

ANNUAL PROGRESS REPORT 2025

SUBMITTED TO
ATARI
ZONE VIII, PUNE

SUBMITTED BY



MANJARA CHARITABLE TRUST'S
KRISHI VIGYAN KENDRA
ADDL MIDC, Plot No. P-160, Harangul (B) Post- Gangapur
Barshri Road, LATUR-413531 (MS)



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ICAR-ATARI, Pune
DETAILS OF ANNUAL PROGRESS REPORT OF KVKs DURING 2025
(January 2025 to December 2025)

1. GENERAL INFORMATION ABOUT THE KVK

1.1. Name and address of KVK with phone, fax and e-mail

Address with PIN code	Telephone		E mail	Website address & No. of visitors (hits)
Krishi Vigyan Kendra Latur, Addl. MIDC, Plot No. P-160, Barshi Road, Post- Gangapur, Tq.Dist Latur (MH) 413531	Office	FAX	kvklaturms@gmail.com	www.kvklatur.in 935
	9404957511	-		

1.2. Name and address of host organization with phone, fax and e-mail

Address	Telephone		E mail	Website address
	Office	FAX		
MANJARA CHARITABLE TRUST Addl. MIDC, Plot No. P-160, Barshi Road, Post- Gangapur, Tq.Dist Latur (MH) 413531	9404957511	-	kvklaturms@gmail.com	www.kvklatur.in

1.3. Name of the Senior Scientist and Head with phone & mobile No.

Name	Telephone / Contact		
Dr. Digrase Sachin Swaruprao	Office	Mobile	Email
	-	9423211384 9404957511	sdigrase@gmail.com

1.4. Date and Year of sanction: 20.05.2005

1.5. Staff Position (as on December, 2025)

					If Permanent, please indicate			If Temporary, pl. indicate the consolidated amount paid (Rs./month)
Sl. No.	Sanctioned post	Name of the incumbent	Mobile No.	Discipline	Current Pay Band	Current Pay	Date of joining	
1.	Senior Scientist and Head	Dr. Digrase S.S.	9423211384	Horticulture	(131400-217100)	171400	14.10.2016	-
2.	Subject Matter Specialist	Bedre S.B.	9422469021	Agril.Extension.	(56100-177500)	95500	11.07.2006	-
3.	Subject Matter Specialist	Deshmukh S.B.	9404957510	Entomology	(56100-177500)	95500	11.07.2006	-
4.	Subject Matter Specialist	Smt.Gunjal A.A.	9404957515	Home Science	(56100-177500)	95500	13.10.2006	-
5.	Subject Matter Specialist	Matai P.D.	7899357261	Agronomy	(56100-177500)	69000	03.05.2018	-
6.	Subject Matter Specialist	Dr.Shinde S.P.	9421618790	Agril. Engg.	(56100-177500)	61300	01.10.2022	-
7.	Subject Matter Specialist	Dr. Ulemale P.D.	9921048008	Horticulture	(56100-177500)	61300	01.10.2022	-
8.	Programme Assistant	Dr. Salunke S.B.	9404957517	Veterinary	(35400-112400)	66000	01.10.2006	-
9.	Computer Programmer	Suryawanshi V.M.	9404957520	Computer	(35400-112400)	60400	19.01.2009	-
10.	Farm Manager	Kawale P.S.	7620291904	Farm Manager	(35400-112400)	35400	17.07.2025	-
11.	Assistant	Deshmukh A.J.	9850614733	-	(35400-112400)	66000	11.07.2006	-
12.	Stenographer	Smt.Adgaonkar M.M.	9834020867	-	(25500-81100)	44800	01.04.2006	-
13.	Driver 1	Pitale N.B.	9822964401	-	(21700-69100)	37200	01.04.2006	-
14.	Driver 2	Shaikh W.M.	9657667082	-	(21700-69100)	26800	17.12.2018	-
15.	Supporting staff 1	Jadhav V.H.	9763621672	-	(18000-56900)	32400	01.04.2006	-
16.	Supporting staff 2	Vacant	-	-	-	-	-	-

1.6. Total land with KVK (in ha): 20

S. No.	Item	Area (ha)
1	Under Buildings	2
2.	Under Demonstration Units	2
3.	Under Crops	13.7
4.	Horticulture	2.00
5.	Pond	0.3

1.7. Infrastructural Development:

A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Year	Plinth area (Sq. m)	Expenditure (Rs.)	Starting year	Plinth area (Sq. m)	Status of construction
1.	Administrative Building	ICAR	22.02.2012	550	65,00,000	-	-	-
2.	Farmers Hostel	ICAR	22.02.2012	305	42,70,000	-	-	-
3.	Staff Quarters	ICAR	22.02.2012	400	50,00,000	-	-	-
4.	Fencing	ICAR	31.03.2011	2800 Rgm	7,00,000	-	-	-
5	Rain Water harvesting system	-	-	-	-	-	-	-
6	Threshing floor	-	-	-	-	-	-	-
7	Farm godown	-	-	-	-	-	-	-
8	Soil and water testing lab	-	-	-	-	-	-	-
9	Mini soil testing Kit	-	-	-	-	-	-	-
10	Sell Contour	-	-	-	-	-	-	-
11	Demo unit	ICAR	26.03.2009	80	5,00,000	-	-	-
12	ICT lab	-	-	-	-	-	-	-
13	Solar Panel	-	-	-	-	-	-	-
14	counter seal	-	-	-	-	-	-	-
	Other pl mention	-	-	-	-	-	-	-

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Running	Present status
Jeep (MH-24-AW-3105)	2019-2020	8,00,000	146282	Under working
Motor Cycle (MH-24-Q-1404)	2006-2007	50,714	144441	Condemned
Motor Cycle (MH-24-Q-1405)	2006-2007	50,714	124348	Condemned

