterprise-wise income generation and economic impact of farm interventions

Enterprise	Area/ Size (ha)	Production	Gross Income (annual) (₹)	Net income (₹)	Cost-Benefit ratio
Composite fish farming	0.15	700 kg	1,40,000	90,000	1:2.8
Value addition	3 kg fish pakora/ day during 6 months of winter		2,00,000	1,35,000	1: 3.08
Backyard Poultry	60 indigenous/ chabro chicks @ ₹500		1,20,000	87,200	1:3.66
Ornamental fishes	5 tanks of 1m dia and 3ft height		31,000	23,000	1:3.88
Paddy and Wheat	0.5	30 q paddy 25 q wheat	3,15,000	1,95,000	1:2.63
Vegetables	0.15	650 kg garlic 1200 kg vegetables	90,000	1,50,000	1:2.50
Total	**0.8**		**9,56,000**	**6,20,200**	

Awards and Recognitions

He received the Innovative Farmer Award at the Innovative Farmers Conference (IFC-2021) on "Farmer-led Innovations for Enhancing Farm Income" held at SKUAST-Jammu during February 23–24, 2021. He was also honored with the Innovative Fish Farmer Award on the occasion of National Fish Farmers Day 2024 (10 July 2024) by the Division of Fisheries, SKUAST-Jammu, and was further recognized during the Innovator Meet and Innovation Sensitization Programme 2024 organized by the National Innovation Foundation–India in collaboration with the University of Kashmir at the Jammu Campus, Bathindi.

Contributors: Prem Kumar, Punit Choudhary and Sheetal Badyal, Krishi Vigyan Kendra, Jammu

D. VALUE ADDITION AND PROCESSING

Value addition and processing have emerged as powerful drivers of income enhancement, employment generation, and rural entrepreneurship in Indian agriculture. While primary production remains the foundation of farming, it is the strategic transformation of raw agricultural produce into market-ready, branded, and value-added products that unlocks significantly higher economic returns. In an era marked by fluctuating commodity prices, post-harvest losses, and rising input costs, value addition offers farmers a viable pathway to stabilize incomes, reduce risks, and move up the agricultural value chain. This section of the book presents compelling success stories that demonstrate how value addition and processing can convert traditional farming into a resilient and profitable agri-enterprise. The success stories included under this theme reflect diverse agro-climatic regions and a wide range of commodities, encompassing sugarcane, honey, horticultural produce, organic crops, and indigenous hill produce. These narratives showcase how farmers, rural youth, and agri-entrepreneurs-supported by Krishi Vigyan Kendras (KVKs)-have successfully embraced processing, branding, and marketing to enhance farm profitability. Collectively, these stories illustrate a shift from volume-driven agriculture to value-driven agribusiness, where innovation, quality, and market orientation play a decisive role.

One of the strongest messages emerging from this section is the transformational impact of processing at the farm and village level. Farmers who once depended solely on the sale of raw produce have demonstrated how simple yet strategic interventions-such as converting sugarcane into jaggery, honey into branded consumer products, or fruits and vegetables into processed forms-can multiply income manifold. The success story from Sangrur, highlighting value addition of sugarcane into jaggery, stands as a striking example of how traditional crops can yield substantially higher returns when processed locally and marketed effectively. The theme also highlights the rise of youth-led agri-processing enterprises, signaling a promising shift in the perception of agriculture as a viable and aspirational livelihood. The success story from Amritsar, which traces a journey “from honeycombs to value chains,” exemplifies how young entrepreneurs have leveraged scientific beekeeping, processing, and packaging to create profitable

enterprises. Such narratives underscore the potential of agri-processing to attract educated rural youth, curb migration, and generate local employment opportunities. Another important dimension captured in this section is the role of value addition in strengthening horticulture-based livelihoods. Farmers from regions like Shopian have demonstrated how integrating value addition with e-marketing platforms can significantly enhance returns from horticultural produce. By adopting grading, packaging, processing, and digital marketing strategies, these farmers have reduced dependence on middlemen and gained direct access to markets. These stories highlight how technology and value addition together can empower farmers and improve price realization.The success stories also emphasize the growing importance of organic and indigenous produce in modern markets. Farmers from Sangrur and Shimla have successfully diversified their income by processing and marketing organic and indigenous crops, catering to health-conscious consumers and niche markets. These narratives illustrate how value addition not only increases income but also promotes sustainable farming practices, biodiversity conservation, and the preservation of traditional crops. By aligning production with emerging consumer preferences, these entrepreneurs have secured long-term livelihood security. Value addition and processing have also emerged as crucial tools for reducing post-harvest losses and seasonal distress sales. In hilly and remote regions such as Shimla and Uttarkashi, limited market access and perishability often constrain farm incomes. The success stories from these areas demonstrate how processing, branding, and up-scaling into value-added products can overcome geographical constraints and extend shelf life. These interventions have enabled farmers to market their produce beyond local boundaries, ensuring better prices and income stability. A recurring theme across all the success stories is the importance of branding, packaging, and market linkage. Farmers and entrepreneurs featured in this section have gone beyond production and processing to focus on creating distinct product identities, complying with quality standards, and building consumer trust. The emphasis on branding and e-marketing reflects an understanding that value addition is not complete without effective communication and market positioning. These stories offer valuable lessons on how even small-scale enterprises can compete in competitive markets through innovation and quality assurance.

The role of KVKs and institutional support is clearly visible throughout these narratives. Technical guidance on processing technologies, food safety standards, packaging, shelf-life enhancement, and business planning has been instrumental in the success of these enterprises. Capacity-building initiatives, exposure visits, and continuous mentoring have enabled farmers and rural entrepreneurs to overcome initial challenges and scale up their operations. These examples reaffirm the critical role of extension systems in promoting value addition and agri-entrepreneurship at the grassroots level. Beyond economic benefits, the success stories presented in this section highlight the broader social and developmental impacts of value addition and processing. Employment generation for rural youth and women, enhanced household income security, improved social status, and strengthened local economies are among the key outcomes documented. Value addition has thus emerged not merely as a technical intervention but as a catalyst for holistic rural transformation.

In conclusion, the success stories under the theme of Value Addition and Processing vividly demonstrate that the future of profitable and sustainable agriculture lies beyond primary production. By capturing real-life examples of innovation, entrepreneurship, and resilience, this section aims to inspire farmers, youth, extension professionals, and policymakers to recognize value addition as a central pillar of agricultural development. The journeys documented here reaffirm that when farmers become processors, brand builders, and market strategists, agriculture evolves into a powerful engine of prosperity, dignity, and long-term livelihood security.

TRANSFORMATION OF FARM PROFITABILITY WITH VALUE ADDITION OF SUGARCANE IN TO JAGGERY

42

Name	S. Harpreet Singh
Age	41 years
Address	Vill. Babbanpur, Teh. Dhuri, Sangrur-148 024 (PB)
Qualification	12th
Mobile	9417518759
KVK	Sangrur

Background/ Situation

S. Harpreet Singh, a 41 years old farmer belonging to village Babbanpur, Tehsil Dhuri, District Sangrur is doing farming on 34 acres (10 acres own + 24 acres on lease) of land. Earlier, he used to do cultivation of paddy-wheat on this land with less area under sugarcane crop. But he wasn't disbursed timely payment of sugarcane by the sugarcane mill owners. Also, the increase in cost of cultivation in paddy-wheat crop rotation made his income stagnant. After facing this difficulty and declining profit margins in paddy-wheat crops, ultimately, in 2018 he took a decision in consultation with his niece S. Jatinder Singh to take up processing of his sugarcane crop into jaggery and sell it directly to the consumers. He contacted Krishi Vigyan Kendra (KVK) Sangrur in 2019 with an aim to learn about the jaggery production process in detail. He expressed his wish to sell his products directly to the consumer by removing the middleman so that he could earn higher profit from this venture.

KVK Intervention

The scientists of KVK Sangrur nominated S. Harpreet Singh to participate in training on quality production and safe storage of jaggery organized by the Punjab Agricultural University, Ludhiana in 2019. Afterwards the team KVK Sangrur helped him in setting up his sugarcane jaggery production unit at Dhuri-Malerkotla road. This location on highway played an important role in reaching directly to the consumers. Year after year, he increased the area under sugarcane crop to 20 acres so that he could produce a quality raw material at his own fields reducing his dependence on other farmers for purchase of sugarcane. The KVK scientists made frequent visits to his sugarcane processing unit to guide him about scientific tips and promote his sales.

Innovation/ Initiative

He named his cane processing unit as Chacha Bhatija Ghulad as this name was distinct from others and also reflects the intimacy between him and his cousin. His whole processing unit consists of sugarcane crusher, processing unit, a roadside outlet and storage rooms. It costed him approximately ₹10.00 lakh for this whole set-up. He especially takes care of hygiene in the processing unit by providing shed and covering from all sides using a net. This helped in reducing house flies and other insects to enter the processing unit. While preparing jaggery he is not using any type of chemical for cleaning of cane juice and is utilizing only Sukhlai (Jangli Bhindi) water to make the processing chemical free. He gives utmost priority to the customers' health so that they don't suffer and loss after consuming his products. The likeness of his products by customers gave him a boost to expand his agri.-business. In the beginning, he faced the problem in selection of the appropriate ripened sugarcane for jaggery production. To solve this problem, he was

advised to use brix meter by KVK and was guided to use this instrument in selecting the apt sugarcane for processing. This technique helped him a lot while procuring sugarcane for processing. During 2020-21, he increased the number of items being prepared from jaggery and started producing 14 different types of jaggeries and related products. At present (2025), he is producing 17 types of jaggery and its products.

Socio-Economic Impact

The selling of final products directly to the consumers is providing him a benefit of ₹350 to 400 per quintal that is around 1.5 to 1.8 times the benefit in comparison to what he got while selling it to sugar mills. It also relieves him from long waiting period for settlement of his due from the sugar mill and fighting for better price of his produce. Currently, his plant is working at a processing capacity of 60-65 quintals sugarcane per day. He provides custom hiring services to other farmers for preparing jaggery in the range of ₹1,500-1,600 per quintal from crushing till processing depending on the type of the product. His net income before start of this venture was ₹19,31,500 which enhanced to ₹47,99,000 in 2020-21 after stepping into jaggery production. This rise in income was a testament of his hard work and continuous effort in providing quality products to the consumers. By 2024-25 his net income went up to ₹59,45,000 which is nearly more than 3 times that he was earning before stepping into this venture.

Table 1: Year-wise economics of the entrepreneur

Year	Enterprise/ Crop	Area (acre)	Production (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Net Income (₹/ farm)
2018-19	Paddy-wheat	23	1242	18,40,000	5,60,000	12,80,000	19,31,500
	Sugarcane	10	4400	8,91,500	2,40,000	6,51,500	
2019-20	Paddy-wheat	13	689	9,50,000	3,14,000	6,36,000	28,50,000
	Jaggery*	20	790	32,70,000	10,56,000	22,14,000	
2020-21	Paddy-wheat	12	660	10,85,000	3,60,000	7,25,000	47,99,000
	Jaggery*	21	850	63,24,000	22,50,000	40,74,000	
2021-22	Paddy-wheat	12	648	11,97,000	3,84,000	8,13,000	52,64,000
	Jaggery*	21	870	68,07,000	23,56,000	44,51,000	
2022-23	Paddy-wheat	11	605	11,70,000	3,57,500	8,12,500	54,85,000
	Jaggery*	22	910	71,75,000	25,02,500	46,72,500	
2023-24	Paddy-wheat	10	550	10,86,000	3,40,000	7,46,000	57,70,000
	Jaggery*	23	980	76,99,000	26,75,000	50,24,000	
2024-25	Paddy-wheat	10	540	10,72,000	3,50,000	7,22,000	59,45,000
	Jaggery*	23	1015	80,43,000	28,20,000	52,23,000	

: Represents area under sugarcane, corresponding to the jaggery production

Awards and Recognitions

S. Harpreet Singh has received several prestigious awards in recognition of his excellence in jaggery production. He was honored with the Award of Honour for Quality Jaggery Production at the Dairy Farmers Association (DFA) Mela, Kurukshetra, Haryana in 2025. Earlier, he secured the first prize in the produce competition at the Kisan Mela organized by Punjab Agricultural University, Ludhiana in 2024, and also received the First Award for Jaggery at the India Agri Expo held at Sahnewal, Ludhiana in 2023.

Contributors: Sunil Kumar and Mandeep Singh, Krishi Vigyan Kendra, Sangrur; Jaskirandeep Kaur, ICAR-ATARI, Ludhiana

43 HONEYCOMBS TO VALUE CHAINS: A YOUTH-LED AGRO-PROCESSING BREAKTHROUGH

Name	S. Harwinder Singh
Age	27 years
Address	Vill. Dharmuchak, Teh. Baba Bakala, Amritsar-143 411 (PB)
Qualification	10th
Mobile	8283913940
KVK	Amritsar

Background/ Situation

S. Harwinder Singh, a young farmer from Dharmuchak village in Amritsar, Punjab, belongs to a marginal farming family with only one acre of land and eight family members. Since farming alone was insufficient, his father started beekeeping in 1992 with four bee boxes. Harwinder supported his father and brother from an early age, developing a strong interest in beekeeping. He began to see it as a full-time livelihood, but traditional practices, lack of scientific management, and no processing or marketing limited income. To meet growing responsibilities, Harwinder decided to modernize and expand the enterprise by gaining technical knowledge, improving product quality, and adopting value addition and branding to make beekeeping a profitable commercial venture.

KVK Intervention

To upgrade his skills, S. Harwinder Singh received formal beekeeping training at Krishi Vigyan Kendra (KVK) Amritsar in 2013. The programme covered modern beekeeping practices, seasonal colony management, scientific honey extraction, processing, storage, and quality control. He was also guided on honey processing, branding, direct marketing, and migration of bee colonies based on floral availability for year-round production. KVK experts advised him on regulatory aspects such as Agmark certification, hygienic processing, and participation in exhibitions. Continuous mentoring boosted his confidence to establish a processing unit and create a market identity. KVK also helped him connect with relevant departments to obtain financial support, statutory registrations, and diversify into multiple products for sustainable income.

Innovation/ Initiative

With technical support, S. Harwinder Singh expanded his beekeeping enterprise in 2013 by increasing bee colonies to 90 and launched his brand, "New Golden Punjab Honey," shifting from raw to branded sales. He adopted systematic migration of colonies across states for year-round honey production. In 2015, he obtained Agmark certification and set up a one-quintal honey processing unit, significantly improving returns. He promoted his products through PAU, Kisan Melas, Saras Melas, PITEX, PDFA (Haryana), and exhibitions across India. The enterprise further expanded with processing capacity reaching 12 tonnes per day in 2019, MSME registration in 2020, and Importer-Exporter Code in

2023. During COVID-19, movement restrictions affected honey production, prompting diversification for income stability. He started turmeric processing in 2021 and oil expelling in 2024, marketing turmeric powder and mustard oil under "Golden Agro Foodz." Consistent focus on quality has been key to his enterprise growth and sustainability.

Socio-Economic Impact

S. Harwinder's enterprise has created direct employment opportunities for 12–15 local persons on a regular basis in activities such as beehive management, honey processing, packaging, and agro-processing operations. This has contributed to local livelihood security, skill development, and reduced dependence of rural youth on urban low-income jobs by providing stable income opportunities within the village. Through systematic processing, branding, and quality maintenance, Harwinder Singh has successfully established strong market linkages at local, state, and international levels. The enterprise achieved a major milestone with the export of 80 tonnes of honey to Dubai in 2021 as a third-party exporter, followed by exports to Saudi Arabia, reflecting the global acceptability and competitiveness of the products. S. Harwinder Singh's success has served as a model demonstration for rural youth and small farmers of the region. Motivated by his achievements, 6–8 farmers and youth from nearby villages have adopted beekeeping and agro-processing as income-generating enterprises. His model highlights the replicability of scientific beekeeping, value addition, and enterprise diversification for enhancing income from small landholdings under youth-led agricultural transformation

Table 1: Economics performance of honey production and value-added products

Year	Bee Colonies (No.)	Honey Production (q)	Turmeric Powder (q)	Mustard Oil (L)	Oilseed Cake (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Remarks
2013	90	29.40	-	-	-	2,02,000	80,200	1,21,800	Enterprise startup
2014	150	58.80	-	-	-	3,05,000	1,10,500	1,94,500	
2015	400	156.80	-	-	-	4,60,000	1,70,000	2,90,000	Processing, branding certification lead to growth
2016	560	219.52	-	-	-	5,90,000	2,10,000	3,80,000	
2017	608	238.33	-	-	-	7,20,000	2,90,000	4,30,000	
2018	500	163.33	-	-	-	6,90,000	2,80,000	4,10,000	Capacity expansion
2019	725	205.80	-	-	-	8,19,000	3,10,000	5,09,000	
2020	385	129.36	-	-	-	11,00,000	4,60,000	6,40,000	COVID impact
2021	610	142.33	8.25	-	-	16,41,250	6,20,188	10,21,062	Diversification & Economic breakthrough
2022	829	270.80	14.3	-	-	39,37,500	9,02,325	30,35,175	
2023	940	188.00	16.5	-	-	44,32,000	11,29,375	33,02,625	Integrated processing and further growth
2024	1266	413.56	23.55	760	12.40	50,68,270	19,25,362	31,42,908	
2025	1375	192.64*	22.5	2221	37.79	39,98,092	14,29,435	25,68,657	

Awards and Recognitions

S. Harwinder Singh has been awarded as a "Millionnaire Farmer of India" by Krishi Jagran. He has also received Awards of Honour and appreciation awards from PAU–KVK Amritsar, ATMA & the Department of Agriculture, Amritsar. He is also a registered member of National Bee Board.

Contributors: Manpreet Kaur and Bikramjit Singh, Krishi Vigyan Kendra, Amritsar

EMBRACING RURAL ENTREPRENEURSHIP THROUGH VALUE ADDITION OF FOOD PRODUCTS

44

Name	S. Harjit Singh
Age	42 years
Address	Vill. Ghall Kalan, PO-Ghall Kalan, Moga-142 001 (PB)
Qualification	B.Ed. and M.A. (Punjabi)
Mobile	9814500984
KVK	Moga

Background/ Situation

S. Harjit Singh belongs to an agriculturist family, where his father, a teacher by profession, was also engaged in farming and owned agricultural land in Rajasthan and Moga district. Although academically well qualified and initially pursuing a career in teaching, he received a low salary in private schools and faced limited opportunities for government teaching positions. His subsequent attempts in the finance sector and property dealing did not provide job satisfaction or economic stability. Despite a strong educational background, he experienced professional dissatisfaction and developed a strong desire to establish a self-owned enterprise. His deep-rooted interest in agriculture, rural development, and improving farmers' livelihoods motivated him to explore opportunities in the agricultural sector. However, at the initial stage, he faced challenges such as lack of technical knowledge, market exposure, and experience in agro-processing.

KVK Intervention

S. Harjit Singh came in contact with Krishi Vigyan Kendra (KVK), Moga, which played a crucial role in shaping his entrepreneurial journey. KVK Moga provided comprehensive support through training in scientific crop production and post-harvest management, skill development in oilseed processing, cereals, pulses, and value addition, and exposure to modern agro-processing technologies and machinery. He was also guided on government schemes, subsidies, and access to credit facilities, along with support for market linkages and networking with other agro-processing units. In addition, he received advanced technical guidance from Punjab Agricultural University (PAU), Ludhiana, particularly from the Department of Processing and Food Engineering. Continuous handholding by KVK scientists, from machinery installation to product development and marketing strategies, enabled him to successfully establish his agro-processing complex in 2014.

Innovation/ Initiative

Based on market analysis and expert consultations, S. Harjit Singh identified oilseed processing as a high-potential enterprise and gradually shifted from traditional cropping to high-value oilseed cultivation. To cater to the increasing demand for safe and quality food products, he adopted organic farming practices. As a key innovation, he established a multi-unit agro-processing complex

comprising oil extraction, flour milling, spice grinding, packaging, and a retail outlet. The enterprise was further strengthened through diversification into more than 14 value-added products, including organic edible oils, multigrain and gluten-free flours, millet-based products, spices, cookies, sweets, and pickles. He adopted direct marketing strategies through B2B and B2C channels, including retail outlets, fairs, and social media platforms. The initiative also integrates family labour, with active involvement of his wife in processing and marketing, and ensures procurement of raw materials from nearby farmers at fair prices, thereby promoting local value addition and sustainability.

Socio-Economic Impact

The establishment of "Ekam Agro-Food Processing" Industry has generated substantial socio-economic benefits by creating direct employment opportunities for rural youth and women in processing, packaging, and marketing activities. The enterprise provides a stable market and better price realization to local farmers through regular procurement of their produce, thereby strengthening farm incomes. With an annual profit of about ₹25.68 lakh, the venture has ensured economic security and sustainability for the entrepreneur. It has also promoted organic farming and increased consumption of millets, contributing to improved nutritional security. By fostering rural entrepreneurship and creating local livelihood opportunities, the initiative has helped reduce migration while enhancing consumer access to quality, locally processed food products. Overall, the enterprise supports sustainable rural development and positively impacts both the entrepreneur and the surrounding farming community.

Table 1: Economics of ekam agro-processing enterprise

Product description	Production (q/L)	Cost of cultivation (₹)	Gross income (₹)	Net Income (₹)
Oils (mustard and coconut)	15,000.00	14,85,300	23,78,600	8,93,300
Spices	20.00	5,92,800	11,82,500	5,89,700
Cereals (flours and dalia)	5,100.00	10,86,400	19,62,300	8,75,900
Pulses	32.50	2,94,600	3,88,900	94,300
Cookies and sweets (seasonal)	2.00	38,400	57,200	18,800
Pickle	3.75	96,700	1,92,600	95,900
Total		**35,94,200**	**61,62,100**	**25,67,900**

Awards and Recognitions

S. Harjit Singh has been felicitated on various occasions by Punjab Agricultural University (PAU), Ludhiana, and Krishi Vigyan Kendra (KVK), Moga, in recognition of his successful agri-entrepreneurship. He has also gained district- and state-level recognition as a progressive agri-entrepreneur for his innovative initiatives and contributions to agricultural value addition and rural development.

Contributors: Parminder Kaur and Kamaldeep Singh Matharu, Krishi Vigyan Kendra, Moga; Nihar Gupta, ICAR-ATARI Ludhiana

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ENHANCING FARM PROFITABILITY THROUGH VALUE ADDITION AND E-MARKETING OF HORTICULTURAL PRODUCE

Name	Mr. Adnan Ali Khan
Age	40 years
Address	Vill. Pinjora, PO–Pinjora, Teh. Shopian-192 303 (J&K)
Qualification	Post-Graduate
Mobile	7780869532
KVK	Shopian

Background/ Situation

Mr. Adnan Ali Khan is a highly educated and motivated young entrepreneur from Pinjora, District Shopian, with strong exposure to modern business ideas, owned 20 kanal of ancestral land and was engaged in small-scale sheep and dairy farming. He also supported local farmers by facilitating online marketing of Kashmiri apples and introducing improved packaging to enhance returns and generate employment. However, despite his initiative, he faced key challenges including limited awareness of national and international apple grading and packaging standards, inadequate knowledge of scientific post-harvest handling, and a shortage of technically skilled manpower to manage integrated enterprises such as dairy, sheep rearing, and vermicomposting.

KVK Intervention

Recognizing his potential, KVK scientists provided structured, need-based capacity building through hands-on training in apple grading, quality packaging, marketing, and post-harvest management to reduce transit losses and improve shelf life. Technical guidance was also extended on integrated farming systems, enabling scientific convergence of apple orcharding with dairy, sheep rearing, and allied enterprises, thereby enhancing sustainability and efficient resource use.

Innovation/ Initiative

With technical support from KVK, the entrepreneur emerged as a change agent by introducing safe, market-oriented packaging solutions for horticultural produce to achieve better price realization. He adopted a modern business approach and pioneered e-marketing of Kashmiri apples, expanding sales to multiple states. Further, he converted traditional orchards into high-density apple plantations to enhance productivity per unit area and diversified his farming system by integrating backyard poultry, thereby strengthening income stability and enterprise resilience.

Socio-Economic Impact

The entrepreneur established a small-scale processing and value addition unit comprising apple drying and dehydration, vacuum packaging, pulp preparation, and organized marketing of fresh produce through customized packaging for external markets. These interventions led to a substantial increase in annual business turnover from ₹5 lakh in 2018 to ₹22 lakh in 2024 (Table 1), indicating sustainable enterprise

growth. The unit has generated direct employment for about five local beneficiaries, strengthened rural livelihoods, and motivated other rural youth to adopt agri-based entrepreneurship. Overall, the initiative serves as a successful example of KVK-led technology dissemination, innovation adoption, and rural economic transformation in the horticulture sector of Shopian district.

Table 1: Economic returns from integrated farming system components over the years

Year	Component	Sale	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2019	Traditional apple orchard	1000 boxes	7,11,421	2,10,153	5,01,268
2020	Traditional apple orchard	1000 boxes	11,23,015	5,15,362	6,07,653
	Sheep farming	Sold 4 ewes			
	Dairy Farming	10800 L			
2021	HDP/ traditional apple orchard	800 boxes	15,05,825	8,53,444	6,52,381
	Vermicomposting	50 q			
	Dairy farming	14400 L			
	Sheep farming	Sold 4 ewes			
2022	Commercial poultry	Backyard 200	23,31,033	7,19,859	16,11,174
	High Density Apple	200 boxes			
	Dairy farming	15400 L+ sold 1 Heifer			
	Sheep farming	Sold 2 rams			
	Vermi-composting	100 q			
	Traditional apple orchard	500 boxes			
2023	Commercial poultry,	Backyard 200	27,62,280	7,70,292	19,91,988
	High Density Apple	1100 boxes			
	Dairy farming	16200 L+ sold 1 Heifer			
	Sheep farming	Sold 2 rams			
	Vermi-composting	100 q			
	Traditional apple orchard	600 boxes			
2024	Commercial poultry	Backyard 200	29,59,892	7,52,365	22,07,527
	High Density Apple	1300 boxes*			
	Dairy farming	18000 L			
	Sheep farming	Sold 2 ewes			
	Vermi-composting	100 q			
	Traditional apple orchard	600 boxes			

Awards and Recognitions

- Awarded By Hon'ble L.G. for being innovative farmer
- Awarded By Hon'ble Vice chancellor SKUAST-K for being innovative farmer
- Received award from CSIR-IIIM Srinagar

Contributors: Z.A. Badri, Mir Shabir Ahmad and Shaiq A. Ganai, Krishi Vigyan Kendra, Shopian

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DIVERSIFYING FARM INCOME THROUGH VALUE ADDITION OF ORGANIC PRODUCE FOR POTENTIAL FUTURE GAINS

Name	Mrs. Harpreet Kaur
Age	32 years
Address	Village Manna, Teh. Dhuri, Sangrur-148 017 (PB)
Qualification	M. Pharmacy (Pharmacology)
Mobile	9417580547
KVK	Sangrur

Background/ Situation

Mrs. Harpreet Kaur, a progressive farm woman from village Manna, Sangrur, Punjab, transitioned from her career as a pharmacy lecturer to organic farming driven by concerns over food safety, health, and environmental sustainability. In 2015, she began organic cultivation on 0.5 acre for household use, which gradually expanded to 6.0 acre due to positive results and growing demand for chemical-free produce. With scientific support from Krishi Vigyan Kendra (KVK), Sangrur, her 2.50 acre were formally registered under organic farming by Punjab Agro in 2018, marking a key milestone in her entrepreneurial journey.

KVK Intervention

KVK Sangrur played a key role in developing Mrs. Harpreet Kaur's enterprise through need-based trainings, exposure visits, and continuous technical support. She received hands-on training in organic crop production, seed production, integrated pest management, food processing, bakery, and value addition, enhancing her technical and entrepreneurial skills. KVK also facilitated quality seeds and inputs, enabling her to adopt improved technologies, diversify production, and boost productivity. Additional support from Punjab Agro, SEWA, and other farmer organizations helped with certification, marketing, and networking, strengthening her scientific organic farming and processing foundation.

Innovation/ Initiative

Mrs. Harpreet expanded her 6-acre organic farm, introducing innovations like crop rotation, green manuring, on-farm composting, and a Gobar gas plant. She added a processing unit for products like wheat flour, pulses, spices, pickles, dairy, and bakery items, while her family engages in profitable horse trading. Selling through farm outlets, markets, fairs, and social media, she eliminates middlemen, secures better prices, and generates employment for rural women, making her enterprise sustainable and profitable.

Socio-Economic Impact

Harpreet's organic farming and processing enterprise significantly increased her income, ensured year-round employment, and inspired nearby women and farmers to adopt similar ventures. Her farm serves as a model for KVK trainings and demonstrations, and as Vice President of the PAU-Organic Farmers Club and President of SEWA, she promotes organic agriculture, women's entrepreneurship, and sustainable livelihoods while enhancing food security

and local employment.

Table 1-Enterprise-wise economics of farming and processing (organic produce) activities

Value addition of organic produce (6 acre)	Processing	Quantity	Price (₹/ kg or L)	Gross income (₹)	Expenditure (₹)	Net income (₹)
Chick pea	Gram flour	10 kg	180	1,800	576	1,224
	Pinni(s)	35 kg	700	24,500	7,105	17,395
Spices and condiments	Fennel	30 kg	500	15,000	3,150	11,850
	Flax seeds	20 kg	875	17,000	3,400	13,600
	Turmeric	45 kg	350	15,750	4,095	11,655
Mustard	Mustard oil	180 L	270	48,600	33,048	15,552
	Saag	90 kg	100	9,000	2,880	6,120
Wheat	Dalia	60 kg	50	3,000	1,170	1,830
	Pinni(s)	60 kg	550	33,000	10,560	22,440
Barley	Flour	25 kg	80	2,000	720	1,280
	Dalia	200 kg	100	20,000	7,400	12,600
Sugarcane	Jaggery (Gur)	80 kg	100	8,000	3,680	4,320
	Shakkar	200 kg	120	24,000	9,840	14,160
Milk Processing	Khoya Barfi	200 kg	600	1,20,000	93,600	26,400
Sub-Total				**3,41,650**	**1,81,224**	**1,60,426**
Crops (non-organic)	**Crop Name/**	**Area (acre)**	**Production (q)**	**Gross income (₹)**	**Expenditure (₹)**	**Net income (₹)**
	Wheat	19.5	468	11,71,350	2,92,500	8,78,850
	Rice	19.5	663	14,62,500	4,38,750	10,23,750
	Sugarcane	02.0	612	2,50,920	1,30,914	1,20,006
Sub-Total				**28,84,770**	**8,62,164**	**20,22,606**
Total				**32,26,420**	**10,43,388**	**21,83,032**

Awards and Recognitions

Mrs. Harpreet Kaur has received wide recognition for her contributions to organic farming and value addition, including the CRI Pumps Award (2025, PAU Ludhiana), honours from KVK Sangrur (2024), the District Administration, Sangrur (2023), and PAU-Kisan Club (2024), highlighting her impact on rural development, women's entrepreneurship, and sustainable agriculture.

Contributors: Vitasta Dhawan and Mandeep Singh, Krishi Vigyan Kendra, Sangrur; Sarang Monga, ICAR-ATARI Ludhiana

VALUE ADDITION AND PROCESSING OF INDIGENOUS CROPS FOR LIVELIHOOD SECURITY

47

Name	Dr. Divya Vishambra
Age	36 years
Address	Ambedkar Nagar, Brara Road, Rohru, Shimla-171 207 (HP)
Qualification	Ph.D.
Mobile	7807036000
KVK	Shimla

Background/ Situation

Himachal Pradesh possesses immense potential in horticulture and agrobiodiversity, particularly apple, traditional cereals, pulses, and wild edibles. However, large quantities of horticultural waste, especially apple pomace and processing residues, remains underutilized, resulting in economic losses. At the same time, rural women face limited opportunities for income generation despite their strong traditional knowledge of food processing and indigenous crops. In this context, Dr. Divya Vishambra, a trained biotechnologist from Himachal Pradesh, envisioned an innovative pathway for sustainable rural development. During the COVID-19 pandemic, while preparing a nutritious drink from traditional red rice for her infant daughter, she recognized the scope for developing value-added wellness products rooted in indigenous resources. This idea laid the foundation for Nature's Urja, an enterprise integrating science, sustainability, and rural entrepreneurship. Her journey reflects how scientific knowledge combined with local resources can create impactful, inclusive, and sustainable livelihood models.

KVK Intervention

KVK Shimla played a catalytic role in nurturing and strengthening Dr. Divya Vishambra's innovation and outreach initiatives by providing technical backstopping and capacity-building support through advisory services on value addition, food processing, quality control, and entrepreneurship development. The KVK facilitated scientific guidance on hygienic processing, appropriate packaging, and shelf-life enhancement, along with exposure to relevant government schemes and convergence opportunities for agri-entrepreneurship, and also provided a platform for dissemination of her innovations among farming communities. Through these KVK-led interventions, Dr. Divya was able to scale her women-centric value chain model, train a large number of rural women, and establish sustainable linkages between farmers, processors, and markets.

Innovation/ Initiative

Dr. Divya pioneered a zero-waste, circular economy model in the apple-based horticulture system by converting apple waste into high-value products such as vinegar, fiber-rich herbal blends, and nutraceutical formulations. Under the Nature's Urja brand, she developed innovative herbal teas and wellness products using red rice, horse gram, Gucchi mushrooms, and indigenous Himalayan herbs. Her initiative focused on waste-to-wealth conversion of apple by-

products, development of nutraceutical and wellness-based value-added products, effective branding and marketing of biodiversity-based products, and integration of traditional knowledge with modern biotechnology.

Socio-Economic Impact

Through her enterprise and KVK-supported outreach activities, more than 2,500 rural women have been trained in food processing, value addition, and entrepreneurship, leading to the establishment of women-led enterprises and improved household incomes (Table 1). The interventions have strengthened local value chains by linking producers, processors, and markets while simultaneously addressing issues of post-harvest and processing waste. The model has contributed significantly to income enhancement of farm and farm-women households, reduction in wastage of horticultural produce, and promotion of agrobiodiversity conservation by creating sustained market demand for indigenous crops and products.

Table 1: Economic gains of the entrepreneur during 2024–25

Practice used	Total cost of cultivation / processing (₹)	Gross returns (₹)	Net returns (₹)	Benefit-Cost Ratio
Farmer's Practice: Sale of raw horticultural produce and disposal of apple waste	3,20,000	8,50,000	5,30,000	2.66
KVK's Intervention: Value addition, processing and marketing of indigenous crops and apple waste through Nature's Urja (herbal teas, vinegar, nutraceutical products)	6,80,000	22,50,000	15,70,000	3.31

Awards and Recognitions

- Holder of two patents
- Recipient of ₹25 lakh grant under RKVY–RAFTAAR
- Innovative Woman Entrepreneur Award-ATARI Ludhiana
- Progressive Farmer Award- of Dr YS Parmar University
- Represented India at international platforms such as the Practice for Change (P4C) Conference, Kenya, and Terra Madre Slow Food Movement, Italy

Contributors: Usha Sharma and Nagender Butail, Krishi Vigyan Kendra, Shimla; Kriti Gupta, ICAR-ATARI, Ludhiana

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SUSTAINABLE AGRI-ENTREPRENEURSHIP THROUGH UP-SCALING INTO VALUE ADDITIONAL AND BRANDING

Name	Mr. Jagmohan Rana
Age	30 years
Address	Vill. Himrol, Naogaon, Uttarkashi-249 193 (UK)
Qualification	B.A.
Mobile	8126113938
KVK	Uttarkashi

Background/ Situation

Mr. Jagmohan Rana of Village Himrol, Naogaon block, Uttarkashi district, is an Arts graduate who chose farming over urban employment to work in his native village. Starting apple cultivation with just 100 plants, he expanded through field experience, scientific orchard management, and support from KVK and the State Department into a high-density orchard of 1,700 plants, producing about 8 tonnes of apples annually. In 2018, he established "Yamuna Ghati Phal aur Sabji Prasanskaran Swyatta Sahakarita," now a successful processing and marketing unit with an annual turnover of around ₹35 lakh. He diversified into value-added products such as apple pickle, dried slices, squash, and other fruit products to stabilize income. He also cultivates region-specific crops like red rice, black wheat, and rajma, supporting diversification and local food security, and runs a mushroom unit with 500 oyster and button mushroom bags for additional income. His integrated farming and processing model highlights the potential of innovative, value-added hill agriculture as a sustainable livelihood.

KVK Intervention

KVK Uttarkashi strengthened Jagmohan Rana's entrepreneurial journey by providing continuous technical guidance, capacity building, and handholding support. KVK scientists supported with advisories on scientific orchard layout and integrated pest and disease management. Regular field visits and technical backstopping by KVK enabled him to refine his practices, reduce losses, and improve market linkages, and preparation for e-commerce-based marketing. The KVK's support transformed his enterprise from a traditional farming activity into a commercially viable agri-business model.

Innovation/ Initiative

Jagmohan Rana adopted integrated and innovative agri-entrepreneurship model, with entire value chain from production to processing and marketing. He has adopted high-density apple plantation for higher productivity per unit area, established fruit and vegetable processing cooperative: ensuring collective growth and market access, diversified into apple based value-added products squash for better price realization and extended shelf life, region specific products like apricot oil, herbal tea and rhododendron squash, cultivation of region-specific traditional crops to preserve agrobiodiversity and higher

price, integrated small mushroom production unit to ensure year-round income and uses standardized packaging, branding, and readiness for marketing. His enterprise echoes a modern hill agri-preneurship model.

Socio-Economic Impact

Mr. Jagmohan Rana's journey in high-density apple farming and value addition shows steady and impactful growth. In 2018, his enterprise generated a gross income of about ₹1.0 lakh with a net return of ₹0.25 lakh, as most earnings were reinvested in orchard and processing infrastructure. With orchard expansion, product diversification, strengthened processing, and better market linkages, income rose significantly. By 2025, gross income reached about ₹13.5 lakh with a net income of nearly ₹7.0 lakh. Between 2022 and 2025, gross income nearly tripled while net income increased sevenfold, with an average annual net growth of around 70%. Improved orchard maturity, value addition, branding, and market access enhanced the benefit–cost ratio and profitability. Beyond income, his enterprise has become a local role model, inspiring farmers and rural youth from nearby villages.

Table 1: Year wise expenditure and income in horticultural production and value addition

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	B-C Ratio	Comments
2018	1,00,000	80,000	20,000	1.25	Initial phase
2022	4,50,000	3,50,000	1,00,000	1.29	Expansion phase, orchard development
2023	7,00,000	4,50,000	2,50,000	1.56	Enhanced productivity and management
2024	10,00,000	6,00,000	4,00,000	1.67	Value addition initiation; improved marketing
2025	13,50,000	6,50,000	7,00,000	2.07	Enhanced processing, branding, marketing

Awards and Recognitions

Mr. Jagmohan Rana has been recognized for his outstanding contributions to agriculture by receiving the Kisan Shree Award from NMAET in 2022, followed by the Kisan Bhushan Award from NMAET in 2023. His successful transformation from a job seeker has higher rural entrepreneurial potential and commitment to innovation in agriculture.

Contributors: R.L. Meena, K.K. Pande, and Shashidhar B.R., Krishi Vigyan Kendra, Uttarkashi

E. SUPPLEMENTARY AGRI-ENTERPRISES

Supplementary agri-enterprises have emerged as vital instruments for enhancing farm income, ensuring livelihood security, and promoting inclusive rural development in the changing landscape of Indian agriculture. With shrinking landholdings, increasing production risks, and limited employment opportunities in traditional crop-based farming, the need for alternative and complementary income sources has become more pressing than ever. Supplementary enterprises such as beekeeping, mushroom cultivation, value addition, and creative agri-linked activities provide farmers and rural households with opportunities to diversify income, optimize resource use, and build resilience against economic and climatic uncertainties. This section of the book brings together inspiring success stories that showcase how supplementary agri-enterprises can transform lives and livelihoods beyond conventional farming. The success stories presented under this theme highlight the power of innovation, skill development, and entrepreneurship in creating sustainable income opportunities with relatively low land and capital requirements. These narratives demonstrate that agriculture today extends far beyond field crops and includes a wide array of enterprises that can be integrated seamlessly into existing farming systems or adopted independently by landless and marginal households. By leveraging locally available resources, scientific practices, and market opportunities, the entrepreneurs featured in this section have successfully converted supplementary enterprises into primary sources of income and dignity.

A prominent focus of this section is beekeeping as a high-potential supplementary enterprise. Several success stories illustrate how professional beekeeping, integrated with honey processing and value addition, has enabled farmers to outperform returns from traditional horticulture and crop farming. These narratives highlight how scientific apiary management, migration of bee colonies, and proper extraction and processing of honey have significantly enhanced income levels. Beekeeping has proven particularly effective in augmenting farm income while simultaneously improving crop productivity through pollination, thereby offering both direct and indirect economic benefits. The stories also emphasize the inclusive nature of beekeeping, showcasing its suitability for small and marginal farmers as well as landless rural households. Entrepreneurs who once faced severe land constraints have successfully combated

landlessness through beekeeping, turning it into a viable livelihood option. By overcoming initial challenges and social barriers, these individuals have demonstrated that beekeeping requires more knowledge and skill than land ownership, making it an accessible enterprise for a wide section of rural society. Another major theme woven through this section is the transformative potential of mushroom cultivation. Success stories related to button mushroom and oyster mushroom cultivation highlight how this enterprise has enabled farmers and rural youth to secure attractive and year-round livelihoods. Mushroom farming, with its minimal land requirement and high productivity per unit area, has emerged as an ideal supplementary enterprise for income diversification. The stories detail how upscaling production, adopting improved technologies, and maintaining quality standards have helped entrepreneurs fulfill their economic aspirations. Several narratives focus on the progressive upscaling of mushroom entrepreneurship, moving from small, seasonal units to round-the-year production systems. These stories demonstrate how careful planning, temperature-controlled environments, and market-oriented production strategies can significantly enhance profitability. The integration of value addition in mushroom enterprises further underscores the importance of processing and packaging in improving shelf life, market reach, and price realization.

The section also brings to light the role of supplementary agri-enterprises in rural employment generation and youth engagement. Mushroom cultivation and beekeeping have created opportunities for rural youth to pursue entrepreneurship locally rather than seeking employment elsewhere. These enterprises provide scope for skill development, innovation, and self-employment, thereby addressing the growing challenge of rural unemployment and migration. The stories presented here reflect how agriculture-linked enterprises can become aspirational professions when supported by knowledge and institutional guidance. A unique dimension highlighted in this section is the creative integration of agriculture with art and craft, demonstrating the earning potential of innovative livelihood models. By blending traditional skills with agricultural resources, entrepreneurs have expanded the definition of agri-enterprises and unlocked new income streams. Such examples illustrate that supplementary enterprises need not be confined to conventional activities but can evolve through creativity and local ingenuity. Across all the success stories, the importance of capacity building, technical support, and continuous handholding emerges as a common thread. Training programs, exposure visits, and advisory services have played a critical role in enabling entrepreneurs to adopt scientific practices, manage risks, and scale up their operations. These narratives reaffirm the significance of extension systems and institutional support in nurturing successful supplementary agri-enterprises. Beyond economic gains, the success stories highlight the broader socio-economic impact of supplementary agri-enterprises. Improved household income, enhanced food and nutritional security, increased social confidence, and strengthened community resilience are among the key outcomes documented. These enterprises have empowered individuals and families to achieve financial independence, improved living standards, and greater participation in local economies.