C) Equipment & AV aids

Name of the equipment / Implements	Year of purchase	Cost (Rs.)	Present status
Tractor (45 hp)	2006-07	5,09,002.00	Condemned Tractor
Mold Board Plough	2006-07	42,019.00	Needs replacement
Spring Tyne cultivator	2006-07	26,434.00	Needs replacement
Tractor operated Sprayer HTP	2019-20	60,714	Under working
Reaper	2019-20	1,23,214	Under working
Bund former	2019-20	17,857	Under working
Seed cum fertilizer drill (BBF) (03 Nos.)	2019-20	1,80,000	Under working
Sugarcane trash shredder	2019-20	1,78,571	Under working
Reversible two bottom plough	2019-20	35,714	Under working
Mulching Machine	2019-20	35,714	Under working
Sugarcane Set cutter planter	2019-20	1,74,107	Under working
Sugarcane seedling trans planter	2019-20	1,29,464	Under working
Subsoiler	2019-20	35,000	Under working
Minitractor	2019-20	3,75,000	Under working
Minitractor operated cultivator	2019-20	13,392	Under working
Rotary Tiller	2019-20	42,200	Under working
Boom Sprayer	2022-23	1,20,000	Under working
Drone	2022-23	8,00,000	Under working
Poultry mini hatchery unit	2019-20	5,82,400	Under working
Fodder Chaffcutter	2017-18	40,000	Under working
Fruits and vegetable Processing unit	2019-20	15,68,220	Under working
Computer with projector	2006-07	1,21,900.00	Needs replacement
Genset (Generator)	2011-12	2,50,000.00	Under workings
Computer (02 Nos) & Printer, Tab	2016-17	1,20,000.00	Need to replacement

1.8. Details of SAC meeting conducted in the year:

Date	Name and Designation of Participants	Salient Recommendations	Action taken
10.7.2025	Dr. Shakir Ali Syed, Principal Scientist, ATARI Pune	Increase the use of social media for information and technology dissemination. Preparation of book regarding different success stories of the KVK successful farmers Formation of farmers scientist forum and arrange monthly visit at farmers' field. Prepare documentation of outputs from the different activities implemented on the farmer's field. Each Subject Matter Specialists of the KVK should focus on significant achievements Increase number of training programmes for rural youths and extension functionaries	Organized training programme on capacity building for Assistant Agri Officers and Cluster Assistants under POCRA scheme. Farmers scientist forum formed at village Gangapur for Custard Apple plantation
	Dr. Rakesh Ahire, DOE, VNMKV, Parbhani	Conduct demonstrations on technologies recommended by the VNMKV Parbhani. Demonstrate problem-based technology. Prepare impact documentation of NICRA project. Popularization of crop diversification.	Assessment taken on soybean varieties (MAUS-612, MAUS-7215), Frontline Demonstration Conducted on Pigeon pea variety (BDN 2013-41). Assessment taken on problem-based technologies i.e weed management in Soybean. NICRA Project Documentation Prepared through Annual Report, Folders and Video Clips. Frontline Demonstration conducted on Safflower in Rabi Season instead of Chickpea for crop diversification.
	Mr. Shivsamb Ladke, DSAO Latur	Conducting training programmes on processing and value chain.	Conducted vocational training programme on fruit and vegetable dehydration. Conducted women SHG's and individual beneficiary training programme on entrepreneurship development in agro processing under PMFME scheme.
	Dr. Dipak Supekar, ADO, ZP, Latur	Assessment of traditional & newly released crop varieties.	Assessment taken on newly released improved varieties of Soybean (MAUS-612 and MAUS-725) as well Chickpea (Phule Vikrant & Phule Vishwaraj)
	Mr. P.S. Patil DDM, NABARD, Latur	KVK should invite NABARD, Banking & line department officials as the resource person.	-
	Mr. R.G. Athavale, LDM, SBI Latur	Training for SHG's on branding and packing of value-added products.	The branding and packaging component covered under agro processing and value addition training Programmes.
	Dr. Sudhakar Salve, Assistant Commissioner AHDS Latur	Awareness creation on schemes under National Livestock Mission.	-
	Mr. V.N. Pethkar, Senior Technical Assistant Sericulture Dept. Latur	Creation of awareness among new sericulture farmers regarding non spinning problems associated with soil.	Awareness Programmes and farmer trainings were conducted in collaboration with Sericulture Department, Latur. Field visits and diagnostic support were provided to identify soil-related constraints affecting cocoon spinning.

			Technical advisories on soil health management, mulberry nutrition, and improved rearing practices were disseminated. Farmers were guided on soil testing and corrective measures to reduce non-spinning incidence.
Mr. Sayed Hamja Assistant Fishery Development Officer, Latur	Organize jointly training programmes for the farmers with fishery dept.		-
Mr. Jadhav Akash Progressive Farmer, Latur	Creation of WhatsApp group for timely agri advisory on ujifly infestation in sericulture production and conduct training on goat and poultry farming.		A dedicated WhatsApp group of sericulture farmers was created for real-time dissemination of advisories on uzi fly management. Regular updates, control measures, and alerts were shared during critical crop stages. Training Programmes on integrated uzi fly management were organized at village level. Additionally, capacity building Programmes on scientific goat and poultry farming were conducted to promote allied income generation.
Mr. Madhavrao Chavan Progressive Farmer, Latur	Organize training programmes on prevention & management of major pest and disease in pomegranate.		Training Programmes and on-field demonstrations were conducted on integrated pest and disease management (IPDM) in pomegranate. Farmers were trained on identification and management of major pests like fruit borer, thrips, and diseases such as bacterial blight. Need-based plant protection advisories were issued through SMS/WhatsApp groups. Exposure visits and expert interactions were arranged to enhance farmers' practical knowledge.
Mrs. Rohini Shinde Progressive Female Farmer, Latur	Conduct training programmes on processing and value addition in vegetable and fruit crops.		-
Mrs. Anjana Sable Progressive Female Farmer, Latur	Arrange training programmes on improved varieties and small equipment's for interculture operations.		Field day, Group Discussion and Training Programme conducted for promotion of improved varieties of Chickpea (Phule Vishwatraj), Soybean (MAUS-612, MAUS-725), Pigeon pea (BDN 2013-41)