In conclusion, the success stories under the theme of Supplementary Agri-Enterprises demonstrate that diversified and knowledge-driven livelihood options are central to the future of sustainable agriculture. By documenting real-life experiences of beekeeping, mushroom cultivation, value addition, and innovative agri-linked activities, this section aims to inspire farmers, rural youth, extension professionals, and policymakers to recognize and promote supplementary agri-enterprises as powerful engines of income enhancement and rural transformation. The journeys that follow reaffirm that with creativity, skill, and perseverance, supplementary agri-enterprises can turn constraints into opportunities and dreams into reality.

INTEGRATING BEEKEEPING AND HONEY PROCESSING FOR ECONOMICALLY OUTSMARTING TRADITIONAL HORTICULTURE

49

Name	Mr. Suraj Chauhan
Age	37 years
Address	Vill. Seri, PO-Rohru, Teh. Rohru, Shimla-171 207 (HP)
Qualification	12th
Mobile	9736400021
KVK	Shimla

Background/ Situation

Beekeeping in Himachal Pradesh has significant ecological and economic importance, particularly for pollination, which is crucial for sustaining productivity across nearly 2.5 lakh ha under fruit cultivation. Honey bees enhance agricultural yields by an estimated 30–80% annually through cross-pollination, a benefit far exceeding the monetary value of honey and wax. In this context, Mr. Suraj Chauhan of Seri village, Rohru block, Shimla district, has emerged as a pioneer in the state's beekeeping sector. Recognized as the first bee breeder in Himachal Pradesh, he manages a diversified enterprise producing value-added honey varieties such as mustard, ajwain, wild flora, thyme, and apple honey, marketed under the brand "P Bee Farm." He has also established the first honey processing plant in the state, strengthening value addition and market access. Since 2011, his sustained engagement in scientific beekeeping has demonstrated how this enterprise can support pollination services, enhance farm incomes, and contribute to rural development in the hill ecosystem.

KVK Intervention

Mr. Chauhan strengthened his beekeeping skills through specialized trainings at KVK Shimla and Dr. YS Parmar University of Horticulture and Forestry, Solan, where he gained expertise in modern apiary management, queen rearing, disease management, and hive optimization. The university also provided advanced knowledge on bee biology, pollination ecology, and climate-resilient practices suitable for hill agro-ecosystems. This technical support enabled him to adopt migratory beekeeping and value-added honey processing. At present, he also mentors farmers in Shimla district, promoting scientific beekeeping and its adoption across the region.

Innovation/ Initiative

Mr. Chauhan pioneered seasonal migratory beekeeping by strategically relocating apiaries to optimize floral resources while enhancing local crop pollination and productivity. His enterprise produces premium monofloral and multifloral honeys such as mustard, ajwain, wild flora, thyme, and apple honey, supported by QR code–based traceability, along with value-added products including beeswax and royal jelly. Through a diversified business model encompassing direct-to-consumer sales, pollination services, bee colony sales (₹1,500 per colony), and community-based cooperatives, he has ensured economic resilience. Additional innovations include the use of log hives

for conservation of native Apis cerana, conversion to high-density apple orchards, and adoption of microgreens and azolla cultivation to reduce cattle feed costs, collectively strengthening his socio-economic status and promoting sustainable agriculture in the Rohru block.

Socio-Economic Impact

The economic performance presented in the Table highlights the substantial socio-economic impact of KVK-supported interventions during 2024–25. Under the farmer's traditional practice of apple cultivation, the net returns were ₹3.25 lakh with a benefit–cost ratio of 2.11. In contrast, adoption of KVK interventions integrating beekeeping, honey processing, and marketing along with horticulture increased net returns sharply to ₹28.25 lakh, achieving a higher benefit–cost ratio of 4.79. Overall, the integrated approach adopted during 2024–25, resulted in total net returns of ₹31.50 lakh clearly demonstrating that scientific beekeeping combined with value addition and market linkage significantly enhanced farm profitability, income stability, and livelihood security (Table 1).

Table 1: Economic analysis of integrated horticulture and beekeeping enterprise (2024–25)

Practice used	Area/ No.	Production (t)	Cost of cultivation (₹)	Gross returns (₹)	Net returns (₹)	B-C ratio
Farmer's Practice*	1.04 ha	9.5	2,91,465	6,16,000	3,24,535	2.11
KVK Intervention*	750 boxes	11.5	7,45,265	35,70,650	28,25,385	4.79
Total			**10,36,730**	**41,86,650**	**31,49,920**	

Farmer's Practice: Apple production; KVK Intervention: Honey production, processing and marketing in addition to horticulture crop production

Awards and Recognitions

In December 2025, Mr. Suraj Chauhan was honoured as a Progressive Farmer by Dr. YS Parmar University of Horticulture and Forestry in recognition of his dedication to scientific beekeeping and his significant contributions to sustainable agriculture, rural entrepreneurship, and societal prosperity in Himachal Pradesh.

Contributors: Usha Sharma, Nagendra Butail and Shikha Bhagta, Krishi Vigyan Kendra, Shimla

BEES BUZZED AND DREAMS BLOSSOMED

50

Name	S. Charanjeet Singh
Age	42 years
Address	Vill. Hamad, Teh. Guruharsahai, Ferozepur-152 023 (PB)
Qualification	12th
Mobile	7009335804
KVK	Ferozepur

Background/ Situation

S. Charanjeet Singh, son of S. Milkha Singh of village Hamad in district Ferozepur, belongs to a small and resource-constrained farming family owning only three acres of land, which resulted in low and irregular agricultural income insufficient to meet household needs or ensure long-term economic security. Continuous financial pressure compelled him to explore supplementary livelihood options that were dependable, scalable, and less vulnerable to the climatic and market uncertainties of traditional farming. Despite these challenges, he demonstrated strong personal qualities shaped by his upbringing, including discipline, perseverance, and practical decision-making, along with a determination to improve his family's socio-economic condition. During his search for alternative income sources, he was introduced to beekeeping by his fellow farmer-friend and although he had no prior experience in apiculture, he recognized its advantages such as low initial investment, minimal land requirement, compatibility with farming activities, and potential for steady income. Viewing beekeeping as a scientifically manageable enterprise well suited to small and marginal farmers, he adopted it as a strategic means to strengthen his livelihood base, reduce financial vulnerability, and move towards sustainable economic stability.

KVK Intervention

S. Charanjeet Singh began beekeeping in 2010 with 24 bee colonies, but the lack of scientific knowledge initially led to problems such as weak colonies, pest incidence, and inconsistent honey yields. A major improvement occurred in 2012 after he underwent scientific beekeeping training at Krishi Vigyan Kendra KVK Ferozepur, where he learned modern colony management, pest control, seasonal migration, and hygienic honey extraction practices. Continuous technical support from KVK through field visits and advisory services helped him overcome challenges, reduce colony losses, and improve productivity, along with diversification into value-added products. He further enhanced his expertise by completing the Advanced Apiculture Course at Punjab Agricultural University (PAU), Ludhiana, in 2017, which enabled him to adopt advanced technologies and expand his enterprise sustainably.

Innovation/ Initiative

Through consistent learning and adoption of scientific practices, S. Charanjeet Singh transformed his small beekeeping unit into a large-scale, well-managed enterprise, expanding from 24 bee colonies to 1,750 colonies by adopting improved colony management, planned seasonal migration, and effective insect pest control, which ensured strong colonies and optimal honey production throughout the year. To reduce risk and enhance profitability, he diversified beyond honey by introducing value-added products such as pollen, beeswax, and propolis, recording production of 3

quintals of pollen and 4.5 quintals of beeswax in 2017, which significantly augmented his income. He also focused on producing crop-specific and multi-floral honey varieties including mustard, coriander, eucalyptus, litchi, berseem, and cedar to meet diverse consumer preferences and premium market demands. Recognizing the importance of branding and quality assurance, he established his own brand, M/S Hamad Natural Raw Honey, which helped maintain quality standards, enhance market visibility, and secure better prices, with his mustard honey being exported to the United States and reputed firms such as Shakti Apiary, Friends Apiary, and Ganpati Apiary as regular buyers. His active engagement with KVK Ferozepur, Punjab Agricultural University, and beekeepers' associations has kept him updated on emerging technologies and market trends, while his experience-sharing has encouraged wider adoption of scientific apiculture practices in the region.

Socio-Economic Impact

The beekeeping enterprise has generated significant socio-economic benefits for S. Charanjeet Singh, his family, and the surrounding rural community, as an initial investment of about ₹1.2 lakh gradually developed into a scientifically managed apiary of 1,750 bee colonies, providing a stable and diversified income source (Table-1). Earnings from honey and value-added products reduced dependence on traditional crop farming and mitigated risks associated with small landholdings and fluctuating yields, resulting in improved household financial security. The expansion of the enterprise also created employment opportunities for local youth in colony management, honey extraction, processing, packaging, and marketing. Furthermore, by establishing strong market linkages and exporting honey, he successfully connected local produce to national and international markets, thereby strengthening rural economic participation and enhancing the visibility of the region's apicultural potential.

Table 1: Economic performance over the years

Year	Colonies	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2010	24	92,160	36,864	55,296
2012	150	8,10,000	3,24,000	4,86,000
2017	250	12,37,500	4,95,000	7,42,500
2025	1,750	47,25,000	18,90,000	28,35,000

Beyond financial gains, his success has served as a source of motivation for small and marginal farmers in the region to adopt scientific and diversified apiculture. His participation in training programmes, demonstrations, and beekeepers' associations has strengthened knowledge dissemination, skill development, and community cooperation. The case of S. Charanjeet Singh demonstrates that with appropriate institutional support, scientific guidance, and entrepreneurial initiative, beekeeping can emerge as a sustainable and replicable model for rural livelihood enhancement.

Awards and Recognitions

S. Charanjeet Singh received the Ratan-e-Baghbani Award, a Punjab Government Appreciation Certificate, in 2021 and a KVK Ferozepur Honour for excellence in beekeeping. He also serves as President, Beekeepers Welfare Association (Punjab) and is an active member of the PAU Progressive Beekeepers Association, Malwa Progressive Association, and the National Bee Board.

Contributors: Simranjit Kaur and Gurmail Singh, Krishi Vigyan Kendra, Ferozepur

SECURING ATTRACTIVE LIVELIHOOD BY UP-SCALING MUSHROOM PRODUCTION

51

Name	S. Lakhwinder Singh
Age	44 years
Address	Vill. Maneli, Teh. Khamanon, Fatehgarh Sahib-140 407 (PB)
Qualification	12th
Mobile	9463162531
KVK	Fatehgarh Sahib

Background/ Situation

S. Lakhwinder Singh, a 44-year-old farmer from Maneli village, Tehsil Khamanon, District Fatehgarh Sahib, owns three acre of ancestral land and was earlier dependent on the traditional paddy–wheat cropping system, which provided limited income and livelihood security. With low adoption of modern agricultural technologies and unsatisfactory farm returns, he explored alternative income options and decided to take up mushroom cultivation as an agri-based enterprise after consulting scientists. His motivation strengthened after visiting the Kisan Mela at PAU Ludhiana, where he learned about mushroom cultivation through PAU literature "Khumban di Kashat." Encouraged by this exposure, he successfully started button mushroom cultivation, completing two crops initially. Realizing the importance of scientific practices, he established contact with Krishi Vigyan Kendra (KVK), Fatehgarh Sahib in 2010, marking a turning point toward the establishment of his well-known Gill Mushroom Farm.

KVK Intervention

KVK Fatehgarh Sahib assessed his need for continuous technical backstopping before recommending mushroom cultivation as a suitable enterprise. The PAU-recommended mushroom cultivation practices were thoroughly demonstrated to him by KVK experts. He was encouraged to install a low-cost compost preparation unit to reduce production costs and advised to convert ordinary rooms into air-conditioned units for better environmental control. Following his initial success, he participated in a vocational training programme on winter mushroom cultivation organized by KVK Fatehgarh Sahib in 2013. Subsequently, he established an automatic compost unit at his farm and continued to seek regular guidance from KVK scientists, who also made periodic visits to his mushroom farm to provide technical advice and support for further improvement.

Innovation/ Initiative

With scientific knowledge and confidence gained through KVK trainings, S. Lakhwinder Singh established a controlled-condition button mushroom unit of 900 sq ft in 2016–17 under close supervision of KVK scientists. He received continuous technical guidance on environmental control, compost preparation, spawning, casing, harvesting, and related practices. Initially dependent on externally procured pasteurized compost, he gradually upgraded his enterprise and expanded the hi-tech mushroom unit from

900 sq ft to 5,000 sq ft by 2023–24. He now prepares and sells compost and casing material to other growers and also established a spawn production laboratory in 2023, increasing spawn production from 400 packets per month initially to 4,000 packets per month for full commercial use. His marketing expanded from local sales to supplying mushrooms to mandies in Ropar and Chandigarh, as well as restaurants and malls, ensuring better prices during both on- and off-seasons. He also developed an online portal for booking and supply of compost bags and fresh mushrooms.

As a result, the number of crops increased from two to an average of five per year. Additionally, he established a new compost preparation unit at village Jattana Ucha with a capacity of 160 tonnes per cycle, involving a project cost of ₹30 lakh and a mushroom production capacity of 30 tonnes per cycle.

Socio-Economic Impact

At present, mushrooms from "Gill Mushroom" Farm are sold at ₹80–120 per kg, fetching ₹160–180 per kg during the off-season and peak demand periods. The enterprise has grown steadily, with production increasing from 3.5 t in 2017–18 to 47.5 tonnes in 2024–25 and net income rising from ₹62,200 to ₹16.75 lakh. His success has inspired many farmers and youth, and this farm now supplies compost bags across several districts of Punjab. Serving as a model demonstration unit for KVK trainees, S. Lakhwinder Singh is also invited as a master trainer, provides employment to rural youth, supports farm women, and operates a well-established, self-reliant mushroom enterprise with strong market linkages and continuous KVK support.

Table 1: Year-wise production expenditure and net returns

Year	Size (sq feet)	Compost used (t)	Production (₹)	Expenditure (₹)	Gross Returns (₹)	Net Income (₹/ farm)
2017-18	900	20	3500	2,52,800	3,15,000	62,200
2018-19	1000	35	6700	4,29,200	5,36,000	1,06,800
2019-20	2900	90	19800	14,45,600	15,84,000	1,38,400
2020-21	2900	110	22060	18,53,040	26,47,200	7,94,160
2021-22	3500	135	38750	19,53,000	31,00,000	11,47,000
2022-23	3500	136	36090	20,20,000	32,48,100	12,28,100
2023-24	5000	250	45200	25,90,000	40,68,000	14,78,000
2024-25	5000	300	47500	26,00,000	42,75,000	16,75,000

Awards and Recognitions

He has obtained several meritorious achievements in the state and national level exhibitions. His success stories were also published in various magazines and newspaper.

Contributors: Arvind Preet Kaur and Hardeep Singh Sabhikhi, Krishi Vigyan Kendra, Fatehgarh Sahib

UPSCALING MUSHROOM FARMING FOR FULFILLING ECONOMIC DREAMS

52

Name	S. Karnail Singh Grewal
Age	45 years
Address	Vill. Bhaini, Teh. Sri Anandpur Sahib, Ropar-140 117 (PB)
Qualification	12th
Mobile	9872424777
KVK	Ropar

Background/ Situation

Karnail Singh Grewal, a 45-year-old resident of Village Bhaini, P.O. Mukari, Tehsil Sri Anandpur Sahib, Rupanagar district, Punjab, exemplifies rural perseverance and resilience. Coming from a small farming family with less than 1 hectare of land, he faced ongoing financial challenges while supporting his household. Although he briefly served in the Indian Army (short services), he found traditional farming unsatisfying after retirement. Always eager to innovate, he considered alternative ways to boost his farm income. To pursue this, he visited Krishi Vigyan Kendra (KVK) Ropar and decided to undergo vocational training in aiming to develop a subsidiary occupation that could enhance his livelihood.

KVK Intervention

KVK Ropar carefully evaluated Grewal's interests, aptitude, and potential before recommending mushroom cultivation as a suitable enterprise for him. In 2017, he enrolled in a vocational training program focused on winter mushroom cultivation, where he gained extensive hands-on experience, particularly in button mushroom production. The training covered vital areas such as compost preparation, spawning, casing, fruit harvesting for higher quality, methods of packing, disease identification and control, record keeping, and marketing techniques. He was also trained in value addition methods for mushrooms. These skills laid a strong foundation for him to initiate small-scale button mushroom farming. Furthermore, KVK organized exposure visits to advanced mushroom growers, enabling him to observe practical management practices and understand the scale and operational requirements of commercial mushroom cultivation. To boost his confidence and broaden his perspective, KVK encouraged him to visit Punjab Agricultural University (PAU) in Ludhiana and the Directorate of Mushroom Research in Solan. So in this direction he acquired advanced trainings: two days training on spawn running and five days training on mushroom cultivation in June 2018 held at ICAR-Directorate of Mushroom Research, Solan.

Innovation/ Initiative

With scientific knowledge and confidence gained through KVK trainings, S. Karnail Singh introduced several innovations to strengthen his mushroom enterprise. He adopted early disease identification at the budding stage, ensured proper compost decontamination by maintaining optimal temperature, pH, and nitrogen levels (1.7-1.9%), and regulated water, air, and CO_2 levels (about 8,000 ppm during spawn run and 800-1200 ppm during fruiting) to ensure disease-free production. Mushrooms were cultivated in both controlled and seasonal conditions. Spent compost were recycled into fields to improve soil fertility and reduce chemical fertilizer use, while surplus compost was sold to other farmers for additional income. He marketed unwashed, graded mushrooms through punnet packing to enhance shelf life. Starting with

2,000 bags in 2017, he expanded to 18,000 bags by 2024 over 1,500 sq meters and further strengthened the enterprise in 2025 by establishing a compost unit, significantly boosting mushroom and compost sales.

Socio-Economic Impact

The resulting economic transformation was remarkable. In 2017, when he began mushroom farming in a kuchha shed, his net annual income was just ₹1.15 lakh. After implementing scientific cultivation methods and innovative practices, his income increased to ₹9.26 lakh by 2021, and continued to grow each year, reaching ₹15.87 lakh in 2024 (Table). This increase in income which is more than ten times than in 2017, enabled him to upgrade his enterprise and significantly improve his family's standard of living. Additionally, this progress allowed him to pursue further expansion of his mushroom farming by submitting a subsidy case to NHM, Punjab, in 2024. He has plans for value addition of mushrooms in near future. His journey has had a profound social impact. Inspired by his success, many youth and farmers from nearby villages approached KVK Ropar for training in mushroom cultivation. He has established his farm in the name of 'Grewal Mushroom Farm', Bhaini, Roopnagar. His farm has become a model site for exposure visits, helping to promote rural skill development and entrepreneurship. Additionally, a significant number of aspiring mushroom growers purchase button mushroom compost from his farm, with many becoming regular customers. Moreover he helps his customers in selling their mushrooms.

Table 1: Year wise expenditure and income in mushroom cultivation by the entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (?)	Comments
2017	2,40,000	1,25,000	1,15,000	Initial year of mushroom cultivation
2018	4,80,000	2,35,000	2,45,000	Scientific mushroom cultivation
2019	8,10,000	3,50,000	4,60,000	--do–
2020	15,30,000	7,65,000	7,65,000	--do--
2021	18,36,000	9,10,000	9,26,000	--do--
2022	25,92,000	12,96,000	12,96,000	--do--
2023	29,07,000	14,07,600	14,99,400	--do--
2024	30,78,000	14,90,400	15,87,600	--do--

Awards and Recognitions

His success story is published by ICAR, ATARI-Zone-I, Ludhiana as well as in the National Newspaper. He has been awarded at many platforms by KVK, Ropar as well as state department of horticulture, Rupnagar. He was nominated by PAU, Ludhiana for state level S. Surjit Singh Dhillon award.

Contributors: Sanjeev Ahuja and Satbir Singh, Krishi Vigyan Kendra, Ropar

FULFILLING ECONOMIC DREAMS THROUGH UPSCALING MUSHROOM ENTREPRENEURSHIP TO ROUND THE YEAR PRODUCTION

53

Name	Mr. Prince Thakur
Age	23 years
Address	Vill. Jangal, PO-Putrial, Teh. Nadaun, Hamirpur-177 001 (HP)
Qualification	Graduate in Hospitality Management (H.M.)
Mobile	9877995340
KVK	Hamirpur

Background/ Situation

Mr. Prince Thakur, a young farmer from a marginal farming family of District Hamirpur, Himachal Pradesh, completed his graduation in Hospitality Management w ith aspirations of building a stable career. However, limited employment opportunities in the region and financial constraints prompted him to seek alternative means of livelihood. Driven by a strong interest in agriculture, he explored several self-employment options. Among these, mushroom cultivation emerged as the most promising enterprise, well aligned with his interests, local resources and the potential for quick and sustainable income generation.

KVK Intervention

In his search for viable agri-based livelihood options, Mr. Prince Thakur came in contact with the scientists of KVK Hamirpur, where he sought guidance on suitable agricultural enterprises. After detailed discussions and assessment of his interests and available resources, he was advised to take up mushroom cultivation. Accordingly, he underwent a comprehensive seven-day training programme on mushroom cultivation during 2019–20. The training provided hands-on exposure to all critical aspects of mushroom production, including compost preparation, spawning techniques, crop management practices, disease and pest management, harvesting and marketing strategies. The continuous technical backstopping and timely support from KVK scientists, along with the initial inputs provided, enabled him to adopt scientific mushroom cultivation practices and successfully establish his enterprise.

Innovation/ Initiative

After completing the training, Mr. Prince Thakur initiated mushroom cultivation on a modest scale with 50 button mushroom bags. The encouraging results from his first production cycle boosted his confidence and motivated him to gradually expand the enterprise to 200 bags. With consistent success, he established a dedicated mushroom production unit under the name “Sahotra Agro Mushroom.” By adopting scientific cultivation practices, maintaining strict hygiene standards and developing direct market linkages, he was able to significantly enhance the profitability of the enterprise. In the initial phase, the mushroom unit was equipped with bamboo racks; however, recognizing the need for durability and efficiency, he later upgraded to steel racks for long-term and sustained

production. Further strengthening the enterprise, during 2023–24 he modernized the unit by installing commercial air-conditioned systems to facilitate year-round mushroom cultivation. This technological upgradation substantially increased the production capacity and ensured consistent output across seasons.

Socio-Economic Impact

Mr. Prince Thakur's entrepreneurial journey reflects a remarkable transformation from an unemployed rural youth into a successful agri-entrepreneur, currently earning an annual income of approximately ₹15–16 lakh (Table 1). The sustained growth of his mushroom enterprise has significantly improved the socio-economic status of his family and provided financial stability. Beyond personal success, his achievements have served as a strong source of motivation for other rural youths in the area to take up mushroom cultivation as a viable livelihood option. Recognizing the demonstrative value of his enterprise, KVK Hamirpur has organized exposure visits for newly trained aspirants at his unit, enabling them to gain practical, hands-on experience and firsthand guidance, thereby facilitating the adoption of mushroom cultivation by emerging entrepreneurs.

Table 1: Year-wise annual expenditure and income of Sahotra Agro Mushroom Farm

Year	Bags per lot	Lot/ annum	Total bags	₹ per annum			Production practice
				Cost of cultivation	Gross returns	Net returns	
2019-20	75	1	75	10,125	18,000	7,875	Seasonal
2020-21	250	2	500	62,500	1,20,000	57,500	-do-
2021-22	1,000	2	2,000	2,50,000	4,80,000	2,30,000	-do-
2022-23	1,200	2	4,800	6,00,000	11,52,000	5,52,000	-do-
2023-24	1,800	4	7,200	9,00,000	17,28,000	8,28,000	Round the year
2024-25	2,500	6	15,000	20,25,000	36,00,000	15,75,000	-do-

Contributors: Vishal Dogra, Navneet Jaryal and Chhavi, Krishi Vigyan Kendra, Hamirpur

UPSCALING OYSTER MUSHROOM PRODUCTION FOR INCOME ENHANCEMENT

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Name	**Mr. Ankit Kumar**
Age	**30 years**
Address	**Vill. Purana Bazaar, Sundernagar, Mandi-175 019 (HP)**
Qualification	**10th**
Mobile	**7876317997**
KVK	**Mandi**

Background/ Situation

Mr. Ankit, a resident of Purana Bazaar in Sundernagar block of district Mandi, could not pursue higher studies after completing his matriculation in 2012 and faced repeated failures in business and part-time employment. Concerned about his future, his parents encouraged him to start an enterprise, but initial efforts were unsuccessful.

In 2019, he approached Krishi Vigyan Kendra (KVK) for guidance. After assessing his interests and aptitude and considering limited land availability, KVK advised him to take up mushroom cultivation. Following initial demonstrations in his unused house, he enrolled in vocational training and was later registered for a 25-day ASCI-sponsored skill training programme on mushroom cultivation in February 2020.

KVK Intervention

Mr. Ankit, trained and technically supported by KVK, adopted mushroom cultivation as an enterprise, initially starting button mushroom in 2020 and later shifting to oyster mushroom due to COVID-19 constraints and better profitability. Over time, he expanded from a few hundred to about 7,000 bags per cycle with three cycles annually, availed a subsidy under the State Government's Khumb Vikas Yojana, now supplies mushrooms across multiple districts, provides ready-to-grow bags, and serves as a master trainer in mushroom cultivation.

Innovation/ Initiative

With the confidence gained from training programmes, regular interaction with KVK scientists, and exposure visits to DMR Solan, Mr. Ankit mastered oyster mushroom cultivation and introduced several innovations to enhance productivity and quality. He adopted season-specific oyster mushroom species such as pink, blue, and golden white, and standardized crop duration-based species suitable to local conditions. To reduce the cost of cultivation, he replaced wheat straw with paddy straw as the substrate for oyster mushroom cultivation without affecting yield. Paddy straw, procured from border districts of Punjab, is nearly one-third the cost of wheat straw and is easier to transport and store, thereby

significantly improving the cost efficiency and sustainability of the enterprise.

Socio-Economic Impact

Mr. Ankit has emerged as a role model for rural youth in the region. Through dedication and sustained efforts, he has not only successfully established a mushroom cultivation enterprise but has also developed strong marketing skills to ensure livelihood sustainability. Unlike many farmers who depend solely on wholesale mandis, he explored local markets and hotels in Kullu, Manali, and Shimla, which enabled him to secure better prices for his quality produce.

When he started mushroom cultivation in 2020, his annual income was only ₹85,000. With the adoption of scientific practices, enterprise expansion, and improved market linkages, his annual income has increased significantly to ₹15.12 lakh at present, clearly reflecting his commitment and entrepreneurial zeal in oyster mushroom cultivation (Table 1).

Table 1: Year-wise profitability and upscaling of mushroom cultivation

Year	No. of bags	Gross returns (₹)	Expenditure (₹)	Net returns (₹)	Remarks
2020	900 (400+500) bags	1,80,000	95,000	85,000	Two cycles of button mushroom
2021	1,700 (300+ 500+900) bags	2,04,000	81,600	1,22,400	Three cycles of oyster mushroom
2022	4,500 (1500 bags x 3 cycles)	5,40,000	2,16,000	3,24,000	Three cycles of oyster mushroom
2023	9,000 (3,000 bags x 3 cycles)	10,80,000	4,32,000	6,48,000	Three cycles of oyster mushroom
2024	15,000 (5,000 bags x 3 cycles)	18,10,000	7,20,000	10,90,000	Three cycles of oyster mushroom
2025	21,000 (7000 bags x 3 cycles)	25,20,000	10,08,000	15,12,000	Three cycles of oyster mushroom

Awards and Recognitions

- Qualified trainee of ASCI mushroom grower Job role (AGR/ Q 7803)
- Appreciation certificate from DDH/ SMS Horticulture, GoHP
- Appreciation certificate from Director Extension Education, CSK HPKV Palampur

Contributors: Pankaj Sood, Neha Chauhan and D.S. Yadav, Krishi Vigyan Kendra, Mandi

BUTTON MUSHROOM ENTREPRENEURSHIP FOR ATTRACTING LIVELIHOOD

55

Name	Mr. Robin Saini
Age	36 years
Address	Vill. Lower Arniala, PO-Kotla Kalan, Una-174 303 (HP)
Qualification	B. Tech. (ECE)
Mobile	9805680700
KVK	Una

Background/ Situation

Mr. Robin, a B.Tech graduate, had a successful career in the private sector for 10 years. However, due to the COVID-19 pandemic, the private firm in which he was working was compelled to shut down, leaving him unemployed. The prolonged pandemic situation dashed his hopes of re-employment in the corporate sector. Determined to explore alternative livelihood options, Robin turned to agriculture as a viable choice. Initially, he convinced his father to cultivate seasonal vegetables on about half an acre of agricultural land instead of the traditional wheat and maize cultivation on the entire one acre. Although he achieved some success, he remained dissatisfied as the monetary returns were not commensurate with the efforts and inputs involved in vegetable cultivation. A close relative of Mr. Robin, who was himself a mushroom grower, advised him to try button mushroom cultivation by keeping mushroom bags. Having no prior knowledge of mushroom cultivation, Mr. Robin roughly estimated the investment required for keeping 200 bags. He had an empty room but needed racks to place the spawned bags. Taking a calculated risk, he invested ₹20,000/- on two hundred spawned bags and ₹10,000/- on iron racks. With the support of his relative, Mr. Robin earned about ₹32,000/- in that season, recovered his rack investment, and gained valuable confidence in mushroom cultivation.

KVK Intervention

Encouraged by his initial success, Mr. Robin decided to pursue mushroom farming on a commercial scale. He enrolled in vocational training on "Mushroom Cultivation" at Krishi Vigyan Kendra (KVK) Una to gain a thorough understanding of technical nuances. The training covered essential aspects of mushroom production, including compost and spawn production, and pests and disease management. During this training, he was also informed about government support in the form of financial subsidy for setting up a commercial mushroom unit to promote mushroom farming. Accordingly, he took a loan of ₹20 lakh and availed a subsidy of ₹8 lakh through the Department of Horticulture for establishing his mushroom unit as per the approved project report of ICAR-Directorate of Mushroom Research, Chambaghat, Solan. It took him about a year both to process his government subsidy application and construct the required infrastructure. During this period, he also devoted a week to attend another mushroom training at CSKHPKV Palampur to further update his knowledge and refine his practical skills. His mushroom unit consists of three cropping rooms (25 x 15 x 12 feet), one packing room of identical size, and a corridor. The unit is equipped with all necessary facilities for round-the-year mushroom production.

Innovation/ Initiative

Mr. Robin, now a fully trained mushroom grower, has expanded his mushroom enterprise and established a new unit. However, he made a minor modification in the dimensions of the new cropping rooms. He increased their height by three feet to accommodate an additional layer of bags on each rack, which enhanced the room capacity by 100 bags. When fully operational, this small innovative change will add ₹72,000/- to his annual income, helping him meet the seasonal labour costs of both units. He also shifted to

a wheeled aluminum trolley for mushroom harvesting, replacing the earlier wooden ladder, thereby making the process easier and more efficient.

Socio-Economic Impact

Mr. Robin earlier earned only about ₹2 lakh per annum from his employment in a private firm. The Corona pandemic proved to be a blessing in disguise for him, as without it his entrepreneurial skills might have remained untapped. Starting from July, he cultivates mushrooms in batches in his three cropping rooms, maintaining a 15-day gap initially and replenishing them after 70 days. In this way, he manages 8,400 bags across four batches from July to April. His annual income witnessed a substantial increase after his mushroom unit became operational (Table 1). Simultaneously, he also generated nearly 1,200 man-days annually through his enterprise. This clearly demonstrated the potential of mushroom farming as a profitable agri-business. His success is serving as a catalyst in promoting mushroom cultivation as a viable livelihood option. Recently, he interacted with trainees of a vocational training programme on mushroom cultivation organized by KVK Una and assured them of his support, thereby boosting their confidence in the venture.

Table 1: Economics of round the year mushroom cultivation by Mr. Robin Saini

S.No.	Input (Unit)	Quantity	Price (₹ per unit)	Amount (₹)
1.	Spawned mushroom bags (No.)	8,400	120	10,08,000
2.	Sodium metabisulphite (kg)	10	250	2,500
3.	Packing material			
i)	Polythene bags (6 x 8 inch) (kg)	100	145	14,500
ii)	Punnet (kg)	125	100	12,500
iii)	Wrapping roll (No.)	15	1,400	21,000
4.	Manpower			
i)	Permanent labour (No.)	3	12,000	4,32,000
ii)	Labour for seasonal needs (man-days)	100	500	50,000
5.	Transportation expenses for marketing	-	-	10,000
	Gross cost (A)			**15,50,500**
6.	Mushroom production @ 2.5 kg/bag (kg)	21,000	120	25,20,000
	Gross return (B)			**25,20,000**
	Net return (B-A)			**9,69,500**

Contributors: Sanjay Kumar Sharma and Meenakshi, Krishi Vigyan Kendra, Una

AUGMENTATION OF FARM INCOME WITH PROFESSIONAL BEEKEEPING

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Name	Mr. Ujjawal Saini
Age	40 years
Address	Vill. Dhanderi Khwajgipur, Teh. Roorkee, Haridwar-247 667 (UK)
Qualification	Graduate
Mobile	9456305991
KVK	Haridwar

Background/ Situation

Mr. Ujjawal Saini, a 23 year old resident of village Dhanderi Khawajgipur in tehsil Roorkee of Haridwar district has set an example for unemployed rural youth. He belongs to a low-income farming family and supporting his family in outstanding way. The beneficiary is a youth who completed education up to Graduation (Agriculture stream). Initially, the youth had limited livelihood options and lacked technical exposure to income-generating agricultural enterprises. Traditional farming alone was insufficient to ensure stable income. In search of a sustainable self-employment opportunity, the youth showed interest in allied agricultural activities, particularly those requiring low land holding and scalable investment.

KVK Intervention

During his undergraduate studies, the youth's association with KVK, Haridwar became a turning point in his entrepreneurial journey. Noting his interest, KVK scientists guided him toward scientific beekeeping as a viable enterprise. He received skill-based training on modern practices, including bee species selection, hive and seasonal management, disease control, and hygienic honey extraction, processing, and storage. Exposure visits and continuous technical support strengthened his confidence and managerial skills, motivating him to adopt beekeeping as a commercial venture. With this support, he started his enterprise with 10 bee colonies.

Innovation/ Initiative

The youth steadily professionalized his beekeeping enterprise through innovation, scaling, and strong market linkages. Starting with 10 colonies in 2021–22, he expanded to 26 colonies in 2022–23 and crossed 100 colonies within three years. Currently, he manages over 450 colonies with impressive production and income. Migratory beekeeping was adopted to maximize nectar flow and honey yield. He established facilities for raw honey processing, grading, and hygienic packaging (500 g and 1 kg jars). Marketing was strengthened through local markets, direct sales, and online platforms. The enterprise diversified into honey-based products and farmer training services. FSSAI and MSME registrations ensure quality

compliance, enhancing consumer trust and market credibility.

Socio-Economic Impact

The beekeeping enterprise significantly improved the family's livelihood over traditional cropping. With scientific management and gradual expansion, family income increased nearly fivefold. Honey productivity averages 15–20 kg per colony, with consistent growth in total output. Value addition and direct marketing fetch premium prices of ₹400–₹500 per kg. Additional income comes from the sale of bee colonies and pollination services. Despite higher costs, net returns rose substantially. Gross income from beekeeping increased from ₹0.31 lakh in 2021 to ₹6.67 lakh in 2025, while net income rose from ₹0.16 lakh to ₹4.00 lakh. Crop income remained stable at about ₹5.9 lakh annually. By 2025, total gross income exceeded ₹12.6 lakh, with net income over ₹7.92 lakh. The enterprise also generated self- and seasonal employment and enabled the entrepreneur to train more than 200 farmers and youth in scientific beekeeping.

Table 1: Year-wise income from crop cultivation and beekeeping enterprise

Year	Component	Area (ha)/ Bee Boxes (No.)	Production (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Net Income (₹/ farm)
2020	Sugarcane	1.5	1200	5,60,000	1,68,000	3,92,000	3,92,000
	Wheat	0.3	16				
	Paddy	0.4	28				
2021	Sugarcane	1.5	1200	5,54,100	1,71,771	3,82,329	3,98,657
	Wheat	0.3	16				
	Paddy	0.4	29				
	Bee Boxes	10	1.68	31,400	15,072	16,328	
2022	Sugarcane	1.5	1200	5,60,800	1,79,456	3,81,344	4,51,112
	Wheat	0.3	17				
	Paddy	0.4	28				
	Bee Boxes	26	4.65	1,29,200	59,432	69,768	
2023	Sugarcane	1.5	1200	5,63,150	1,80,208	3,82,942	5,37,715
	Wheat	0.3	16				
	Paddy	0.4	29				
	Bee Boxes	100	18.5	2,66,850	1,12,077	1,54,773	
2024	Sugarcane	1.5	1200	5,65,300	1,92,202	3,73,098	6,00,071
	Wheat	0.3	17				
	Paddy	0.4	28				
	Bee Boxes	250	47.25	3,84,700	1,57,727	2,26,973	
2025	Sugarcane	1.5	1200	5,93,050	2,01,637	3,91,413	7,91,583
	Wheat	0.3	18				
	Paddy	0.4	25				
	Bee Boxes	450	94.5	6,66,950	2,66,780	4,00,170	

Awards and Recognitions

- Recognized as a successful beekeeping entrepreneur at district and regional levels
- Appreciated by KVK scientists for adopting scientific apiculture
- Invited as a model farmer / trainer in awareness and training programs
- His enterprise is now showcased as a demonstration unit for apiculture promotion

Contributors: Neel Kant and Purushottam Kumar, Krishi Vigyan Kendra, Haridwar; Sarang Monga, ICAR-ATARI Ludhiana

IMPROVING SOCIO-ECONOMICS THROUGH BEEKEEPING

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Name	S. Gurlal Singh Dhaliwal
Age	35 years
Address	Vill. Dhaula, Teh. Khuddi Patti, Barnala-148 107 (PB)
Qualification	B.A.
Mobile	9023129572
KVK	Barnala

Background/ Situation

S. Gurlal Singh is the youngest son of his parents who belongs to an underprivileged family. His land holding is small and it was very difficult for him to meet his family expenses satisfactorily. He could not continue his studies owing to lack of financial resources. He got interested in beekeeping as this occupation does not require agricultural land. In one of the awareness camps during 2019 he came to know about ARYA project being run at Krishi Vigyan Kendra (KVK) Barnala and contacted scientist in-charge ARYA project for discussion and initiation of enterprise.

KVK Intervention

S. Gurlal Singh has keen interest in learning about this enterprise hence; the ARYA project scientist at KVK Barnala provided him a comprehensive training on all aspects of beekeeping under ARYA Project during late 2019. Further, exposure visits were also arranged for this young entrepreneur for providing him better practical orientation about the enterprise. He was also connected with other beekeepers of the district so that he could learn from the experiences of others or could collaborate with them for migration of hives and marketing of honey or other value-added products of this enterprise. Other apiculturists in the district helped him during migration of his honeybees during the lean period. S. Gurlal Singh started his enterprise in the year 2019 with the support of ARYA project. He sold 3.95 quintals of honey from the first crop.

Along with that he also sold bee wax. He sells various types of honey, including mustard, coriander, Kikar, litchi, and multiflora honey, at both wholesale and retail rates. The price of the honey varies according to its type. Due to his hardworking and sincere nature, the ARYA scientist provided him with the maximum possible technical guidance and support for establishing a enterprise unit of 450 beehives. He was motivated and supported to participate in various exhibitions and Kisan Melas organised by the KVK and Department of Agriculture, for making his honey popular among the masses. S. Gurlal is also giving employment to four persons through his apiary. Inspired from him, his wife and father also went through a vocational course from KVK Barnala and became helping hand. For this the expert also guided him to apply for a subsidy provided by Department of Horticulture, Punjab. Fortunately, he also got the subsidy from which he again started this entrepreneurship with 50 bee colonies which have been now increased to 450 with ₹7.37 lakh as net annual income.

Innovation/ Initiative

The initial problems faced by this entrepreneur were solved with the active support of the concerned scientist through a continuous

handholding. The honey is usually sold at the extraction site to the traders. These middle men dealing in honey offer very low prices to the farmers. Earlier he was selling his produce in the wholesale market where the returns were highly un-remunerative so the concerned scientist suggested him to register his brand and take quality certificate from Food Safety and Standards Authority of India (FSSAI). Then he selected Prince Honey as brand for his honey and got quality certificate from FSSAI in the year 2023. Now he is selling his products with greater pricing power and ease. Now he has acquired adequate proficiency not only to manage his own business but to provide guidance to others too.

Socio-Economic Impact

The enterprise of S. Gurlal has run only for one complete year and his financial performance for the year is quite encouraging. As the farmer started this profession with only 15 bee hives with annual net income of ₹32,652 in 2019 (Table 1). However, despite of the COVID-19 pandemic his expertise and expansion plans for the year 2020 took him further to the level of annual net income of ₹1.42 lakh, which was 4.4 times higher than the year 2019. This net income further increased to ₹3.19 lakh during 2021. By 2024, this net income reached to the decent level of ₹7.37 lakh.

Table 1: Year-wise physical and financial performance of of Gurlal's Bee Farm

Particulars	Years					
	2019	2020	2021	2022	2023	2024
No. of Hives	15	80	200	350	390	450
Honey sold (kg)	395	2,560	6,400	10,500	12,480	14,850
Wax sold (kg)	10	80	115	145	200	250
Gross income (₹)	58,625	2,27,500	5,32,250	8,52,250	10,08,500	12,61,250
Net return (₹)	32,652	1,42,312	3,19,245	4,79,522	5,93,148	7,37,045

Contributors: Sanjay Kumar and P.S. Tanwar, Krishi Vigyan Kendra, Barnala

TRANSFORMING RURAL LIVELIHOOD THROUGH MUSHROOM-BASED AGRI-ENTREPRENEURSHIP

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Name	**Mrs. Shakti Sharma**
Age	**37 years**
Address	**Vill. Palli, Kathua-184 143 (J&K)**
Qualification	**12th**
Mobile	**7006156593**
KVK	**Kathua**

Background/ Situation

Smt. Shakti Sharma is a progressive woman entrepreneur from village Palli in Kathua district of the Union Territory of Jammu and Kashmir. She studied up to the 12th but discontinued her education due to early marriage. After her husband's retirement, the family realised that pension income was inadequate to meet household needs. They therefore sought a sustainable livelihood option that could improve their socio-economic status without migrating from their native village. Earlier, her husband owned a poultry unit, which was later converted into a mushroom production unit, as Smt. Shakti Sharma had prior experience in white button mushroom cultivation. To further enhance income, she explored scientific mushroom production practices. In 2021, during a field awareness camp organised by Krishi Vigyan Kendra (KVK) Kathua in collaboration with UMEED, she interacted with the Scientist-in-Charge of the ARYA Project. Inspired by this interaction, she enrolled in vocational training under the ARYA Project to establish a commercial mushroom enterprise.

KVK Intervention

After assessing the needs and profile of Smt. Shakti Sharma, scientists of the ARYA Project identified her as a suitable candidate for mushroom farming and selected her for skill development training. She was enrolled as an ARYA beneficiary in 2021 for training and business incubation and received hands-on exposure following the principle of "learning by doing." She was trained in year-round cultivation of different mushroom species. The ARYA Project team at KVK Kathua provided technical guidance on compost preparation, spawning, casing, pest and disease management, harvesting, packaging, and marketing. Exposure visits, practical demonstrations, and technical literature further strengthened her skills. She also received training in mushroom value addition to enhance profitability and reduce market risks. To support enterprise establishment and build confidence, KVK Kathua provided essential inputs such as quality spawn, polybags, and chemicals during the initial phase.