2. DETAILS OF DISTRICT / JURISDICTION AREA OF KVK

2.1. Major farming systems/enterprises (based on the analysis made by the KVK)

S. No	Farming system/enterprise
1	Dry land Single cropping system Soybean, Pigeon pea, Greengram, Blackgram Inter-cropping system Soybean + Pigeon pea (4:2) Double cropping system Sorghum (K) – Bengal gram, Green gram – sorghum (R), Soybean – Bengal gram/Sorghum (R)/Safflower
2	Irrigated Soybean – Sorghum (R)/ Groundnut/ Sugarcane
3	Multiple cropping system Sorghum (K)- wheat – Green gram Soybean – Bengal gram – summer groundnut

2.2. Description of Agro-climatic Zone & major agro ecological situations (based on soil and topography)

S. No.	Agro-climatic Zone (Planning Commission)	Characteristics
1	Assured rainfall zone	The assured rainfall zone comprises part of Ahemedpur, Chakur and Udgir taluka with assured rainfall and light to heavy soil, with hilly track comes under this zones. Annual precipitation varies from 881 to 903 mm
2	Moderate rainfall zone	Some part of Latur, Renapur Ausa, Nilanga, Shirur Antentpal, Deoni, Taluka is under moderate rainfall zone receiving rainfall 700 to 800 mm.

a) Topography

S. No.	Agro ecological situation	Characteristics
1	AES-I (western part of Latur and central part of AUSA)	Low rainfall, light to medium soils with flat area
2	AES-II (Renapur, northern part of Shirur Antanpal and east of Latur)	Low rainfall medium to heavy Soil with flat area
3	AES- III (Nilanga, western part of Udgir, Chakur and Deoni)	Moderate rainfall medium to heavy soil with hilly area
4	AES-IV (Jalkot and western part of Ahmedpur north east of Chakur)	Moderate rainfall light to medium soil with area
5	AES-V (Ahmedpur)	Moderate rainfall, light to medium soils with flat area
6	AES-VI (Western part of Latur, central part of Shirur Antanpal)	Medium to heavy soils with command area

2.3 Soil Types

S. No	Soil type	Characteristics	Area in ha
1	Light	0.75-25 cm depth	145079
2	Medium	25-50 cm depth	60274
3	Black Cotton	Above 50 cm depth	137288

2.4. Area, Production and Productivity of major crops cultivated in the area of jurisdiction of KVK (2025)

S. No	Crop	Area (ha)	Production (000 T)	Productivity (Kg/ha)
Major Field crops				
1	Kharif Jawar	63.87	20	310.45
2	Soybean	4897.53	5398	1102.11
3	Groundnut	2.99	2	595.84
4	Other Oilseeds	3.72	0	0
5	Sugarcane	542.56	0	0
6	Cotton	61.91	30	476.93
7	Pigeon pea	688.89	234	340

8	Green gram	60.76	35	571.28
9	Black gram	40.19	24	602.66
10	Other Pulses	790	1197	1514
	Major Horticultural crops			
1	Mango	2390	-	-
2	Custard Apple	140	-	-
3	Pomegranate	180	-	-
4	Guava	72	-	-
5	Citrus	87	-	-
6	Tomato	1256	-	-
7	Chili	125	-	-

Source: Statistic Department SAD Latur

2.5. Weather data (2025)

Month	Average RF (mm)	Normal RF (mm)	Normal Rainy days (number)	Temperature (0 C)		Relative Humidity (%)	
				Maximum	Minimum	Maximum	Minimum
January 2025	-	0	0	13.18	27.99	88.89	53.39
February 2025	-	0	0	13.51	30.56	72.53	44.50
March 2025	-	0	0	15.19	34.07	68.18	36.14
April 2025	-	13.30	2	21.82	36.57	55.66	28.26
May 2025	-	344.80	9	26.67	35.24	67.68	35.07
June 2025	-	170.00	3	21.34	26.63	71.15	44.11
July 2025	-	158.80	7	21.68	30.51	85.62	42.57
August 2025	-	176.20	8	20.66	29.39	91.71	48.32
September 2025	-	837.00	17	19.52	29.53	81.05	43.25
October 2025	-	19.00	1	19.84	30.49	86.23	49.73
November 2025	-	0	0	20.36	26.70	95.92	40.78
December 2025	-	0	0	11.12	13.66	87.38	67.17
Total	-	1700.10	47				

2.6. Production and productivity of livestock, Poultry, Fisheries etc. in the district

Category	Population (No)	Production	Productivity
Cattle			
<i>Crossbred</i>	8754	23969 MT	7.296 Kg
<i>Indigenous</i>	56423	38745 MT	3.213 Kg
Buffalo	80424	131046 MT	5.96 Kg
Sheep	35901	-	0.655 Kg.
Goats	35693	3466 MT. (Milk)	0.253 kg
Pigs			
<i>Crossbred</i>	-	-	-
<i>Indigenous</i>	-	-	-
Rabbits	-	-	-
Poultry			
Hens (<i>Crossbred</i>)	296900	857.391 Lakh (Eggs)	288.35 Eggs
<i>Desi</i>	60500	71.704 Lakhs (Eggs)	
Fish (Reservoir)	-	-	-