Innovation/ Initiative

By acquiring scientific knowledge through skill development trainings and exposure visits to established mushroom units, she strengthened her enterprise by adopting innovative practices. She implemented a year-round cultivation calendar by growing white button, oyster, and milky mushrooms, overcoming climatic and seasonal limitations and ensuring continuous production and stable income. The

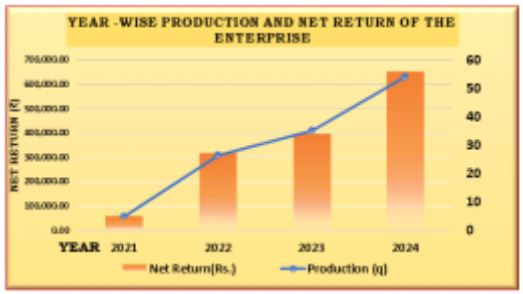
use of cocopeat as casing material enhanced yields, while improved spawn strains increased productivity and year-round availability of specific varieties. She adopted sustainable practices by utilising spent mushroom compost as organic manure for vegetable crops. For marketing, she leveraged social media platforms such as WhatsApp, Facebook, and Instagram to directly reach customers, eliminating middlemen and improving profitability. Recently, she diversified into value-added gift hampers for direct sale during festival seasons.

Socio-Economic Impact

After adopting scientific mushroom cultivation practices through skill development programmes, she increased her income consistently each year. In the first year, she earned a net income of ₹60,575. With continuous guidance from KVK scientists, her enterprise expanded, generating over ₹3.00 lakh annually in 2022. By following ARYA Project recommendations, her income rose to ₹3.96 lakh in 2023 with a production of 35.12 quintals. By 2024, her income further increased to ₹6.52 lakh (Table 1). She now earns a stable income, improving household socio-economic status, empowering herself financially, and serving as a role model for rural youth and women through experience sharing in KVK Kathua trainings.

Table 1: Year -wise production and net return of the enterprise

S. No.	Year	Production (q)	Net Return (₹)
1	2021	5.05	60,575
2	2022	26.45	3,17,500
3	2023	35.12	3,96,985
4	2024	54.25	6,52,860



Awards and Recognitions

She had different achievements in in her credits:

- Awarded Progressive Farm women award in Kisan Mela, year 2022 at SKUAST -Jammu
- Awarded Progressive Farmer involved award by District Administration Kathua on occasion of Independence Day during the year 2023
- Awarded for Lakhpati didi from Jammu region during year 2024
- Her efforts and achievements have also been appreciated by Dr. Jitendra Singh, MOS for Personnel, Public Grievances and Pensioners of India during his visit for entrepreneurship through startup organised by Industrial Fraternity Jammu
- Progressive Farm Woman in Kisan Mela: She was awarded progressive Farm woman in Kisan Mela, year 2024 at SKUAST-Jammu
- Special Invitation from "THE MINISTRY OF DEFENCE" at the 76th Republic Day Parade on 26th January 2025 at Kartavya Path, New Delhi
- Certificate of appreciation for exceptional contribution and dedication to progressive farming practices by Krishi Vigyan Kendra Kathua, SKUAST-Jammu on 24th February 2025

Contributors: Anamika Jamwal, Vishal Mahajan and Berjesh Ajrawat, Krishi Vigyan Kendra, Kathua

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DEMONSTRATING EARNING POTENTIAL THROUGH INNOVATIVE MIXING OF ART AND CRAFT

Name	**Ms. Arasheen Shaban**
Age	**19 years**
Address	**Rainawari, Srinagar-190 003 (J&K)**
Qualification	**12th**
Mobile	**7006964177**
KVK	**Srinagar**

Background/ Situation

Ms. Arasheen Shaban, a creative and enthusiastic young woman from Rainawari, Srinagar, has always nurtured a deep passion for art and design. From an early age, she found joy in creating decorative items, exploring new ideas, and experimenting with a wide range of colors, patterns, and textures. Her natural creativity and attention to detail were evident in her handmade products, which often reflected originality and aesthetic appeal. As her interest in art grew, Arasheen began to explore her creativity beyond a hobby. She aspired to transform her artistic skills into a sustainable source of livelihood that could provide both financial independence and personal fulfillment. Recognizing the importance of professional skills and business knowledge, she actively sought opportunities to enhance her craft and gain exposure to entrepreneurship.

KVK Intervention

Krishi Vigyan Kendra (KVK) Srinagar played a pivotal role in shaping Arasheen's entrepreneurial journey by providing systematic capacity building and continuous handholding support. She participated in KVK-organized training programmes on skill development, value addition, quality control, packaging, labeling, and enterprise management, which significantly enhanced her technical knowledge, decision-making ability, and self-confidence. These trainings enabled her to convert locally available resources into value-added products with improved shelf life and market appeal. KVK also provided her with platforms to showcase her products through district-level exhibitions, fairs, and awareness programmes, helping her gain customer exposure, understand consumer preferences, receive market feedback, and develop valuable networking opportunities with buyers and stakeholders. Regular interaction with KVK scientists and extension experts offered her practical solutions to production and marketing challenges. Continuous guidance and mentoring from KVK experts encouraged her to register her brand, adopt better branding and pricing strategies, and expand her market outreach through online and social media platforms, ultimately strengthening the sustainability and growth potential of her enterprise.

Innovation/ Initiative

Arasheen established her enterprise titled “Graceful Giving by Arasheen” in 2023 as an online/offline business platform with a clear vision of promoting unique, handcrafted products. She began with handcrafted fabric flowers, resin art, wall décor items, and customized gift sets, focusing on personalization and quality craftsmanship. Her designs creatively blend modern aesthetics with a subtle cultural touch, making them suitable for festive, ceremonial, and corporate gifting. Through consistent engagement on social media and online marketplaces, she successfully attracted customers from different regions. Over time, she

expanded her product range based on customer feedback and focused on attractive packaging and timely delivery, which helped build brand credibility and repeat clients.

Socio-Economic Impact

Arasheen's enterprise, "Graceful Giving by Arasheen," has created a positive socio-economic impact by promoting self-employment and financial independence. The venture has provided her with a sustainable source of income, enhancing her economic stability and reducing dependence on traditional employment avenues. By utilizing locally available materials and skills, her enterprise supports the concept of low-investment, high-value entrepreneurship.

Socially, Arasheen's journey serves as a source of motivation for other young women, encouraging them to pursue entrepreneurship and home-based enterprises. Her success has strengthened her social recognition and confidence, positioning her as a role model within the community. The enterprise also has the potential to generate indirect employment by engaging local artisans and helpers for production, packaging, and order fulfillment. Overall, Arasheen's entrepreneurial initiative contributes to women empowerment, skill development, and inclusive economic growth at the grassroots level.

Table 1: Year wise expenditure and income of the innovative # Entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2023	4,10,462	1,52,604	2,57,858
2024	5,00,951	2,60,192	2,40,759
2025	8,12,378	2,61,581	5,50,797

#Innovative combination of business activities viz., fabric flower craft, resin painting, wall hangings, and customized gift sets

Awards and Recognitions

Arasheen has received recognition from the Krishi Vigyan Kendra (KVK) Srinagar for her active participation and outstanding performance in kisan melas and various exhibitions organized by KVK Srinagar. Her innovative products, creativity, and entrepreneurial initiative were appreciated by scientists, visitors, and stakeholders during these events. These recognitions not only validated her efforts but also boosted her confidence and visibility, encouraging her to further strengthen her enterprise and expand her market outreach.

Contributors: Shamim A Simnani, Aasima Rafiq and Ishtiyak A. Mir, Krishi Vigyan Kendra, Srinagar

COMBATING LANDLESSNESS WITH ENTREPRENEURSHIP IN BEEKEEPING

60

Name	S. Jagseer Singh
Age	44 years
Address	Vill. Doda, Teh. Gidderbaha, Sri Muktsar Sahib-152 026 (PB)
Qualification	10th
Mobile	9872393576
KVK	Sri Muktsar Sahib

Background/ Situation

S. Jagseer Singh, a 44-year-old from Village Doda in Sri Muktsar Sahib district, Punjab, is a symbol of determination and rural entrepreneurship. Coming from a landless farming family with limited education, he began working as a laborer to support his family. To earn a livelihood and pursue his dream of beekeeping, he worked as a juice vendor for nearly four years. In 2004, he began beekeeping with just four bee boxes and a modest investment of ₹12,000. Due to low production and limited marketing knowledge, the income was insufficient, so he placed his boxes with an experienced beekeeper and worked on his farm for a small monthly salary, which provided only limited financial support. Despite the challenges, he remained committed to beekeeping and expanded his operation to 90 bee boxes by 2009. However, lack of scientific knowledge led to losses from diseases and pests, reducing the number to 55 in 2010. A major turning point came when he approached Punjab Agricultural University and Krishi Vigyan Kendra (KVK) Sri Muktsar Sahib, where training and technical guidance on scientific beekeeping and marketing helped strengthen his enterprise.

KVK Intervention

KVK Sri Muktsar Sahib assessed his potential and enrolled him in a vocational beekeeping training in July 2011, where he gained hands-on knowledge of scientific bee management, disease control, migration, and marketing. Further advanced training at PAU, Ludhiana in 2013 strengthened his understanding of commercial beekeeping. With continued guidance from KVK, he transitioned into registered commercial beekeeping, diversified into bee pollen and wax production, and improved his self-marketing skills, leading to higher income and financial stability.

Innovation/ Initiative

After gaining scientific knowledge from KVK and PAU trainings, S. Jagseer Singh introduced key innovations in his beekeeping enterprise. He realized that systematic migration of bee colonies is essential to fully utilize floral resources. Currently, he migrates his bee boxes about five times a year across routes such as Ganganagar-Muktsar, Muktsar-Jalandhar, Muktsar-Alwar, Alwar-Bikaner, and back to Ganganagar. This practice nearly doubled his honey production compared to non-migratory beekeeping. With support from KVK

experts, Jagseer obtained an FSSAI license, improving marketing of his honey. He also began selling bee pollen and wax, creating additional income, and later diversified into processed honey products and opened his own retail outlet. Due to these innovations, his enterprise expanded to 235 bee boxes.

Socio-Economic Impact

S. Jagseer Singh's success has inspired local farmers and youth, making his enterprise a model for skill development, self-employment, and agripreneurship. The economic transformation achieved through scientific beekeeping has been remarkable. Earlier, despite hard work and strong motivation, lack of technical knowledge restricted Jagseer's success. His journey from four bee boxes in 2004 to 235 boxes in 2025 reflects sustained growth and resilience. Before his association with PAU and KVK, Jagseer followed conventional practices and earned very limited income. After adopting scientific beekeeping, his income increased steadily year after year (Table 1). By 2025, his annual net income reached ₹6.20 lakh, nearly four times higher than his income in 2018. Interestingly, during the COVID-19 pandemic, while many livelihoods were adversely affected, his business experienced growth due to increased consumer demand for honey and related products for immunity and health benefits. This enhanced income enabled him to expand his enterprise, invest in processing and marketing, and significantly improve his family's standard of living.

Table 1: Year-wise economics of beekeeping enterprise

Year	No. of Beehives	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2004	4	NIL	12,000	NIL
2018	80	2,40,000	80,000	1,60,000
2019	105	3,00,000	1,00,000	2,00,000
2020	125	3,75,000	1,30,000	2,45,000
2021	145	4,35,000	1,45,000	2,90,000
2022	160	5,00,000	1,50,000	3,05,000
2023	180	5,80,000	1,60,000	4,20,000
2024	200	7,00,000	2,00,000	5,00,000
2025	235	8,50,000	2,30,000	6,20,000

Awards and Recognitions

S. Jagseer Singh has been honoured with two Appreciation Awards from the Department of Agriculture and Farmers' Welfare, Sri Muktsar Sahib and three Awards from KVK Sri Muktsar Sahib.

Contributors: Vivek Kumar, Gurvinder Singh and Karamjit Sharma, Krishi Vigyan Kendra, Sri Muktsar Sahib

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OYSTER MUSHROOM ENTREPRENEURSHIP WITH VALUE ADDITION FOR ENHANCED RURAL LIVELIHOOD

Name	Mr. Vikas Chamoli
Age	30 years
Address	Vill. Dang, Ladari, PO-Joshiyara, Uttarkashi-249 193 (UK)
Qualification	B.Sc. Agriculture
Mobile	7351525234
KVK	Uttarkashi

Background/ Situation

Mr. Vikas Chamoli, a resident of Village Dang, P.O. Joshiyara, Uttarkashi, holds a degree in Agriculture from SGRR PG College, Dehradun. His interest in botany and plant sciences led him towards mushroom cultivation, which he was introduced to during internship programmes in his final year of graduation. Practical training at a small-scale mushroom production unit in Dehradun strongly influenced his career choice. Although he initially worked as an agriculture expert with an NGO under a government project, his passion for mushroom cultivation prompted him to leave the job and start his own enterprise. With support from his family and friends, he returned to his native village and began oyster mushroom cultivation to generate local livelihood opportunities. Starting from a small 10 × 10 ft room, he has now developed a well-established unit with a capacity of 2,000 mushroom bags, producing about 7 tonnes annually. He has further enhanced the sustainability and profitability of his enterprise through value addition, including oyster mushroom pickle and dried mushrooms.

KVK Intervention

KVK Chinyalisaur provided continuous technical guidance and capacity building to Mr. Vikas Chamoli through specialized trainings and advisory services. The interventions strengthened his skills in scientific mushroom production, including substrate preparation, hygiene and disease management in mushroom tunnels, post-harvest handling, processing, quality packaging, labelling, and basic food safety standards. This support enabled him to diversify into value-added products such as oyster mushroom pickle and dried mushrooms. Regular technical backstopping by KVK experts helped him scale up from a small unit to a commercial-level enterprise, transforming him from a job seeker into a job creator in rural Uttarkashi.

Innovation/ Initiative

Mr. Vikas Chamoli has adopted an integrated and innovative approach by managing the complete oyster mushroom value chain, from substrate preparation to processing and packaging. He prepares substrates using locally available agricultural residues, follows scientific pasteurization, and maintains controlled conditions in mushroom tunnels to ensure consistent and quality production. Surplus mushrooms are

converted into value-added products such as pickle and dried mushrooms, improving shelf life and market returns. He uses standardized glass jars and hygienic, moisture-proof packaging to ensure quality, safety, and consumer appeal. With FSSAI certification and a strong focus on quality processing, attractive packaging, and e-commerce readiness, his initiative represents a model of modern agri-preneurship and inspires rural youth to adopt mushroom cultivation as a sustainable enterprise.

Socio-Economic Impact

The transformation achieved by Mr. Vikas Chamoli through oyster mushroom farming has been steady and substantial. When he started the enterprise in 2022, his annual gross income was ₹3.0 lakh with a net return of about ₹1.0 lakh (Table 1). With expansion of mushroom tunnels, better space utilization, improved availability of raw materials, and adoption of scientific production practices, the enterprise recorded consistent year-on-year growth. By 2025, supported by value-added processing, standardized packaging, and entry into e-commerce platforms, his gross income increased to ₹12.0 lakh with a net income of approximately ₹5.0 lakh. Overall, between 2022 and 2025, his gross income increased fourfold and net income fivefold, reflecting an average annual growth of about 60 percent in net returns. The benefit-cost ratio also improved from 1.5 to around 1.7, indicating enhanced economic efficiency and profitability of the enterprise.

Table 1: Year wise economics of the entrepreneur in oyster mushroom farming

Year	No. of Bags	Total production (kg)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2022	1350	2000	3,00,000	2,00,000	1,00,000	Initial stage with limited space and capacity
2023	2200	3200	5,00,000	3,00,000	2,00,000	Expansion of tunnels and improved management
2024	3100	4700	8,00,000	5,00,000	3,00,000	Increased production and market linkage
2025	4000	7000	12,00,000	7,00,000	5,00,000	Value addition, processing and e-commerce sales

Awards and Recognitions

Sri Mahabal Singh was awarded Progressive Farmer of Dehradun by G.B. Pant University of Agriculture & Technology, Pantnagar for his innovative high-altitude mango cultivation. His farm is recognized as a model and demonstration unit for hill horticulture. The success of his initiative also contributed significantly to KVK Dehradun receiving the Best KVK Zonal Award from NAAS, New Delhi, highlighting effective farmer-scientist collaboration and extension efforts..

Contributors: R.L. Meena, Shashidhar B.R., and Koushal Singh, Krishi Vigyan Kendra, Uttarkashi

SUSTAINABLE RURAL LIVELIHOOD THROUGH OYSTER MUSHROOM CULTIVATION

62

Name	Mr. Lekh Raj
Age	38 years
Address	Vill. Rodi, PO-Bhalei, Teh. Bhadram, Chamba-176 310 (HP)
Qualification	5th
Mobile	9816803588
KVK	Chamba

Background/ Situation

Lekh Raj, a 38-year-old farmer from Village Rodi in Tehsil Bhadram of Chamba district, Himachal Pradesh, belongs to a small farming family owning only one bigha of land and supporting a family of four. Due to the marginal landholding and limited education, traditional farming and wage labour provided insufficient income for livelihood security. Seeking a sustainable alternative, he approached Krishi Vigyan Kendra (KVK), Chamba, where he learned about oyster mushroom cultivation. Attracted by its low investment, short duration, and high income potential, he received hands-on training and technical guidance from KVK. With continuous scientific support, he adopted oyster mushroom cultivation as an alternative enterprise, leading to improved income and livelihood security for his family.

KVK Intervention

Seven years ago, Lekh Raj faced low returns from traditional crops, erratic weather, and limited livelihood opportunities, making it difficult to sustain his family through conventional farming. Krishi Vigyan Kendra (KVK), Chamba intervened by providing systematic training and continuous technical backstopping in oyster mushroom cultivation. Under KVK guidance, he acquired scientific knowledge on spawn preparation, substrate management, and maintenance of suitable growing conditions. He started the enterprise on a small scale, and the success of initial harvests encouraged gradual expansion. Over time, he refined production practices and adopted eco-friendly measures such as recycling spent mushroom substrate as organic manure, reducing input costs and improving farm sustainability.

Innovation/ Initiative

With scientific knowledge and confidence gained through continuous training and guidance from KVK, Chamba, Lekh Raj established a two-room production unit and adopted oyster mushroom cultivation on a commercial scale, ensuring year-round quality production under controlled conditions. At present, he earns about ₹5–6 lakh annually from oyster mushroom cultivation, reflecting a significant improvement in his socio-economic status and positioning him as a role model for rural youth. A key innovation in his enterprise is the effective utilization of spent mushroom substrate as organic manure, which has improved soil fertility and reduced input costs. He also sells surplus organic manure to nearby farmers and has diversified into compost processing, further enhancing income stability and promoting environmentally sustainable farming practices.

Socio-Economic Impact

The adoption of scientific oyster mushroom cultivation under the intervention of KVK, Chamba led to a

substantial improvement in Lekh Raj's income. In 2019, his net annual income from conventional farming was only ₹32,000, which increased to ₹1.5 lakh in 2020 and ₹1.8 lakh in 2021 after adopting mushroom cultivation (Table 1). At present, he earns about ₹5 lakh annually from oyster mushroom cultivation. This nearly tenfold increase in income has enabled him to repay debts, expand and upgrade his enterprise, and significantly improve his family's living standards. His success demonstrates the potential of science-based, eco-friendly agricultural interventions in enhancing livelihood security and economic resilience in hilly regions, inspiring other farmers and rural youth to adopt innovative farming enterprises. Socially, Lekh Raj's success has created a strong ripple effect in surrounding villages. Inspired by his achievements, many farmers and rural youth have approached KVK, Chamba for training in oyster mushroom cultivation, leading to its adoption as a viable livelihood option in the region, with trained farmers earning ₹2–6 lakh annually from short production cycles of 45–60 days. The enterprise has generated self-employment opportunities, particularly for women and unemployed youth, due to its low land requirement and quick returns. The use of spent mushroom substrate as organic manure has improved soil health and reduced dependence on chemical fertilizers, promoting sustainable farming practices. Farmers have also explored value addition through products such as dried mushrooms and pickles. Owing to its success and replicability, Lekh Raj's unit has been developed as a model demonstration site for exposure visits under KVK and line department programmes, contributing significantly to rural skill development and agripreneurship in the district.

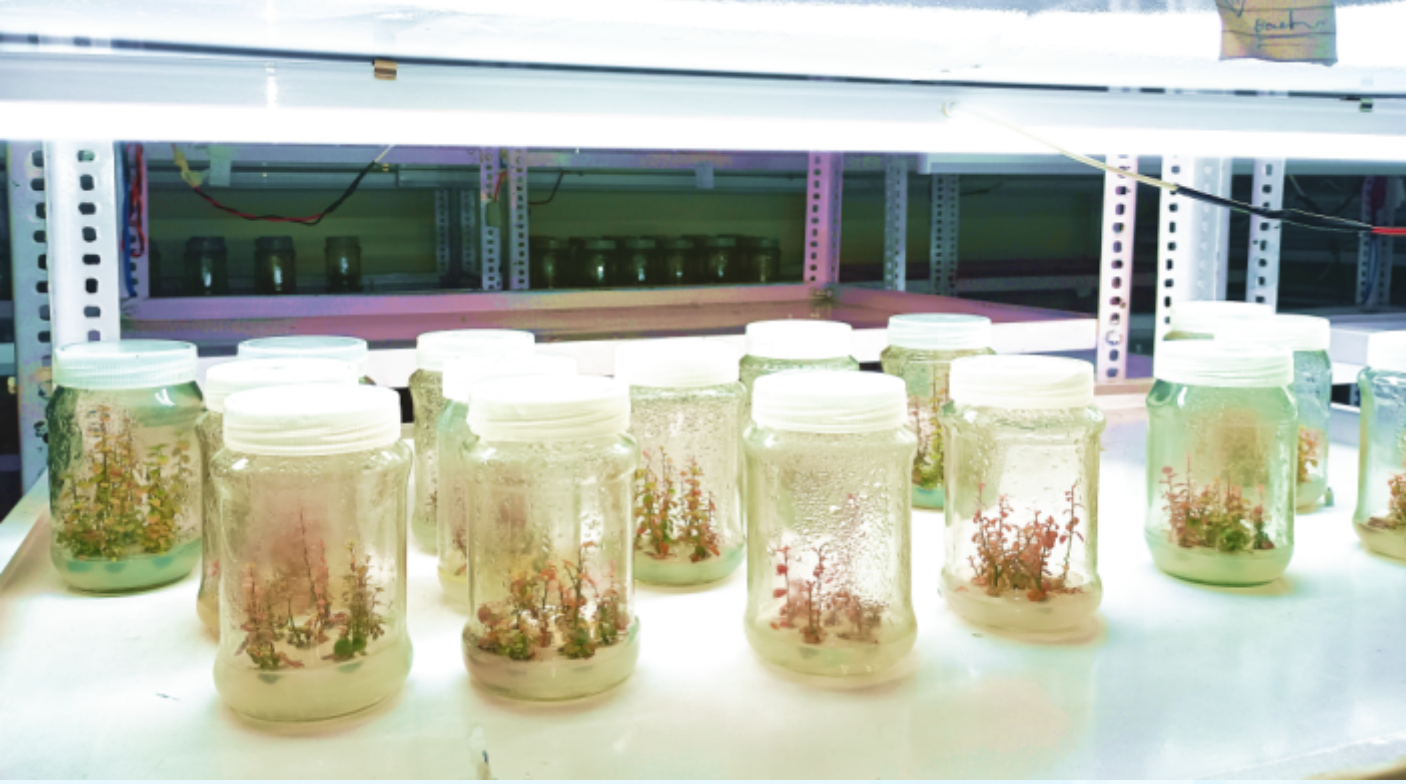
Table 1: Year wise economics of oyster mushroom farming

Year	Gross returns (₹)	Expenditure (₹)	Net returns (₹)	Comments
2019	40,000	8,000	32,000	Conventional farming
2020	2,00,000	47,710	1,52,290	Oyster mushroom (Dhingri) cultivation
2021	2,50,000	62,020	1,87,980	Oyster mushroom (Dhingri) cultivation
2022	5,00,000	1,14,500	3,85,500	Oyster mushroom (Dhingri) cultivation
2023	6,00,000	1,39,120	4,60,880	Oyster mushroom (Dhingri) cultivation
2024	6,00,000	1,35,400	4,64,600	Oyster mushroom (Dhingri) cultivation

Awards and Recognitions

Mr. Lekh Raj's achievements have received national-level recognition. In 2024, he was honoured at the India Progressive Farmers Awards, organized during the All-India Progressive Farmers Conference in New Delhi, for his innovative and sustainable approach to agriculture. Hailing from an Aspirational District, his journey serves as an inspiring model for farmers in similar agro-ecological regions. Through the adoption of science-led practices promoted by KVK, Chamba, he has demonstrated the potential of eco-friendly agricultural enterprises in enhancing income, generating employment, and strengthening economic resilience in hilly areas, thereby motivating farmers and rural youth to adopt sustainable and profitable farming alternatives.

Contributors: Dharminder Kumar, Jaya Chaudhary and Sushil Dhiman, Krishi Vigyan Kendra, Chamba



F. MISCELLANEOUS INNOVATIONS

Agriculture today stands at a critical crossroads, where traditional production systems alone are often insufficient to ensure stable and rewarding livelihoods for farming communities. Rapid technological change, evolving market demands, climate variability, and socio-economic challenges have compelled farmers to explore innovative, non-traditional, and locally adaptable solutions. The success stories presented under the theme Miscellaneous Innovations capture this spirit of experimentation, resilience, and creativity. They showcase how farmers and rural entrepreneurs have gone beyond conventional boundaries to adopt diverse innovations that have transformed agriculture into a profitable, sustainable, and socially empowering enterprise. This section brings together a unique collection of success stories that do not fit neatly into a single thematic category, yet collectively highlight the immense potential of innovation-driven agriculture. These narratives demonstrate that there is no one-size-fits-all model for success in farming. Instead, prosperity emerges from the ability to identify local opportunities, integrate knowledge with practice, and respond proactively to changing circumstances. The stories included here reflect a wide spectrum of innovations, ranging from seed production and advanced mechanization to agro-eco-tourism, natural farming, and women-led livelihood diversification. A recurring theme across these success stories is the power of diversification as a risk management and income enhancement strategy. Farmers who diversified beyond conventional cropping systems have achieved exceptional economic returns by combining multiple enterprises or adopting entirely new ventures. Diversified farming models have enabled these innovators to spread risk, ensure year-round income, and make better use of available resources. These narratives underline the importance of adaptability and strategic planning in achieving financial stability in agriculture. Several stories in this section focus on the transition from conventional farming to seed production enterprises, highlighting seed production as a high-value and knowledge-intensive venture. Farmers who embraced scientific seed production practices, quality control, and market linkages have successfully transformed their economic status. These stories demonstrate how seed production not only enhances income but also contributes to the broader agricultural ecosystem by ensuring the availability of quality planting material for other farmers. The role of technology and mechanization in modernizing agriculture is another key dimension captured in this section. The adoption

of advanced farm machinery has enabled farmers to reduce labor dependency, improve operational efficiency, and lower production costs. These success stories illustrate how mechanization, when aligned with local needs and supported by technical knowledge, can significantly improve profitability and timeliness of farm operations. They also highlight the emergence of custom hiring and service-based models that create additional income opportunities for progressive farmers. Innovation in agriculture is not limited to production alone; it also extends to integrating agriculture with services and experiential enterprises. The inclusion of agro-eco-tourism alongside food processing enterprises represents a novel approach to income diversification. By opening their farms to visitors and showcasing local food systems, culture, and ecological practices, farmers have created stable and supplementary income streams while promoting awareness about agriculture and sustainability. These stories highlight the untapped potential of rural tourism as a complementary agri-enterprise. The section also emphasizes the importance of integrated models that combine allied enterprises. Success stories involving the upscaling of integrated dairy and vermicomposting units demonstrate how resource recycling and enterprise linkage can enhance overall profitability. By converting farm waste into valuable inputs, such integrated systems reduce input costs, improve soil health, and generate additional income. These narratives reaffirm the principles of circular economy and sustainability in agriculture. Another innovative approach highlighted in this section is the use of honeybees for sustainable crop production and income enhancement. The employment of honeybees in apple orchards exemplifies how ecological services such as pollination can be harnessed for both productivity enhancement and supplementary income through honey production. These stories reflect the growing recognition of ecosystem-based farming practices that align economic goals with environmental stewardship.

The theme of social inclusion and empowerment runs strongly through several success stories in this section. Narratives focusing on the socio-economic empowerment of tribal women through diversified economic activities demonstrate how innovation can be a powerful tool for social change. By gaining access to skills, resources, and market opportunities, women have emerged as confident entrepreneurs, contributing to household income and community development. These stories underscore the transformative impact of inclusive and gender-sensitive agricultural interventions. Natural farming emerges as another significant innovation highlighted in this section. Farmers who adopted natural farming practices have demonstrated that it is possible to enhance farm profitability while ensuring safe food production and environmental sustainability. By reducing dependency on external chemical inputs and relying on locally available resources, these innovators have achieved stable incomes and improved soil health. These narratives offer valuable insights into alternative farming paradigms that balance productivity with ecological integrity. Across all these success stories, the role of knowledge, training, and institutional support is clearly evident. Continuous capacity building, technical guidance, and exposure to new ideas have empowered farmers and rural entrepreneurs to experiment, adapt, and succeed. These narratives highlight the importance of extension services, research institutions, and supportive policies in fostering an enabling environment for innovation.

In conclusion, the success stories under the theme of Miscellaneous Innovations celebrate the ingenuity, courage, and perseverance of farmers and rural entrepreneurs who dared to think differently. They demonstrate that innovation in agriculture is not confined to laboratories or large investments but often emerges from the grassroots, driven by necessity and creativity. By documenting these diverse experiences, this section aims to inspire farmers, extension professionals, policymakers, and development practitioners to embrace innovation as a cornerstone of agricultural growth and rural transformation. The stories that follow reaffirm a powerful message: when farmers innovate beyond conventions, agriculture evolves into a dynamic, resilient, and rewarding livelihood system.

INSPIRING DIVERSIFIED FARMING FOR EXCEPTIONAL ECONOMIC RETURNS

63

Name	**S. Pardeep Singh**
Age	**34 years**
Address	**Vill. Birarhwal, Teh. Nabha, Patiala-147 201 (PB)**
Qualification	**12th with Diploma in Art & Craft**
Mobile	**9855867328**
KVK	**Patiala**

Background/ Situation

S. Pardeep Singh, a young and dynamic farmer from Village Birarhwal of Patiala district, Punjab, represents a successful shift from traditional cereal-based farming to diversified and high-value horticulture enterprises. Belonging to a farming family that had long followed the conventional paddy–wheat cropping system, he witnessed declining profitability, excessive groundwater depletion, and soil health deterioration associated with monocropping. Despite assured procurement under the paddy–wheat system, Pardeep Singh felt that conventional agriculture was no longer economically viable for sustaining future livelihoods. However, his initial ideas of diversification were discouraged by elders due to the perceived risks and lack of assured markets for vegetables and allied enterprises. With patience, strong determination, and a learning-oriented mindset, he gradually convinced his family that scientific diversification could generate higher income while conserving natural resources.

KVK Intervention

A major turning point in S. Pardeep Singh's agricultural journey came through continuous technical support and capacity building from Krishi Vigyan Kendra (KVK), Patiala. He proactively participated in several skill-oriented and entrepreneurship development trainings conducted by KVKs and national research institutions. He received hands-on training in mushroom cultivation (2008), seed production technology (2010), farm management (2011), beekeeping (2012), greenhouse management (2013), and advanced mushroom production technologies (2014). Exposure visits to premier institutions such as IARI, Directorate of Vegetable Research (Modipuram), Directorate of Mushroom Research (Solan), and national-level agricultural expos further strengthened his technical competence and confidence.

Innovation/ Initiative

Equipped with scientific knowledge, S. Pardeep Singh diversified his farm into vegetable seed production, commercial nursery raising, off-season vegetable cultivation, and mushroom farming (Table 1). One of his key innovations was the development of a low-cost casing material for mushroom cultivation by mixing coco-peat, paddy husk ash, and field soil. This innovation reduced production costs and resulted in nearly a 10 per cent increase in mushroom yield. He adopted soil-less nursery raising under poly-net houses using coco-peat and vermicompost, producing healthy and uniform seedlings. His nursery specializes in chilli and onion seedlings, which are widely demanded across Punjab, Haryana, and Uttar Pradesh. Additionally, he practices off-season cultivation of cucumber and capsicum to fetch premium market prices. Pardeep Singh also implemented advanced resource conservation practices such as drip and sprinkler irrigation systems, laser land leveling,

integrated pest management (IPM) tools, crop residue recycling, and groundwater recharge through a specially constructed recharging well. His crop rotation systems enable him to grow four crops annually instead of the conventional two

Socio-Economic Impact

The success of S. Pardeep Singh has considerably improved the socio-economic status of his family. His enterprises provide regular employment to nearly 20 labourers per day, contributing to rural livelihood generation. His farm has emerged as a demonstration unit and Farmer Field School, where dozens of farmers and rural youth receive hands-on training in mushroom cultivation and nursery production.

Table 1: Economics of various enterprises

Crop/Variety	Area (acres)	Total Production (q)	Price (₹/kg or q)	Gross return (₹)	Cost of cultivation (₹)	Net returns (₹)
Chilli (CH1, Soldier)	6	1,180	10/kg	11,80,000	7,00,000	4,80,000
Potato (Kufri Pukhraj, LR, Chipsona-3)	25.5	3,208	8/kg	25,66,400	16,00,000	9,66,400
Wheat (PBW-725)	6	104	1,480/q	1,53,920	72,000	81,920
Capsicum (Indira)	0.5	195	15/kg	2,92,500	1,00,000	1,92,500
Dhania (Local variety)	0.5	21.5	50/kg	1,07,500	15,000	92,500
Kheera (KUK-9, Multi-star)	1.0	380	15/kg	5,70,000	90,000	4,80,000
Paddy (PR-121, PR-114)	24.5	735	1,430/q	10,51,050	4,90,000	5,61,050
Maize (31Y45 (Pioneer) 6453 (Monsanto))	7.0	210	1,100/q	2,31,000	91,000	1,40,000
Onion (L-28, Pb. Naroya)	1.5	115	10/kg	1,15,000	40,000	75,000
Sunflower (DK-3849)	3.0	28.5	2,900/q	82,650	39,000	43,650
Pea (PB-89)	4.0	215	15/kg	3,22,500	1,20,000	2,02,500
Chilli Nursery (CH-1, Soldier, CH-13, Veerji)	1.5	606	4,000/acre	24,24,000	15,00,000	9,24,000
Fodder (Maize J-1006)	5.0	898	200/q	1,79,600	40,000	1,39,600
Onion Nursery (Pb. Naroya, ALR, L-28, PRO-6)	1.5	105	10,000/ acre	10,50,000	7,00,000	3,50,000
Total				**1,03,26,120**	**55,97,000**	**42,49,120**

Awards and Recognitions

In recognition of his innovative farming practices, S. Pardeep Singh has received awards and honours from KVK Patiala and other forums. He was honored on the eve of Republic day in 2018. He had also received Sardarni Parkash Kaur Sra Memorial Award during Kisan Mela at PAU, Ludhiana in 2018. He has also been recognized at the district level for excellence in sports.

Contributors: Rachna Singla and Hardeep Singh Sabhikhi, Krishi Vigyan Kendra, Patiala

ENHANCING EARNING POTENTIAL BY TRANSITIONING FROM CONVENTIONAL FARMING TO SEED PRODUCTION VENTURE

64

Name	S. Jagpreet Singh
Age	33 years
Address	Vill. Sekha, PO-Sekha, Teh. Barnala-148 101 (PB)
Qualification	12th
Mobile	8054112349
KVK	Barnala

Background/ Situation

S. Jagpreet Singh has emerged as a notable example of how dedication, knowledge, and modern agricultural practices can lead to success. His interest in farming developed during his school days while assisting his father in farm activities, where hands-on experience and curiosity about modern agriculture motivated him to pursue formal training. After completing his 12th grade, he underwent a three-month Young Farmer Training Course at Punjab Agricultural University (PAU), Ludhiana, followed by a one-year diploma in Seed Technology from the same institution. Equipped with technical knowledge and practical skills, he now manages 7 acres of his own land and leases an additional 58 acre, reflecting his progressive approach to agriculture.

KVK Intervention

Krishi Vigyan Kendra (KVK), Barnala played a pivotal role in strengthening S. Jagpreet Singh's expertise in seed production by providing specialized training in vegetable production technologies and seed production. The KVK also supplied him with improved onion seed material and conducted frontline demonstrations to enhance his practical understanding. Training on seed grading and quality management enabled him to produce high-quality seeds. Building on this technical support, he established a successful seed production enterprise and entered into seed buy-back arrangements with private companies, ensuring assured marketing and stable income.

Innovation/ Initiative

Recognizing the importance of water conservation, S. Jagpreet Singh adopted a sprinkler irrigation system on 10 acres to promote efficient water use and sustainable farming. He practices diversified farming with crops such as paddy, potato, maize, and a wide range of vegetable and pulse seed crops including hybrid radish, pea, cauliflower, muskmelon, chilli, onion, and moong, along with his own production of paddy and maize seeds. Leveraging modern production practices and quality control, he has developed a successful seed enterprise supplying onion, maize, paddy, and other crop seeds across Punjab, Uttar Pradesh, and

Haryana. His continuous learning and ability to blend s experience with modern techniques have resulted in high-quality seeds that are in strong demand for their consistency, reliability, and adaptability to diverse soil and climatic conditions.

Socio-Economic Impact

He generates substantial socio-economic impact through his seed production enterprise by providing seasonal employment to about 25 farm women for nearly six months each year, along with regular employment to five farm labourers. His success has also inspired more than 15 farmers to adopt seed production after observing the economic benefits of his model. The year-wise economic performance shows a steady improvement in income, with net returns increasing from ₹16.00 lakh in 2021 under traditional cultivation on 40 acres to ₹17.20 lakh in 2022 with partial adoption of seed production. A complete shift to seed production from 2023 onwards led to a sharp rise in net income to ₹25.00 lakh in 2023 and ₹30.00 lakh in 2024 as the cultivated area expanded. By 2025, seed production on 65 acres generated a net income of ₹35.75 lakh, with average earnings of about ₹55,000 per acre under a three-crop rotation system (Table-1). Overall, he earned around ₹23.5 lakh annually from agricultural produce in recent years, clearly demonstrating the profitability of seed production and its positive contribution to employment generation, farm income, and livelihood security.

Table 1: Year-wise economic performance of the entrepreneur

Year	Area (acre)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Remarks
2021	40	62,00,000	46,00,000	16,00,000	Conventional farming
2022	40	67,20,000	50,00,000	17,20,000	Conventional + Seed production
2023	50	92,50,000	67,50,000	25,00,000	Seed production
2024	60	1,14,60,000	84,60,000	30,00,000	--do--
2025	65	1,33,25,000	97,50,000	35,75,000	--do--

Awards and Recognitions

He has received district-level awards for his exceptional work from KVK Barnala, and has also been recognized by the Deputy Commissioner, Barnala for his achievements. His journey demonstrates that with appropriate education, dedication, and adoption of innovative practices, agriculture can become a profitable and sustainable enterprise.

Contributors: Harjot Singh and P.S. Tanwar, Krishi Vigyan Kendra, Barnala

ECONOMIC TRASFORMATION THROUGH SEED PRODUCTION ENTERPRISE

65

Name	S. Kulwinder Singh
Age	28 years
Address	Vill. Diwala, Teh. Samrala, Ludhiana-141 417 (PB)
Qualification	12th with Diploma in IT
Mobile	7087640752
KVK	Ludhiana

Background/ Situation

S. Kulwinder Singh, a progressive young farmer from Village Diwala, Ludhiana, belongs to an educated farming family owning about 12 hectares of land. With limited non-farm employment opportunities, he turned to agriculture and explored value-oriented enterprises to improve farm income. In 2021, after receiving specialized training in maize (popcorn) and wheat seed production from Krishi Vigya Kendra (KVK) Ludhiana, he successfully established seed production as a commercial venture. Motivated by his success, he played a key role in forming the Samrala Farmer Producer Company Limited, promoting scientific seed production among local farmers.

KVK Intervention

KVK Ludhiana assessed S. Kulwinder Singh's aptitude and landholding then recommended seed production as a technically viable agri-enterprise. He was provided vocational training in 2021 on scientific seed production of maize (popcorn) and wheat, covering varietal selection, isolation distance, crop management, rouging, quality control, processing, storage, and record keeping, which enabled him to establish seed production on a commercial scale. Further, KVK Ludhiana facilitated him in the registration and operationalization of the Samrala Farmer Producer Company Limited (FPO) for promoting seed production among local farmers. KVK also guided in establishing and managing a Custom Hiring Centre (CHC) under CRM, which presently covers about 250 acres, strengthening mechanization and sustainable residue management in the area.

Innovation/ Initiative

With scientific training from KVK Ludhiana, he adopted improved crop planning, isolation, rouging, and stage-wise nutrient and irrigation management, resulting in higher seed purity, better germination, and improved recovery. Shifting from the traditional rice–wheat system to value-added seed production significantly enhanced farm returns. He emphasized scientific grading, drying, and storage to maintain seed quality and reduce losses, while collective seed production and marketing through the Samrala Farmer Producer Company Limited ensured better price realization. Additionally, he established a Custom Hiring Centre under Crop Residue Management, serving about 250 acres and supporting mechanization, sustainability, and cost reduction for local farmers.

Socio-Economic Impact

Before intervention, his income under the traditional rice–wheat system was low with limited value addition. After receiving KVK Ludhiana training in 2021 and shifting to wheat and maize (popcorn) seed production, his income increased steadily due to

premium prices, higher productivity, and assured marketing through the Samrala Farmer Producer Company Limited. Additional earnings from the Crop Residue Management–based Custom Hiring Centre, serving approximately 250 acres, further strengthened income stability, resulting in a multi-fold increase in farm income and improved economic resilience.

A clear and consistent increase in farm income is evident after the transition from conventional farming to scientific seed production, demonstrating the economic viability and scalability of the enterprise. S. Kulwinder Singh's success created a strong demonstration effect in the Samrala region, motivating farmers and rural youth to seek training from KVK Ludhiana in seed production and residue management. His seed fields, FPO initiatives, and CHC operations now serve as model units for exposure visits, supporting capacity building, entrepreneurship development, and wider adoption of scientific seed production practices.

Table 1: Year wise economics of the entrepreneur from conventional farming to certified seed production

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Remarks
2020	22,45,000	10,78,000	11,67,000	Conventional rice-wheat
2021	23,90,000	10,90,000	13,00,000	Introduction of wheat seed production
2022	26,50,000	11,00,000	15,50,000	Expansion of wheat seed production
2023	32,00,000	13,60,000	18,40,000	Wheat + maize (popcorn) seed
2024	37,50,000	14,10,000	23,40,000	Seed production with FPO & CHC support
2025	43,50,000	16,00,000	27,50,000	Certified seed production & assured marketing

Awards and Recognitions

S. Kulwinder Singh's contributions to scientific seed production and sustainable agriculture have been recognized at the institutional and state levels. He was awarded best farmer by the Indian Institute of Maize Research (IIMR), Ludhiana in 2025 for excellence in maize (popcorn) seed production and farmer outreach. Earlier, he received the Crop Residue Management (CRM) Award from the Hon'ble Speaker, Government of Punjab for promoting mechanization and eco-friendly residue management through the Custom Hiring Centre in the Samrala region.