2.7. Details of Operational area / Villages

Taluka / Block	Name of the village	Major crops & enterprises	Major problem identified	Identified Thrust Areas
Agronomy				
Ausa, Renapur	Brogan N, ,Kharosa, ,Killari, Tattapur	Blackgram	• Erratic Rainfall: Delayed onset and uneven distribution of rainfall leading to poor germination and moisture stress. • Pest and Disease Incidence: Heavy infestation of pod borer, whitefly, and diseases like Yellow Mosaic Virus causing severe yield losses. • Use of Local Varieties: Continued cultivation of low-yielding, disease-susceptible local varieties. • Imbalanced Nutrient Management: Inadequate use of biofertilizers and micronutrients affecting crop growth and productivity. • Weed Infestation: Severe weed competition during early crop growth due to lack of timely weed control. • Labour Constraints: Shortage of labour during sowing and harvesting operations. • Limited Awareness: Insufficient knowledge about improved production technologies and plant protection measures.	• Promotion of Improved Varieties: Popularization of high-yielding, YMV-tolerant blackgram varieties suitable for local agro-climatic conditions. • Climate-Resilient Practices: Adoption of moisture conservation practices, timely sowing, and contingent crop planning to manage erratic rainfall. • Integrated Pest and Disease Management: Strengthening IPM practices with emphasis on YMV management, seed treatment, and need-based plant protection. • Balanced Nutrient Management: Promotion of soil test-based fertilizer application, use of biofertilizers (Rhizobium and PSB), and foliar nutrition. • Effective Weed Management: Introduction of pre- and post-emergence herbicides along with mechanical and cultural weed control methods. • Mechanization Support: Encouraging small implements for sowing and harvesting through Custom Hiring Centers to address labour shortages. • Capacity Building & Extension: Regular trainings, frontline demonstrations, and advisories through Krishi Vigyan Kendra for wider adoption of improved technologies.

Latur,Ausa,Renapur	Ankoli,Borgaon N,Kharosa,Pangaon Tattapur	Pigeon pea	• Labour Shortage: Non-availability of labour during peak operations like harvesting and intercultural operations. • Pest and Disease Incidence: Severe attack of pod borer, wilt and sterility mosaic leading to yield loss. • Lack of Awareness: Limited knowledge about improved varieties and scientific crop management practices. • High Input Cost: Increased prices of quality seed, fertilizers and plant protection chemicals. • Weed Infestation: Inadequate weed control affecting crop growth and productivity. • Climatic Constraints: Drought conditions and occasional water logging adversely affecting crop performance.	• Promotion of Mechanization: Encouraging farm mechanization through Custom Hiring Centers and training farmers in efficient labour management. • Improved Varieties: Development and popularization of pest- and disease-resistant pigeonpea varieties. • Capacity Building: Regular training and demonstrations on improved and climate-smart cultivation practices. • Extension Strengthening: Enhancing advisory and frontline demonstrations through Krishi Vigyan Kendra. • Weed Management: Adoption of herbicide-tolerant varieties and promotion of integrated weed management practices, including mulching and cover crops. • Climate Resilience: Promotion of intercropping and agroforestry systems to improve productivity and resilience under drought and aberrant weather conditions.
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Latur, Ausa, Renapur	Bittergaon, Borgaon N, Chikurda, Chincholirao, Kharosa, Killari	Soybean	• Labour Shortage: Acute shortage of labour during peak harvesting period leading to delayed harvest and yield losses. • Limited Technical Knowledge: Inadequate awareness about improved varieties, pest-disease management, and scientific agronomic practices. • Erratic Weather: Irregular rainfall and sudden dry spells adversely affecting crop growth and productivity. • Market Information Gaps: Limited access to timely and reliable market price information for informed decision-making. • Price Volatility: Frequent fluctuations in soybean prices affecting farmers' income stability. • Financial Constraints: Inadequate access to timely credit and crop insurance services. • Post-Harvest Limitations: Lack of proper storage, grading, and processing facilities causing post-harvest losses and distress sales.	• Promotion of Mechanization: Encouraging use of harvesters and other labour-saving implements through Custom Hiring Centers to address labour shortages. • Capacity Building: Regular trainings and field demonstrations on improved varieties, crop management, and plant protection practices. • Climate-Resilient Practices: Adoption of climate-smart agronomy, moisture conservation techniques, and contingency planning for erratic rainfall. • Market Linkages & Information: Strengthening access to real-time market prices, MSP awareness and direct marketing platforms. • Income Stability Measures: Promotion of Farmer Producer Organizations (FPOs) and collective marketing to reduce price volatility. • Financial Inclusion: Improving access to institutional credit, crop insurance, and government support schemes. • Post-Harvest Management: Development of storage, grading, and primary processing facilities to minimize losses and enhance value realization.
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Latur,Ausa	Ankoli, Borgaon	Chickpea	• Moisture Stress: Inadequate and uneven soil moisture due to limited residual moisture and prolonged dry spells during rabi season. • Pest Incidence: Severe infestation of gram pod borer (<i>Helicoverpa armigera</i>) causing significant yield losses. • Disease Occurrence: Incidence of wilt and dry root rot, especially under moisture stress conditions. • Use of Local Varieties: Predominant use of old, low-yielding, and disease-susceptible varieties. • Imbalanced Nutrient Management: Low adoption of biofertilizers and micronutrients, affecting nodulation and crop vigor. • Weed Infestation: Heavy weed competition at early growth stages due to lack of timely weed control. • Labour Constraints: Shortage of labour during harvesting and post-harvest operations.	• Promotion of Improved Varieties: Popularization of high-yielding, drought-tolerant and wilt-resistant chickpea varieties suitable for local conditions. • Moisture Conservation: Adoption of in-situ moisture conservation practices, timely sowing, and efficient use of residual soil moisture. • Integrated Pest Management: Strengthening IPM practices with emphasis on pod borer management through pheromone traps, biocontrol agents, and need-based sprays. • Disease Management: Promotion of seed treatment and resistant varieties to manage wilt and root rot effectively. • Balanced Nutrient Management: Soil test-based fertilizer application, use of Rhizobium and PSB biofertilizers, and micronutrient supplementation. • Effective Weed Control: Adoption of pre-emergence herbicides along with mechanical and cultural weed management practices. • Mechanization Support: Promotion of small harvesting and threshing implements through Custom Hiring Centers to overcome labour shortages.
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Ausa	Borgaon,Kharosa	Safflower	• Moisture Stress: Low and erratic rainfall during rabi season resulting in inadequate soil moisture at critical growth stages. • Pest Incidence: Severe infestation of aphids causing poor plant growth and yield reduction. • Bird Damage: Significant yield losses due to bird feeding at flowering and seed maturity stages. • Use of Local Varieties: Predominant cultivation of low-yielding, spiny and pest-susceptible local varieties. • Nutrient Deficiency: Imbalanced fertilizer use and limited awareness about micronutrient application. • Weed Infestation: Heavy weed competition during early crop growth due to lack of timely weed management. • Labour Constraints: Difficulty in harvesting due to spiny nature of crop and shortage of labour.	• Promotion of Improved Varieties: Popularization of high-yielding, non-spiny and aphid-tolerant varieties suitable for local conditions. • Moisture Conservation Practices: Adoption of in-situ moisture conservation techniques, timely sowing, and proper crop geometry to utilize residual soil moisture. • Integrated Pest Management: Strengthening aphid management through seed treatment, biocontrol agents, and need-based insecticide application. • Balanced Nutrient Management: Promotion of soil test-based fertilizer application and micronutrient supplementation for improved growth and yield. • Effective Weed Management: Adoption of pre-emergence herbicides and cultural practices for timely weed control. • Mechanization Support: Encouraging use of suitable harvesting implements through Custom Hiring Centers to overcome labour constraints. • Crop Diversification & Intercropping: Promotion of safflower-based intercropping systems to enhance income and climate resilience.
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Latur, Ausa	Ankoli,Borgaon,Kharosa	Rabi Sorghum	• Moisture Stress: Low and erratic post-monsoon rainfall leading to inadequate residual soil moisture during critical growth stages. • Terminal Drought: Prolonged dry spells at flowering and grain filling stages resulting in poor grain development. • Use of Local Varieties: Predominant cultivation of traditional, low-yielding and drought-susceptible landraces. • Pest Incidence: Shoot fly attack at early stages and stem borer infestation affecting plant stand and yield. • Nutrient Deficiency: Imbalanced fertilizer application and low use of organic manures reducing soil fertility. • Weed Infestation: Heavy weed competition during early crop growth due to delayed intercultural operations. • Labour Constraints: Shortage of labour for timely intercultural and harvesting operations.	• Promotion of Improved Varieties: Popularization of high-yielding, drought-tolerant and shoot fly-tolerant rabi sorghum varieties suited to local conditions. • Moisture Conservation: Adoption of in-situ moisture conservation practices such as deep summer ploughing, ridges and furrows, and timely sowing to utilize residual soil moisture. • Integrated Pest Management: Strengthening IPM practices for shoot fly and stem borer through seed treatment, timely sowing, and need-based plant protection. • Balanced Nutrient Management: Promotion of soil test-based fertilizer use, application of organic manures, and micronutrient supplementation. • Effective Weed Management: Adoption of timely interculture operations and suitable herbicides for early-stage weed control. • Mechanization & Labour Saving: Promotion of improved interculture and harvesting implements through Custom Hiring Centers to address labour shortages. • Capacity Building & Extension: Regular trainings, field demonstrations, and advisories through Krishi Vigyan Kendra for adoption of improved rabi sorghum production technologies.
Horticulture				
Ausa	Lodga Kharosa	Onion	• Low yield use of local varieties • Unknwn about right maturity indices • Poor storage life • Pest disease occurrence specially thrips & blight	• Use of old/ local varieties • Imbalance use of fertilizers • Lack of knowledge about proper curing/ pre-cooling • Unavailability of storage structure