Contributors: Amanpreet Singh and Vipan Kumar Rampal, Krishi Vigyan Kendra, Ludhiana

MODERNIZING FARMING THROUGH ADVANCED FARM MACHINERIES

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Name	**S. Gurdeep Singh**
Age	**31 years**
Address	**Vill. Kot Fatuhi, Teh. Mahilpur, Hoshiarpur-146 105 (PB)**
Qualification	**Graduation**
Mobile	**9872868057**
KVK	**Hoshiarpur**

Background/ Situation

S. Gurdeep Singh, a graduate and progressive farmer from village Kot Fatuhi, Tehsil Mahilpur, District Hoshiarpur, has about 15 years of farming experience. He owns 3.2 hectares of land and cultivates nearly 26 hectares on lease. Over the years, rising labour costs and delays in farm operations, particularly in manual paddy transplantation, posed serious challenges, often resulting in late wheat sowing and reduced yields. With wages for manual transplantation rising to around ₹10,000 per hectare, cultivation became increasingly uneconomical. Motivated to mechanize his farming, he connected with PAU-Krishi Vigyan Kendra (KVK) Hoshiarpur in 2022 and has since actively participated in training programmes and demonstrations. He adopted PAU-recommended farm machinery for paddy, maize, and paddy residue management and promoted custom hiring of machinery to reduce individual investment and help fellow farmers save time, labour, and costs. With ongoing guidance from PAU-KVK Hoshiarpur, he is steadily transitioning to modern, efficient, and sustainable agricultural practices, serving as a model for other farmers in the region.

KVK Intervention

With sustained technical guidance and handholding from Krishi Vigyan Kendra (KVK) Hoshiarpur, S. Gurdeep Singh adopted mechanical transplanting as a result of targeted trainings and on-field demonstrations. Encouraged by the performance of the technology, he invested in a four-wheel self-propelled paddy transplanter and successfully implemented mechanical transplantation during *Kharif* 2023. To ensure effective mechanical transplanting, he also procured a PAU-developed tractor-operated mat-type nursery seeder and emphasized the use of quality mat-type nurseries. With continuous technical backstopping from KVK Hoshiarpur, he further diversified mechanization across multiple farm operations. He adopted both in-situ and ex-situ paddy residue management machineries and initiated custom hiring services for harvesting of wheat, paddy, and maize with combine harvester. Additional interventions included custom hiring of Super Seeder for wheat sowing (₹2,200 per acre), baling of paddy residue from the farmers field and sold the bales to biomass plant @ ₹170/q, fertilizer broadcasting in puddled paddy fields using a high-clearance tractor @ ₹150 for broad casting one bag of fertilizer and modified the *Harambha* thresher into a grain cleaner-cum-grader. These KVK-led interventions substantially reduced labour drudgery, improved operational efficiency, and promoted wider adoption of mechanized and sustainable farming practices in the region.

Innovation/ Initiative

Demonstrating exceptional innovation, he became the first farmer in the district to adopt a tractor-operated mat-type nursery seeder, raising nurseries efficiently and offering

custom hiring services to fellow farmers. This technology reduced costs by 61-65 per cent and labour by over 91 per cent compared to manual sowing. Mechanical transplanting was carried out on 29.2 ha of his own land and 70.8 ha of neighbouring fields, ensuring timely operations despite scarce labour. His innovations also included a tractor-mounted fertilizer broadcaster for uniform application in wet paddy fields, reducing labour and input losses, and a modified Harambha thresher turned grain cleaner-cum-grader for wheat, maize, and paddy, simplifying seed preparation and improving crop productivity.

Socio-Economic Impact

KVK-led mechanization interventions resulted in substantial socio-economic gains for S. Gurdeep Singh and the surrounding farming community. Adoption of a tractor-operated mat-type nursery seeder reduced the nursery preparation cost from about ₹477 per ha under the manual method to ₹169-184 per ha, generating an average saving of nearly ₹290 per ha. With mechanical transplanting carried out on about 100 ha, this alone translated into a direct saving of approximately ₹5.00-5.25 per season. Beyond his own farm, the socio-economic impact expanded through custom hiring services. By providing mechanized nursery sowing, transplanting, residue management, harvesting, wheat sowing with Super Seeder, baling, and fertilizer broadcasting services, he not only generated an additional annual income but also helped fellow farmers reduce their cultivation costs and complete operations on time. Overall, the KVK intervention resulted in an annual income impact of nearly ₹20 lakh annually, along with non-monetary benefits such as timely wheat sowing, improved yields, reduced labour drudgery, and wider adoption of sustainable mechanized farming practices in the region.

Table 1: Year wise annual economics of the entrepreneur

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2015	52,00,000	38,50,000	13,50,000	CHC, Own farming
2016	53,30,000	39,50,000	13,80,000	CHC, Own farming
2017	54,00,000	40,00,000	14,00,000	CHC, Own farming
2018	56,50,000	41,00,000	15,50,000	CHC, Own farming
2019	58,00,000	42,00,000	16,00,000	CHC, Own farming
2020	60,50,000	44,00,000	16,50,000	CHC, Own farming
2021	66,35,000	49,50,000	16,85,000	CHC, Own farming
2022	67,50,000	50,00,000	17,50,000	CHC, Own farming
2023	69,75,000	50,25,000	19,50,000	CHC, Own farming, Mechanical Transplantation
2024	70,00,000	50,00,000	20,00,000	CHC, Own farming, Mechanical Transplantation

Awards and Recognitions

The exemplary work of KVK-associated farmer S. Gurdeep Singh of village Kot Fatuhi has received notable recognition. He received the CRI Pumps Award for Improved Farm Mechanization at PAU Kisan Mela on 21st March 2025 and was earlier honoured by the Deputy Commissioner, Hoshiarpur and KVK, Hoshiarpur for effective paddy residue management and technology adoption during 2023.

Contributors: Ajaib Singh and Maninder Singh Bons, Krishi Vigyan Kendra, Hoshiarpur

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ADDING AGRO-ECO-TOURISM TO FOOD PROCESSING BUSINESS FOR STABILITY AND INCREMENT IN FARM INCOME

Name	Mr. Ramkrishna Dabral
Age	45 years
Address	Vill. Chopadiyal, Teh. Chamba, Tehri Garhwal-249 145 (UK)
Qualification	12th
Mobile	9456342574
KVK	Tehri Gharwal

Background/ Situation

Mr. Ramkrishna Dabral began his entrepreneurial journey in horticulture by cultivating diversified orchards of apple, kiwi, plum, and apricot, along with vegetable production under polyhouses and in open fields in Chopadiyal Village, Chamba Block, Tehri Garhwal. The agro-climatic conditions of the region are highly suitable for temperate fruit cultivation, offering significant scope for income generation. However, despite this potential, farmers in the area faced several challenges such as lack of on-farm processing facilities, limited value addition, high post-harvest losses of perishable produce, and weak market linkages. These constraints resulted in distress sale of fruits during peak harvesting periods, seasonal income fluctuations, and overdependence on traditional agriculture. Consequently, opportunities for year-round income generation and sustainable livelihood diversification remained limited for farming households in the region.

KVK Intervention

KVK provided hands-on training on food processing technologies and value addition of temperate fruits, along with capacity building in product packaging, branding, and market linkage development. Mr. Ramkrishna also received training on agro-ecotourism, including homestay management and rural hospitality standards. In addition, technical guidance was provided on FSSAI licensing, food safety regulations, and quality control measures, while linkages with relevant government schemes were facilitated to support financial assistance and infrastructure development.

Innovation/ Initiative

Mr. Ramkrishna established a food processing unit, Hill's Agro-Products, in 2003 to produce value-added products from locally available temperate fruits. He developed a diverse product range including squash, syrups, jams, pickles, chutneys, and candies prepared from malta, rhododendron, apricot, mixed vegetables, and other hill crops. In 2017, he further innovated by launching Green Hills Homestay, integrating agro-ecotourism with sustainable farming practices. He also obtained the prestigious BHOG license from the Government of India for preparing prasad for Surkunda Temple using locally sourced millet crops. These initiatives collectively generated employment for about 20–25 local farmers and farm women through processing and homestay operations.

Socio-Economic Impact

The food processing unit, operational since 2003, has shown consistent growth in production and market reach, while the establishment of Green Hills Homestay in 2017 ensured year-round income and reduced dependence on seasonal agriculture. The integrated model of horticulture, food processing, and agro-ecotourism generated direct employment for about 20–25 local farmers and farm women, with women playing a major role in processing activities. Value addition of perishable temperate fruits minimized post-harvest losses and created strong market linkages for local growers, ensuring better price realization. The enterprise recorded an increase in expenditure from ₹8.00 lakh in 2021 to ₹12.15 lakh in 2024, while gross income rose from ₹20.10 lakh to ₹30.10 lakh during the same period. Net income improved from ₹12.09 lakh in 2021 to ₹17.95 lakh by 2023–2024, indicating stable and sustained profitability (Table 1).

Table 1: Financial progress of food processing and agro-ecotourism enterprise (2021–2024)

Year	Component	Investment (₹)	Gross Income (₹)	Net Income (₹)
2021	Food Processing	3,12,500	10,25,800	7,13,300
	Agro-Ecotourism	4,87,600	9,84,200	4,96,600
	Total	**8,00,100**	**20,10,000**	**12,09,900**
2022	Food Processing	5,08,400	13,42,700	8,34,300
	Agro-Ecotourism	4,96,800	12,18,500	7,21,700
	Total	**10,05,200**	**25,61,200**	**15,56,000**
2023	Food Processing	6,15,300	15,38,600	9,23,300
	Agro-Ecotourism	3,92,700	12,96,400	9,03,700
	Total	**10,08,000**	**28,35,000**	**18,27,000**
2024	Food Processing	7,18,900	16,24,500	9,05,600
	Agro-Ecotourism	4,96,300	13,85,700	8,89,400
	Total	**12,15,200**	**30,10,200**	**17,95,000**

Awards and Recognitions

- Appreciation by the Hon'ble Governor of Uttarakhand, Lieutenant General Gurmit Singh (Retd.), during the 14th Brainstorming Session on Agro-ecotourism in India: Opportunities, Challenges and the Way Forward, organized by the Indian Agricultural Universities Association on 27–28 October 2025
- District-level appreciation by the Hon'ble District Magistrate, Tehri Garhwal, during the "Malta Festival" on 29.12.2025 for the innovative agro-ecotourism model in the hill region
- Appreciation by KVK, Tehri Garhwal, during the Kisan Mela
- Acknowledgement for contribution to the local economy and women's empowerment through food processing activities

Contributors: Kirti Kumari and Aalok Yewale, Krishi Vigyan Kendra, Tehri Gharwal

UPSCALING INTEGRATED DAIRY AND VERMICOMPOSTING UNITS TO REALISE ECONOMIC GOALS

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Name	Mr. Shahnawaz Ahmad
Age	37 years
Address	Vill. Nagam, Block D.H. Pora, Kulgam-193 303 (J&K)
Qualification	Graduate
Mobile	6005173383
KVK	Kulgam

Background/ Situation

Mr. Shahnawaz Ahmad is an educated rural youth from D.H. Pora block of district Kulgam, Jammu and Kashmir. In 2016, he initiated dairy farming with five cows at his village Nagam as a means of self-employment and income generation. Although the dairy enterprise provided a stable livelihood, he soon encountered challenges in managing the increasing quantity of cow dung generated at the unit. Only a small portion of the manure could be sold locally at nominal prices, while the remaining accumulated on the farm, leading to management difficulties and environmental concerns. The absence of a scientific and profitable utilization mechanism for cow dung highlighted the need for value addition and diversification to enhance overall farm sustainability and income.

KVK Intervention

Recognizing the challenge faced by Mr. Shahnawaz Ahmad in the disposal and profitable utilization of cow dung, he approached Krishi Vigyan Kendra (KVK) Kulgam for technical guidance. Considering his interest in vermicomposting, availability of raw material, and experience in public dealing, scientists of KVK Kulgam advised him to adopt vermicomposting as a complementary enterprise and undergo specialized training in commercial vermicomposting technology. He initially started vermicomposting on a small scale in 2020; however, due to limited technical knowledge and absence of scientific practices, the activity did not yield any significant income during the initial phase. To strengthen his skills, he was subsequently enrolled in a one-week Skill-Based Training Programme on "Commercial Vermicomposting" conducted from 23.08.2021 to 29.08.2021 under STRY, a component of the Sub-Mission on Agricultural Extension (SMAE), by KVK Kulgam and ATMA SKUAST Kashmir, in collaboration with SAMETI, SKUAST Kashmir and the National Institute of Agricultural Extension Management (MANAGE), Hyderabad.

Innovation/ Initiative

Motivated by the skill-based training and continuous technical guidance of scientists from KVK Kulgam, Mr. Shahnawaz Ahmad established a commercial vermicomposting unit by effectively utilizing cow dung generated from his dairy farm. This initiative helped him overcome the problem of waste accumulation while converting an environmental liability into a profitable enterprise. He adopted scientific practices for vermicompost production, including proper collection and pre-treatment of raw materials, preparation of vermi-beds, maintenance of optimum moisture and temperature, and regular monitoring to ensure efficient decomposition. With the support of KVK scientists, he developed strong market linkages with high-density apple orchardists, nursery growers, and progressive farmers, ensuring consistent demand, premium pricing, and long-term sustainability of the vermicomposting enterprise.

Socio-Economic Impact

The skill-based training and continuous technical support provided by KVK enabled Mr. Shahnawaz Ahmad to transform dairy farming into a diversified and profitable enterprise through the integration of vermicomposting. Prior to the intervention, his annual income was less than ₹2.00 lakh, and disposal of cow dung remained a major challenge, leading to environmental and management issues. With scientific guidance, he initially adopted vermicomposting on a pilot basis in 2020, which primarily helped in cost recovery and capacity building. Gradual expansion of vermicompost beds, efficient utilization of dairy waste, and improved production practices led to steady growth in returns over the years. Simultaneously, adoption of scientific dairy management practices, herd expansion, and better market linkages significantly improved milk productivity and income from dairy farming. By 2024, Mr. Shahnawaz expanded his dairy unit to 11 animals and vermicomposting to 10 beds, achieving a combined gross income of ₹21.20 lakh and a net income of ₹12.40 lakh annually from the same resources. The integrated approach ensured year-round income generation, enhanced entrepreneurial skills and confidence, improved quality of life, and established him as a successful rural entrepreneur and role model for other farmers in the region.

Table 1: Year wise economics of the entrepreneur

Year	Component	No. of Cows/ No. of Beds	Production	Expenditure (₹)	Gross Income (₹)	Net Income (₹)
2020	Dairy Unit	3	12,000 L	2,40,000	3,60,000	1,20,000
	Vermicomposting	2	6 t	60,000	60,000	0
	Total	**-**	**-**	**3,00,000**	**4,20,000**	**1,20,000**
2021	Dairy Unit	5	20,000 L	3,60,000	8,00,000	4,40,000
	Vermicomposting	4	12 t	80,000	1,20,000	40,000
	Total	**-**	**-**	**4,40,000**	**9,20,000**	**4,80,000**
2022	Dairy Unit	7	28,000 L	4,80,000	11,20,000	6,40,000
	Vermicomposting	6	18 t	1,00,000	1,80,000	80,000
	Total	**-**	**-**	**5,80,000**	**13,00,000**	**7,20,000**
2023	Dairy Unit	9	36,000 L	6,20,000	14,40,000	8,20,000
	Vermicomposting	8	24 t	1,20,000	2,88,000	1,68,000
	Total	**-**	**-**	**7,40,000**	**17,28,000**	**9,88,000**
2024	Dairy Unit	11	44,000 L	7,40,000	17,60,000	10,20,000
	Vermicomposting	10	30 t	1,40,000	3,60,000	2,20,000
	Total	**-**	**-**	**8,80,000**	**21,20,000**	**12,40,000**
Bed size: 4.0 m (length) × 1.0 m (width) × 0.6 m (height) (1t/ cycle; 3 cycles/ yr)						
(Note: t=tonne, L=litre)						

Awards and Recognitions

- Mr. Shahnawaz Ahmad Malik has been recognized as a progressive rural entrepreneur by KVK Kulgam for successfully establishing and scaling up a commercial vermicomposting unit in district Kulgam.
- He has been appreciated during district-level extension programmes, trainings, and farmer–scientist interactions for promoting organic inputs and sustainable agricultural practices.
- His vermicomposting unit has been showcased as a successful model enterprise during exposure visits organized by KVK Kulgam and the Department of Agriculture, inspiring rural youth and farmers to adopt vermicomposting as an income-generating activity.

Contributors: Ab Shakoor Khanday, Manzoor Ahmad Ganai and Shahid A Shergojry, Krishi Vigyan Kendra, Kulgam

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EMPLOYING HONEYBEES FOR SUSTAINABLE APPLE PRODUCTION AND INCOME ENHANCEMENT

Name	**Mr. Ajay Negi**
Age	**41 years**
Address	**Vill. Bari, Teh. Nichar, Kinnaur-172 115 (HP)**
Qualification	**Graduate**
Mobile	**9464927574**
KVK	**Kinnaur**

Background/ Situation

Mr. Ajay Kumar Negi, a tribal graduate farmer from Village Bari in Nichar Tehsil of Kinnaur district, Himachal Pradesh, owns one hectare of land and supports a family of six. After failing to secure government employment, he adopted apple cultivation as his main livelihood due to its high regional potential. While the orchard was initially profitable, productivity and income declined over time because of inadequate knowledge of managed bee pollination, rising cultivation costs, limited scientific orchard management, and financial stress from an outstanding ₹6.0 lakh Kisan Credit Card loan. A turning point came when KVK Kinnaur scientists organized an awareness programme in his village, exposing him to a NABARD-funded project on conservation and promotion of the indigenous honeybee (*Apis cerana*). The project emphasized Apis cerana–based beekeeping and mud hive technology to improve pollination and apple productivity. Recognizing the role of managed bee pollination in enhancing fruit set and yield, he approached KVK Kinnaur, initiating his transition toward sustainable apple production through beekeeping.

KVK Intervention

Considering his keen interest in beekeeping-led apple farming, Mr. Ajay Kumar Negi was enrolled as a beneficiary under a NABARD-funded project in January 2023. He received hands-on training on scientific Apis cerana beekeeping, covering colony handling and seasonal management, swarming control, colony division, disease and pest management, honey extraction and storage, hive products, queen rearing, and pollination management in apple. Emphasis was placed on the advantages of *Apis cerana* over *Apis mellifera* under hill conditions and on mud hive fabrication for conservation of the indigenous honeybee. To support field-level adoption, KVK Kinnaur provided one *Apis cerana* colony, essential beekeeping tools and equipment, and assistance for fabricating a mud hive. These focused technical and input interventions enabled him to successfully integrate beekeeping with apple cultivation, promoting a sustainable apple production system.

Innovation/ Initiative

Empowered by scientific knowledge and confidence gained through KVK-led trainings and method demonstrations, Ajay Kumar Negi adopted an innovative, integrated approach to strengthen his apple-based enterprise. He introduced managed bee pollination using *Apis cerana* in apple orchards along with scientific honeybee colony management, resulting in enhanced fruit set and productivity. Through systematic colony division and improved management practices, he successfully multiplied five additional Apis cerana colonies from a single parent stock and harvested 72 kg of quality honey, which he marketed at ₹900 per kg, adding a new income stream. Demonstrating entrepreneurial foresight, he progressively scaled up his beekeeping enterprise from 1 colony in 2023 to 25 colonies by 2025. Further, in an innovative

business-oriented model, he initiated rental of Apis cerana colonies for pollination to nearby farmers in 2024 at a rate of ₹2,000 per colony, thereby creating an additional and sustainable income stream.

Socio-Economic Impact

From the baseline year 2023 to 2025, the beekeeping-led apple farming system showed a clear shift from conventional cultivation to a profitable and scalable enterprise. In 2023, before intervention, income was mainly from apple production without managed pollination, yielding a gross income of ₹6.90 lakh, expenditure of ₹1.96 lakh, and a net income of ₹4.94 lakh (Table 1). In 2024, the adoption of managed pollination using *Apis cerana* improved apple yield and fruit quality, along with added income from honey production and an innovative pollination service through colony rental to nearby orchards. Despite a moderate rise in expenditure to ₹2.20 lakh, gross income increased to ₹9.15 lakh, resulting in a net income of ₹6.95 lakh. By 2025, expansion of *Apis cerana* colonies led to a fully integrated beekeeping–apple enterprise with diversified income from enhanced apple production, honey, pollination services, and sale of bee colonies. Although expenditure rose to ₹2.85 lakh, gross income increased to ₹12.97 lakh, generating a net income of ₹10.12 lakh, demonstrating the sustainability, profitability, and scalability of the integrated model. The journey of Mr. Ajay Kumar Negi has become a strong source of inspiration for youth and farmers from neighboring villages, who are now increasingly approaching KVK Kinnaur for skill-oriented training in beekeeping. Owing to his demonstrated success, his farm has been developed as a model demonstration and exposure site, thereby contributing to the promotion of beekeeping-led apple entrepreneurship in the region.