Latur	Babhalgaon Harangul Murud	Mango	• Unavailability of quality planting materials • Impact of climate change on fruiting • Unaware about use of fungicides insecticides and PGR • Fruit drops due to physiological changes in plants.	• Unavailability of quality planting materials • Imbalanced application of fertilizers • Lack of knowledge of maturity indices • Unaware about management practices to control flower and fruit drop
Latur	Gangapur Harangul	Custard apple	• Time & stage of training pruning • Imbalance use of fertilizers • Less aware about bahar treatment • Heavy infestation of fruit fly in early bahar fruits specifically on NMK cultivar	• Lack of knowledge of training pruning • Imbalanced application of fertilizers
Chakur	Janwal wadwal	Tomato	• Low yield and quality of fruit • Deficiencies of micro nutrients • Fruit quality affected by physiological disorders • Fruit and flower drop due to extreme climatic conditions • Improper use of fertilizers leads to low quality fruit	• Imbalanced application of fertilizers specially micronutrients • Use of old released varieties • More infestation of pest and disease
Latur	Parkharsangavi Harangul	Marigold	• Low yield and quality of flower • Poor vase life of flower	• Use of old released varieties • Imbalanced application of fertilizers
Plant Protection				
Latur	BhoiSamudarga, Harangul	Soybean	• High incidence of girdle beetle, stem fly and defoliators; charcoal rot & sudden wilt during dry spells; poor germination due to seed-borne pathogens	• Promotion of IPM module for soybean (seed treatment with bio-agents + insecticidal seed dresser), pheromone traps for girdle beetle, timely sprays of need-based insecticides, demonstration of IDM practices and moisture conservation
Latur	Killari, Chikurda	Pigeonpea	• Pod borer (Helicoverpa) infestation, flower drop due to sucking pests (thrips, aphids), sterility mosaic disease, wilt complex	• Area-wide IPM with pheromone traps, bird perches, biopesticides (HaNPV, Bt), wilt-resistant varieties, seed treatment with Trichoderma + PSB, promotion of pollinator-friendly plant protection

Latur	Lodga, Gharni	Chickpea	Dry root rot, wilt, collar rot; pod borer and aphids causing yield loss; poor nodulation due to seed-borne infection	IDM package (Trichoderma + Pseudomonas seed treatment), need-based insecticide application against pod borer, promotion of trap crops, soil health-based disease management
Latur	Chakur, Wadwal Nagnath	Sugarcane	White grub damage at early stage, pyrilla and early shoot borer incidence; red rot and smut in ratoon crops	Bio-control of white grub (entomopathogenic fungi), installation of pheromone traps, trash mulching, release of parasitoids for pyrilla, promotion of sett treatment and resistant varieties
Latur	Aurad Shahajani, Kasar Balkunda	Sorghum (Rabi)	Shoot fly infestation at seedling stage, aphids and armyworm at later stage; charcoal rot under moisture stress	Seed treatment with imidacloprid/biological alternatives, timely sowing to escape shoot fly, need-based insecticide spray, promotion of drought-tolerant varieties and balanced fertilization
Latur	Udgirwadi, Wanjarkheda	Custard apple	High fruit fly infestation, anthracnose disease, poor fruit set due to inadequate pollination; mealy bug on new flush	Demonstration of Nanogel technology / bait traps for fruit fly, sanitation and fallen fruit destruction, prophylactic fungicide schedule, promotion of pollinator conservation and orchard sanitation
Latur	Deoni, Gategaon	Guava	Fruit fly infestation, wilt and collar rot, thrips and mites causing scarring on fruits; heavy yield loss in rainy season crop	IPM for fruit fly (pheromone traps + protein bait spray), canopy management, soil drenching against wilt, promotion of bio-fungicides, orchard-level IDM calendar
Agricultural Engineering				
Latur AUSA	Ankoli, Borgaon N, Killari	Farm Machinery and implements	- Low level of mechanization - Use of improved implements - On farm conservation practices - Unavailability of labour for farm work	- Use of improved sowing/planting equipment's Precision Rotary Dribbler and - BBF technology - Improved farm equipment's
		Natural Resource Management	- Depletion of Water level and heavy exploitation of ground water - Lack of Soil and Water conservation & Ground water recharge and unavailability of water to crop	Implementation of open well and borewell recharge to enhance the ground water level.

		Spraying Equipment’s	- Improved farm equipment’s - Higher cost of Spraying operation	Use of drone technology and Boom sprayer for spraying crops.
		Micro Irrigation	- Poor irrigation - Management Poor water holding Capacity	Use of drip and sprinkler irrigation during dry spell
		Sugarcane	Low yield, Less infiltration rate, Less adoption of micro irrigation system its care & maintenance	Use of Mole Plough for enhancing crop yield under waterlogged areas.
Home Science				
Latur Ausa	Bhoisamudraga, Gangapur, Borgaon	- Value addition - Drudgery reducing implement - Nutrition - Entrepreneurship	- Post harvest losses. - Drudgery prone activities at farm & home - Nutritional inadequacy - Unknown about the entrepreneur knowledge & skills	Post harvest management for loss reduction
				Drudgery reducing technologies for loss reduction
				Family nutrition & livelihood security
				Entrepreneurship development through Processing and value addition in farm produce
Veterinary				
Ausa	Borgaon N	Dairy	Low milk yield	- Nutrient management - Disease Management - Reproductive Management - Nutrient management - Fodder Management
		Goat	- High mortality - Low weight gain	- Nutrient Management - Disease management
Latur	Shirala , Khandapur Gangapur	Poultry	- Low egg production - Low weigh gain - High mortality	- Breed Improvement - Feed management - Disease Management

2.8. Priority thrust areas:

Crop/Enterprise	Thrust area
Soybean	• Varietal Improvement: Promotion of high-yielding, short-duration, and climate-resilient soybean varieties tolerant to moisture stress and major diseases. • Seed Production & Quality Seed Supply: Implementation of seed production programmes at farmer level to ensure timely availability of certified quality seed. • Seed Treatment Awareness: Popularization of seed treatment with fungicides, insecticides, and biofertilizers (Rhizobium, PSB) for better germination and crop vigor. • Soil Health Management: Promotion of soil test-based nutrient management, use of organic manures, and micronutrient application. • Integrated Pest & Weed Management: Adoption of IPM and IWM practices including timely herbicide use and mechanical weeding. • Mechanization: Promotion of sowing, interculture, and harvesting machinery through Custom Hiring Centers to address labour shortages. • Market & Price Stability: Strengthening market intelligence, MSP awareness, FPO-based collective marketing, and post-harvest handling.
Pigeonpea	• Improved Varieties: Development and dissemination of drought-tolerant, high-yielding, and pest-resistant pigeonpea varieties suitable for rainfed conditions. • Seed Treatment & Biofertilizers: Promotion of seed treatment with fungicides and use of biofertilizers (Rhizobium, PSB, Trichoderma) for better nodulation and disease control. • Growth Regulation: Use of growth regulators (e.g., NAA, brassinosteroids) to reduce excessive vegetative growth and improve pod setting. • Integrated Pest & Disease Management: Adoption of IPDM practices for pod borer, wilt, and sterility mosaic disease. • Mechanization: Promotion of mechanical weeders and harvesting tools to reduce labour dependency. • Soil Fertility Improvement: Balanced nutrient application including secondary and micronutrients based on soil testing. • Market Linkages: Strengthening procurement, processing, and value chain linkages to improve profitability.
Chickpea	• Varietal Promotion: Promotion of drought-tolerant and wilt-resistant chickpea varieties with higher yield potential. • Seed Production Programme: Farmer-led seed production programmes to ensure availability of quality seed at village level. • Soil & Water Conservation: Adoption of in-situ moisture conservation practices and efficient utilization of residual soil moisture. • Integrated Pest & Disease Management: Strengthening IPDM practices for pod borer, wilt, and root rot. • Mechanization: Promotion of sowing, weeding, and harvesting implements through Custom Hiring Centers. • Market & Financial Support: Improving access to institutional credit, crop insurance, MSP procurement, and FPO-based marketing.
Safflower	• Improved Varieties: Promotion of drought-tolerant, non-spiny, high-yielding safflower varieties with aphid tolerance. • Soil & Water Management: Adoption of moisture conservation practices such as ridge and furrow method and timely sowing. • Integrated Pest & Disease Management: Promotion of aphid management through seed treatment, biocontrol agents, and need-based sprays. • Mechanization: Introduction of suitable sowing and harvesting machinery to overcome labour constraints. • Market & Value Chain Development: Strengthening processing, storage, and market linkages to improve price realization.