Table 1: Enterprise-wise income generation and economic impact of farm interventions

Year	Component	Area (ha)/ Beehives (No.)	Production (q)	Gross Income (₹)	Expenditure (₹)	Net Income (₹)
2023	Apple	01	115	6,90,000	1,95,640	4,94,360
	Bee Keeping	-	-	-	-	-
	Total			**6,90,000**	**1,95,640**	**4,94,360**
2024	Apple	01	135	8,10,000	2,05,640	6,04,360
	Bee Keeping (honey+ pollination)	10	0.72 Honey	1,04,800	14,360	90,440
	Total			**9,14,800**	**2,20,000**	**6,94,800**
2025	Apple	01	152	9,12,000	2,12,500	6,99,500
	Bee Keeping (honey + pollination+ colonies' sale)	25	2.50 Honey	3,84,500	72,500	3,12,000
	Total			**12,96,500**	**2,85,000**	**10,11,500**

Awards and Recognitions

- CEO of the FPO namely Bari Farmer producer and marketing Co-operative society.
- Field coordinator in TDF project of NABARD.

Contributors: Budhi Ram and Pramod Kumar, Krishi Vigyan Kendra, Kinnaur; Sarang Monga, ICAR-ATARI, Ludhiana

SOCIO-ECONOMIC EMPOWERMENT OF TRIBAL WOMEN THROUGH DIVERSIFIED ECONOMIC ACTIVITIES

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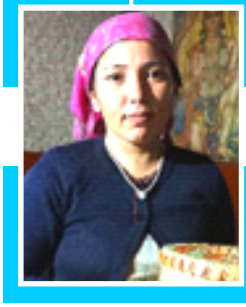

Name	Mrs. Anita Kumari
Age	35 years
Address	Vill. Challing, Teh. Udaipur, Lahaul & Spiti-175 142 (HP)
Qualification	Post-Graduate in Arts
Mobile	9459123447
KVK	Lahaul & Spiti-I

Background/ Situation

Lahaul & Spiti, a cold desert region with high altitude, harsh winters, scanty rainfall, and a short growing season, limits agricultural activities to hardy crops and subsistence livelihoods, with tribal women mainly engaged in farming, livestock rearing, and wage labour. Despite rich bio-resources like sea buckthorn, wild rose, and medicinal herbs, these were largely underutilized or sold raw at low returns. Recognizing this potential, Mrs. Anita, a progressive tribal woman farmer and Panchayat Pradhan, mobilized local women under SHG Leader Ms. Rigzin Chodden to establish the women-led initiative "Kangla Berries Khandoma," focusing on value addition, collective marketing of bio-resources, and cultivation of off-season vegetables and medicinal crops, thereby enhancing livelihoods and socio-economic resilience of tribal women in Lahaul Valley.

KVK Intervention

Krishi Vigyan Kendra (KVK), Lahaul & Spiti-I, Kukumseri, with support from the district administration, Forest Department, UNDP under the Kangla Basket Initiative, and convergence with ODOP, provided scientific and technical support to Mrs. Anita Kumari to strengthen women-led value addition enterprises. The interventions addressed gaps in awareness of high-value crops, processing, branding, packaging, market access, and entrepreneurial skills through capacity building on exotic vegetables, medicinal and aromatic plants, sea buckthorn processing, packaging and labelling guidance, as well as exposure visits and participation in exhibitions, promoting collective production and marketing by tribal women SHGs.

Innovation/ Initiative

The "Kangla Basket" initiative is a pioneering women-led enterprise that transforms traditional knowledge and locally available bio-resources into market-oriented, value-added products, aligning with the "Vocal for Local" vision. It integrates off-season vegetables, exotic crops, medicinal plants, and wild sea buckthorn and rose by-products into health foods such as herbal teas, powders, pulp, jams, and juice, minimizing waste and enhancing shelf life. The enterprise employs eco-friendly processing, sustainable harvesting,

and indigenous skills, conserving fragile hill ecosystems, while also reviving traditional handicrafts like Himachali Poole, baskets, mats, and grass-based flower vases, promoting cultural identity. By branding and marketing these products as authentic tribal offerings, it creates income and employment for rural women, encourages local production and consumption, and fosters entrepreneurial leadership, demonstrating how innovation, collective action, and sustainable practices can transform traditional livelihoods into resilient, women-led rural enterprises.

Socio-Economic Impact

The women-led enterprise "Kangla Berries Khandoma" has significantly enhanced the socio-economic status of tribal women in Lahaul Valley by integrating high-value crop cultivation, value addition, and traditional handicrafts. This approach has increased household incomes, ensured better price realization, created year-round livelihood opportunities, especially during long winters and strengthened local value chains by reducing dependence on middlemen (Table 1). Socially, it has empowered women through improved entrepreneurial skills, confidence, and participation in household and community decision-making, while reviving indigenous knowledge and crafts to reinforce cultural identity. By promoting sustainable use of local resources, generating local employment, and reducing seasonal migration, the initiative has improved socio-economic resilience and serves as a replicable model of women-led, sustainable rural entrepreneurship in high-altitude regions.

Table 1: Year-wise economic performance of women-led high-value crop and handicraft enterprise

Year	Gross Returns (₹)	Expenditure (₹)	Net Returns (₹)	Enterprise/ Farming Practice Adopted
2020-21	4,50,785	1,38,567	3,12,218	Conventional subsistence farming: low-value crops (potato, barley, peas), minimal diversification, limited value addition
2021-22	5,42,910	1,55,433	3,87,477	Transition to off-season vegetables: cauliflower, peas, exotic lettuce; initial Sea buckthorn collection; minor handicrafts production
2022-23	6,35,725	1,68,540	4,67,185	Commercial vegetable farming intensified, Kuth crop gave production, Sea buckthorn pulp, dried leaves, powders; handicrafts (woollen items, Himachali Poole) introduced to exhibitions for marketing
2023-24	7,42,890	1,82,472	5,60,418	High value vegetable cultivation, expansion of Sea buckthorn processing and wider handicraft production
2024-25	8,65,327	2,01,330	6,63,997	Optimized cropping system with off-season vegetables, high-value crops, Sea buckthorn jams/juice and handicrafts; participation in state-level exhibitions
2025-26	10,00,684	2,43,067	7,57,617	Full-scale integrated enterprise: off-season vegetables, exotic crops, medicinal Kuth, Sea buckthorn products, handicrafts, introduction of traditional crafts; national-level market exposure; strong brand recognition under Kangla; net income near ₹7.6 lakh

Contributors: Radhika Negi and Subhash Kumar, Krishi Vigyan Kendra, Lahual and Spiti-1; Kriti Gupta, ICAR-ATARI, Ludhiana

EMPLOYING NATURAL FARMING TO ENHANCE FARM PROFITABILITY

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Name	Mr. Jatinder Singh
Age	41 years
Address	Vill. Bhabber, Teh. Reasi-182 311 (J&K)
Qualification	10th
Mobile	8899625752
KVK	Reasi

Background/ Situation

Mr. Jatinder Singh, a 41-year-old retired army man from Bhabber village, Reasi district of Jammu & Kashmir, transformed his 2.5 acre into a model natural farming enterprise. Belonging to a farming family, he shifted from chemical-based farming due to high input costs and declining soil health, aiming to produce chemical-free food and increase income. After retiring in 2018, he practiced conventional farming with low returns until he adopted natural farming in 2020. His efforts were strengthened in 2021 through formal training and continuous technical guidance from KVK Reasi under the "Upscaling of Natural Farming through KVKs" project. With KVK support, he diversified into an integrated system of horticulture, vegetables, spices, and livestock, overcoming initial challenges and emerging as a successful natural farmer.

KVK Intervention

Krishi Vigyan Kendra (KVK) Reasi scientists identified Mr. Jatinder Singh as an ideal farmers for an entrepreneurship development under natural farming. This was due to his several factors such as his education and interest, which enabled him to quickly understand complex technical details related to natural farming; and his strong motivation to reduce dependence on chemical inputs. Additionally, his existing entrepreneurial mindset for value addition and direct marketing made him particularly suitable for the venture. KVK Reasi strengthened his capacity by providing follow up training under the Out-scaling of Natural Farming through KVKs programme and conducting Front Line Demonstrations at his farm, which enhanced his practical skills and established his role as a model farmer for the area. He was also taken exposure visit at progressive farmers' fields and also at SKUAST-J. These inputs provided him a solid foundation to manage his natural farming fields systematically. His story of strawberry cultivation grown by using the natural farming formulations was covered by DD News.

Innovation/ Initiative

Mr. Jatinder Singh has strengthened his natural farming journey through systematic training, skill development, and community-oriented initiatives. In 2021, he attended a specialized training programme on natural farming conducted by KVK Reasi, which provided him with practical knowledge of using local and low-cost resources for sustainable crop production. During this training and subsequent mentoring, he learnt the preparation and application of important bio-inputs such as Beejamrit, Jeevamrit, Neem Astra, Agni Astra, Ghanjeevamrit etc. which helped him to replace costly chemical fertilizers and pesticides. He also developed hands-on expertise in intercropping, mulching, integrating dairy farming into the farming system, and recycling waste crop material for soil enrichment. These practices enhanced the productivity,

resilience, and sustainability of his small landholding while ensuring healthier produce. With the support of KVK Reasi, Mr. Jatinder Singh also gained valuable exposure through visits at SKUAST-J, KVK Reasi and natural farming farmers' fields and had interactive meetings with practicing natural farmers in Reasi district and outside of Reasi district, which broadened his perspective and inspired innovations on his own farm. Taking his efforts beyond his farm, Mr. Jatinder Singh established his own on-farm resource centre to prepare and supply Jeevamrit, Beejamrit, Agni Astra and Neem Astra to nearby farmers. This initiative not only supported fellow farmers in adopting natural farming but also created a localized ecosystem of self-reliance and knowledge sharing. He has also started commercial strawberry cultivation by following natural farming practices. He has also established horti-poultry model at his farm which add his farm income.

Socio-Economic Impact

Mr. Jatinder Singh has made significant contributions to promote natural farming in the area. With the support of KVK Reasi, he has also taken on the role of a master trainer, further strengthening his outreach and farmer-to-farmer extension. His farm recorded a marked improvement in soil health, demonstrating the effectiveness of bio-inputs and sustainable practices. Before adoption of natural farming, he was able to generate only ₹3.28 lakh profit from his farm but with the adoption of natural farming presently he is generating about ₹6.93. More than 270 farmers have visited his farm, and 21 have already adopted natural farming under his guidance. Beyond his field, he is regularly sharing his practical insights and encouraging other farmers of the area. As a mentor and trainer, he actively supports knowledge dissemination, consumer awareness and community adoption, making him a regional leader in natural farming. He is motivating rural youths to adopt natural farming to increase quality of farm produce. .

Table 1: Year wise economics of the entrepreneur

Enterprise	Year	Operational Expenses (₹)	Gross income (₹)	Net Profit (₹)
Conventional agriculture	2021-22	81,200	4,09,300	3,28,100
Natural Farming	2022-23	35,200	5,83,600	5,48,400
Natural Farming	2023-24	37,400	6,09,100	5,71,700
Natural Farming	2024-25	41,100	6,95,000	6,53,900

Awards and Recognitions

He got appreciation and awarded by former Director of Extension, Prof. S. K. Gupta, Hon'ble Ex-VC of SKUAST-J, Prof. JP Sharma and Hon'ble Vice Chancellor of SKUAST-J, Prof. B. N. Tripathi during the Kisan Mela held at SKUAST-J and also during their visits at KVK, Reasi for his efforts on natural farming.

Contributors: Banarsi Lal, Sanjay Koushal and Mandeep Singh Azad, Krishi Vigyan Kendra, Reasi

NATURAL FARMING ENSURED SAFE FOOD AND STABLE INCOME

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Name	Mr. Amarjeet Singh
Age	40 years
Address	Vill. Dobri Salwala, Teh. Paonta Sahib, Sirmour-173 025 (HP)
Qualification	Diploma in Web Application
Mobile	9816681388
KVK	Sirmour

Background/ Situation

Mr. Amarjeet Singh of village Dobri Salwala in Paonta Sahib block of district Sirmour earlier practiced conventional mixed farming using chemical fertilizers and pesticides. Over time, he realized that high input costs were reducing farm profitability and adversely affecting soil health. During an awareness programme organized by Krishi Vigyan Kendra (KVK), Sirmour, he was introduced to natural farming and subsequently underwent a five-day training programme at KVK in 2020. Despite initial resistance from his family, he initiated natural farming on a small area with regular technical guidance from KVK. Encouraged by the initial results, he gradually expanded the practice and is presently cultivating about 1.5 acre under natural farming.

KVK Intervention

Krishi Vigyan Kendra (KVK), Sirmour played a pivotal role in promoting natural farming by providing regular training programmes, on-farm demonstrations, and continuous technical backstopping to Mr. Amarjeet Singh. He was guided in the preparation and use of natural farming bio-inputs and in the adoption of practices such as mulching, intercropping, WAPASA, and integration of livestock for sustainable input supply. KVK also facilitated value addition of farm produce and developed marketing linkages to enable him to sell his produce to health-conscious consumers. In addition, through farmer-to-farmer extension, participatory learning, and convergence with line departments, KVK promoted the up-scaling of natural farming practices in the surrounding villages.

Innovation/ Initiative

With support from Krishi Vigyan Kendra (KVK), Sirmour, ATMA and Department of Agriculture, Mr. Amarjeet Singh diversified his 1.5-acre farm under natural farming by integrating fruits, vegetables, spices, pulses, and cereals. A key innovation of his enterprise is complete input self-reliance, as he prepares natural farming inputs at home through his “Sansadhan Bhandar” and supplies them to other farmers for adopting natural farming. Through these initiatives, he has facilitated the adoption of natural farming among about 125 farmers from his own and six neighbouring villages.

Socio-Economic Impact

Transformation from conventional farming practices to sustainable natural farming has shown significant economic impact. In 2020, with conventional farming practices Mr. Amarjeet's net annual income was only ₹2.58 lakh, whereas after adopting agri-horticulture cropping system which includes cash crops (okra, green chilli, ginger, kharif onion, amarathus, cabbage, cauliflower, radish, leafy vegetables, garlic, strawberry, citrus, mango etc.) and conversion to natural farming model in 2021 his annual income increased to ₹5.05 lakh which consistently rose to ₹5.15 lakh in 2022. His diversified enterprise recorded annual income of ₹5.35 lakh in 2023 & ₹5.59 lakh in 2024 which is almost double, then in 2020.

The enterprise ensured sustainable income from a small landholding and generated year-round employment at the household level. Reduced input costs, improved soil health, and diversified production enhanced overall farm profitability. In addition, his success encouraged other farmers, particularly rural youth, to adopt natural farming. Beyond his farm, he has delivered more than 30 lectures through ATMA and other platforms, contributing to farmer-to-farmer extension, knowledge dissemination, and wider adoption of natural farming practices in the area.

Table 1: Year wise annual economic growth of sustainable natural farming enterprise

Year	Gross Income (₹)	Expenditure (₹)	Net Income (₹)	Comments
2020	3,98,000	1,40,000	2,58,000	Conventional Farming
2021	5,90,000	85,000	5,05,000	Natural Farming (NF)
2022	6,20,000	1,05,000	5,15,000	NF + Sale of NF inputs
2023	6,45,000	1,10,000	5,35,000	--do--
2024	6,68,000	1,09,000	5,59,000	--do--

Awards and Recognitions

Mr. Amarjeet Singh's work has been widely acknowledged. He received an “Appreciation Award” from ATMA, Sirmour in 2023 for his contribution as a natural farming practitioner and “Sansadhan Bhandar” operator, recognizing his role in promoting sustainable agricultural entrepreneurship.

Contributors: Shiwali Dhiman and Pankaj Mital, Krishi Vigyan Kendra, Sirmaur

CONCLUSION

The diverse and inspiring success stories documented across this compilation collectively present a compelling narrative of transformation in Indian agriculture. Spread across Himachal Pradesh, Punjab, Jammu & Kashmir, Uttarakhand, and Ladakh, and encompassing themes ranging from innovations in horticulture to integrated farming systems, livestock and dairy farming, value addition and processing, supplementary agri-enterprises, and miscellaneous innovations, these cases demonstrate that agriculture-when driven by knowledge, innovation, and entrepreneurship-can generate extraordinary economic returns, social empowerment, and ecological sustainability.

At their core, these stories challenge the long-held perception of farming as a low-return, high-risk occupation. Instead, they illustrate that agriculture today offers multiple pathways to prosperity, provided farmers are empowered to move beyond conventional practices and embrace diversification, technology, value chains, and market orientation. The exceptionally high annual net incomes-ranging from modest yet stable earnings to remarkable figures exceeding ₹300 lakh per year-are not isolated anomalies. They are outcomes of deliberate choices, informed risk-taking, and sustained institutional support.

Innovations in Horticulture: Unlocking High-Value Opportunities

The success stories under the theme of Innovations in Horticulture clearly establish horticulture as a cornerstone of income enhancement, especially in hill and temperate regions. The extraordinary case of persimmon and blueberry-based high-value horticulture in Himachal Pradesh, yielding an annual net income of ₹322.79 lakh, stands as a landmark example of how niche crops, when aligned with agro-climatic suitability and premium markets, can revolutionize farm economics. Similarly, diversified temperate horticulture, protected cultivation of cut flowers, high-density apple orchards integrated with nursery production, lavender farming, dragon fruit orchards, and commercial floriculture collectively demonstrate the vast income spectrum horticulture offers.

A recurring lesson from these stories is the importance of crop diversification, scientific management, and market linkage. Farmers who moved away from mono-cropping and adopted high-value fruits, vegetables, flowers, and nurseries not only increased income but also reduced vulnerability to price fluctuations and climatic stress. The integration of natural farming practices further highlights the dual

benefits of cost reduction and environmental sustainability, proving that profitability and ecological responsibility can coexist.

Integrated Farming Systems: Resilience Through Synergy

The Integrated Farming System (IFS) success stories underline the power of synergy among multiple farm enterprises. By combining crops, livestock, vermicomposting, horticulture, and allied activities, farmers have created resilient systems that ensure year-round income and efficient resource recycling. High-performing cases from Jammu & Kashmir and Punjab demonstrate that IFS can yield impressive net incomes while addressing challenges such as small landholdings and labor constraints.

Notably, the stories of reverse migration-where individuals returned from urban or overseas employment to agriculture-reflect a paradigm shift. Integrated farming has made agriculture aspirational again, especially for youth and women entrepreneurs. These narratives emphasize that farming success today depends less on land size and more on system design, enterprise integration, and managerial skills.

Livestock and Dairy Farming: Stability, Scale, and Inclusivity

Livestock-based enterprises emerge as one of the most reliable pillars of rural income stability. Hi-tech dairy farms in Punjab generating net incomes exceeding ₹60 lakh annually exemplify how modernization, clean milk production, and scientific herd management can transform dairying into a robust agribusiness. Poultry, piggery, trout farming, and inland aquaculture further expand the livelihood options, catering to diverse regions and resource bases.

Importantly, several stories highlight social transformation-women entering male-dominated dairy ventures, rural youth adopting aquaculture, and farmers achieving year-round income security. Livestock and dairy farming thus stand out as inclusive enterprises with strong backward and forward linkages, contributing to nutrition, employment, and economic resilience.

Value Addition and Processing: Moving Up the Value Chain

The success stories under Value Addition and Processing reinforce a critical message: the future of profitable agriculture lies beyond the farm gate. Converting sugarcane into jaggery, honey into branded products, horticultural produce into processed and e-marketed goods, and indigenous crops into value-

added offerings has dramatically improved income realization. These enterprises not only reduced post-harvest losses but also insulated farmers from volatile raw produce prices.

Youth-led agro-processing ventures and branding initiatives underscore the importance of entrepreneurship, quality assurance, and consumer trust. These stories collectively demonstrate that even small-scale processing units, when supported by training and market access, can evolve into sustainable rural enterprises.

Supplementary Agri-Enterprises: Diversification for All

Supplementary agri-enterprises such as beekeeping, mushroom cultivation, and creative agri-linked activities have emerged as powerful tools for income diversification, particularly for smallholders and landless families. Mushroom enterprises-ranging from button to oyster mushrooms-have enabled year-round income generation with minimal land requirements. Professional beekeeping has not only augmented farm income but also enhanced crop productivity through pollination.

These success stories highlight accessibility and inclusivity, proving that agricultural prosperity is no longer confined to land ownership. Skill, knowledge, and innovation are the new determinants of success.

Miscellaneous Innovations: Thinking Beyond Convention

The Miscellaneous Innovations theme captures the essence of agricultural creativity. Seed production ventures, advanced farm mechanization, agro-eco-tourism, integrated dairy-vermicomposting units, natural farming, and women-led diversified enterprises reflect the boundless possibilities that emerge when farmers think beyond conventional frameworks. These cases demonstrate that agriculture can intersect with services, tourism, ecology, and social entrepreneurship to create stable and diversified income streams.

Lessons and Way Forward

Across all themes, several common success factors emerged:

1. **Knowledge and Capacity Building:** Continuous training, exposure visits, and technical guidance-often facilitated by Krishi Vigyan Kendras-played a pivotal role.
2. **Entrepreneurial Mindset:** Farmers who treated agriculture as a business, not just a tradition, achieved higher and more sustainable incomes.
3. **Diversification and Integration:** Multiple income streams reduced risk and enhanced resilience.
4. **Market Orientation and Value Chains:** Direct market access, branding, and processing significantly improved profitability.
5. **Inclusivity and Empowerment:** Youth, women, and landless households found viable livelihood pathways.

A Vision for the Future

The collective evidence presented in this compilation sends a clear and hopeful message: Indian agriculture holds immense untapped potential. With the right mix of innovation, institutional support, and farmer entrepreneurship, agriculture can deliver prosperity, dignity, and sustainability. Policymakers, extension professionals, and development institutions can draw valuable insights from these success stories to design scalable, region-specific interventions.

In conclusion, these success stories are not merely accounts of individual achievement; they are blueprints for the future of agriculture. They reaffirm that when farmers innovate, integrate, add value, and connect with markets, agriculture transforms from a subsistence activity into a dynamic engine of economic growth and rural transformation. The journeys documented here inspire confidence that the path to doubling-and even tripling-farmers' income is not aspirational rhetoric but a proven and achievable reality.

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