Rabi Sorghum	- Improved Varieties: Introduction and promotion of newly released, high-yielding rabi sorghum varieties for both grain and stover yield. - Balanced Nutrient Management: Promotion of soil test–based fertilizer application including organic manures and micronutrients. - Protective Irrigation: Providing protective irrigation at critical growth stages (booting and grain filling) where feasible. - Moisture Conservation: Adoption of in-situ moisture conservation techniques to enhance water use efficiency. - Technology Dissemination: Large-scale demonstrations and trainings through KVK to promote adoption of improved rabi sorghum technologies.
Mango	- Inflorescences management through plant protection measures and PGR application - Integrated nutrients management - Flower-fruit drop management
Onion	- Integrated nutrient management - Introduced high yielding varieties with good keeping quality
Custard Apple	- Integrated nutrient management - Improved pruning techniques as per bahar treatment - Fruit setting and fruit drop management
Marigold	- Introduced high yielding varieties with good keeping quality - Follow pinching special horticulture practices to improved yield
Tomato	- Introduced high yielding varieties with multiple disease resistance - Integrated nutrient management (specially micronutrients)
Area-wide Integrated Pest Management (IPM) in Rainfed Crops	Promotion of crop-specific IPM modules in soybean, pigeonpea, chickpea and rabi sorghum with emphasis on major insect pests such as girdle beetle, stem fly, pod borer, shoot fly and aphids through pheromone traps, bird perches, biopesticides (HaNPV, Bt), neem-based formulations and need-based insecticide application.
Integrated Disease Management (IDM) of Soil-borne and Seed-borne Diseases	Management of wilt, dry root rot, collar rot, charcoal rot and sterility mosaic through quality seed, seed treatment with bio-agents (Trichoderma, Pseudomonas), soil application of bio-control agents, resistant varieties and soil health-based interventions.
Fruit Fly Management in Custard Apple and Guava	District-wide promotion of eco-friendly fruit fly management modules including Nanogel technology / protein bait traps, orchard sanitation, destruction of fallen fruits, use of methyl eugenol traps, and community-level synchronized control to minimize yield and quality losses.
Promotion of Bio-intensive and Eco-friendly Plant Protection Technologies	Mainstreaming the use of biopesticides, botanicals, entomopathogenic fungi and conservation of natural enemies to reduce pesticide load, delay resistance development and improve ecological sustainability in major field and horticultural crops
Climate-resilient Pest and Disease Management Strategies	Development and dissemination of contingency plant protection advisories to address pest–disease outbreaks triggered by erratic rainfall, prolonged dry spells and temperature fluctuations, especially in soybean, sorghum and pulses.
Resistance Management and	Capacity building of farmers on pesticide resistance management, rotation of molecules, correct dose and spray schedule, avoidance of tank-

Rational Use of Pesticides	mix misuse, and adherence to pre-harvest intervals to ensure safe and effective pest control
Strengthening Surveillance, Early Warning and Digital Advisory Systems	Establishment of regular pest and disease surveillance, use of trap-based monitoring, and dissemination of timely advisories through WhatsApp groups, KVK agro-advisory bulletins and field schools for quick response to emerging pest problems.
Pollinator-friendly Plant Protection in Pulse and Horticultural Crops	Promotion of bee-safe pesticide use, avoidance of spraying during flowering hours, and integration of pollination services in pigeonpea, custard apple and guava to enhance fruit set, yield and farm income while conserving beneficial insects.
Value addition	- Post harvest management for loss reduction - Empowering farm women through small scale processing & value addition
Drudgery reducing equipments	- Drudgery reducing technologies for farm women - Entrepreneurship development
Foods and Nutrition	- Establishment of Nutritional gardens & production of nutritive millets. - Family nutrition & livelihood security
Entrepreneurship Development	Entrepreneurship development for income generation
Dairy animals	- Integrated approaches for enhancing production and reproduction - Animal health and care – (Timely vaccination, deworming and insemination) - Fertility management in dairy animals. - Balanced/ supplement feeding in livestock
Poultry	- Scientific management of poultry birds - Health management - Introduction of improved breeds poultry birds for backyard poultry farming
Goatery	- Animal health and care - Balanced/ supplement feeding in livestock - Fertility management of goats - Round the year availability of green fodder

3. TECHNICAL ACHIEVEMENTS

3.1. A. Details of target and achievements of mandatory activities

OFT				FLD			
1				2			
Number of OFTs		Number of farmers		Number of FLDs		Number of farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
17	16	160	155	25	25	1596	1586

Training				Extension Programmes			
3				4			
Number of Courses		Number of Participants		Number of Programmes		Number of participants	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
84	101	2100	5822	180	226	17000	51864

Seed Production (Qtl.)		Planting materials (Nos.)	
5		6	
Target	Achievement	Target	Achievement
400	429.52	7000	6866

Livestock, poultry strains and fingerlings (No.)		Bio-products (Kg)	
7		8	
Target	Achievement	Target	Achievement
2000	1956	1100	1079.5

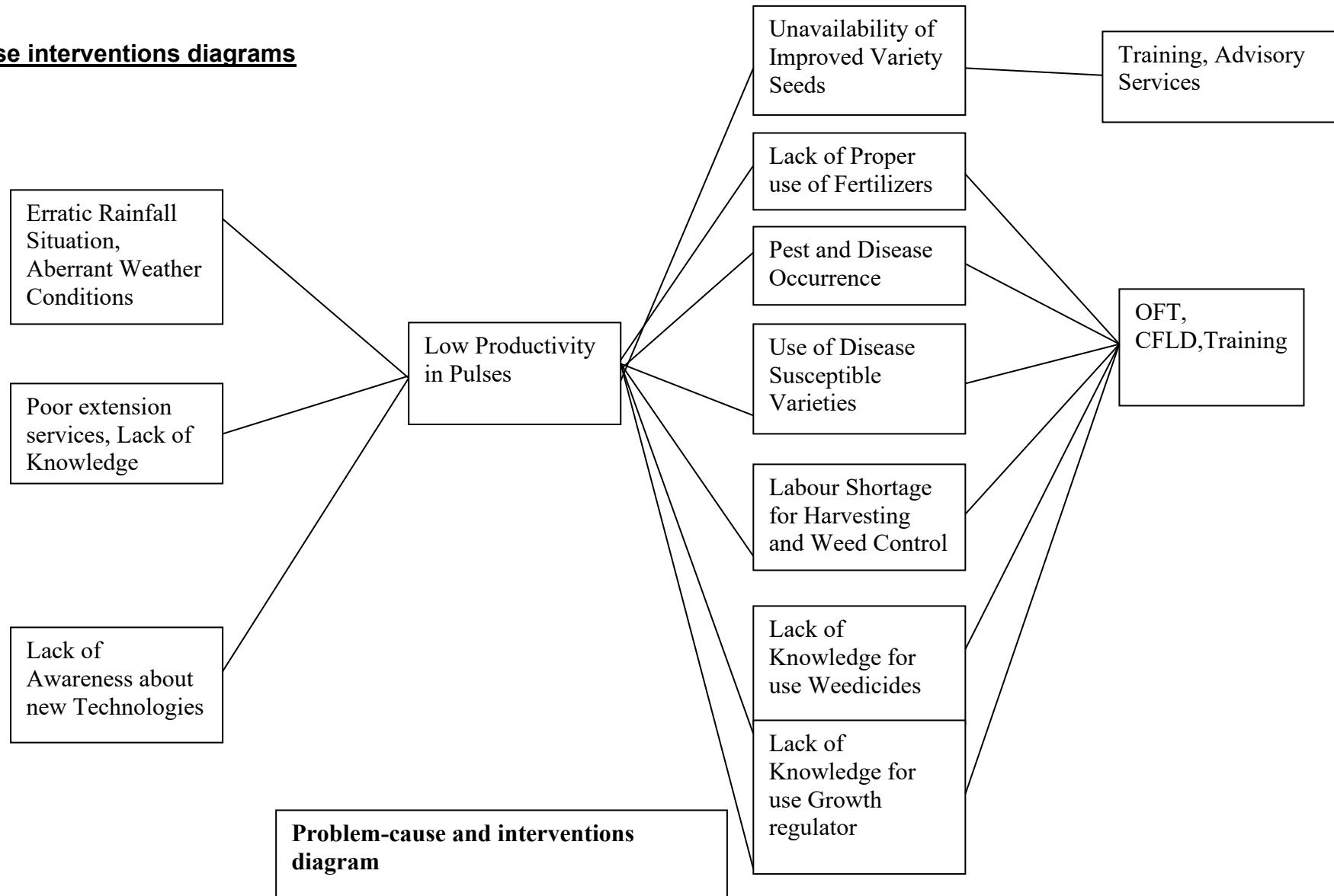
3.1. B. Operational areas details during 2025

S.No.	Major crops & enterprises being practiced in cluster villages	Prioritized problems in these crops/ enterprise	Extent of area (ha/No.) affected by the problem in the district	Names of Cluster Villages identified for intervention	Intervention (OFT, FLD, Training, extension activity etc.)*
1	Soybean	Labour shortage during harvesting Erratic rainfall and moisture stress Pest, disease, and weed infestation Price volatility and weak market access	280000	Bittergaon, Borgaon N, Chikurda, Chincholirao, Kharosa, Killari	Soybean
2	Pigeonpea	Pod borer and disease incidence Excess vegetative growth and low pod setting Labour shortage at harvesting Use of old/local varieties	110000	Ankoli, Borgaon N, Kharosa, Pangaon Tattapur	Pigeonpea
3	Black gram	Yellow Mosaic Virus and pest attack Erratic rainfall affecting crop establishment Low adoption of improved varieties Severe early-stage weed infestation	21000	Borgaon N, Kharosa, Killari, Tattapur	Blackgram
4	Chickpea	Moisture stress due to limited residual moisture Pod borer infestation Wilt and dry root rot diseases Labour constraints during harvesting	118000	Ankoli, Borgaon	Chickpea
5	Safflower	Moisture stress under rainfed conditions Aphid infestation Bird damage at maturity Harvesting difficulty due to spiny types	25800	Borgaon, Kharosa	Safflower
6	Rabi Sorghum	Terminal drought and moisture stress Shoot fly and stem borer incidence Use of low-yielding local varieties Imbalanced nutrient management	32500	Ankoli, Borgaon, Kharosa	Rabi Sorghum
7	Mango	Unavailability of quality planting materials Impact of climate change on fruiting Unaware about use of fungicide, insecticides and PGRFruit quality and yield affected due to imbalance use of fertilizers specially micronutrients	650	Babhalgaon Harangul Murud	Training, Provide quality planting materials FLD Demonstration
8	Custard Apple	Time & stage of training pruning Imbalance use of fertilizers Less aware about bahar treatment	50	Gangapur Renapur	FLD, Training

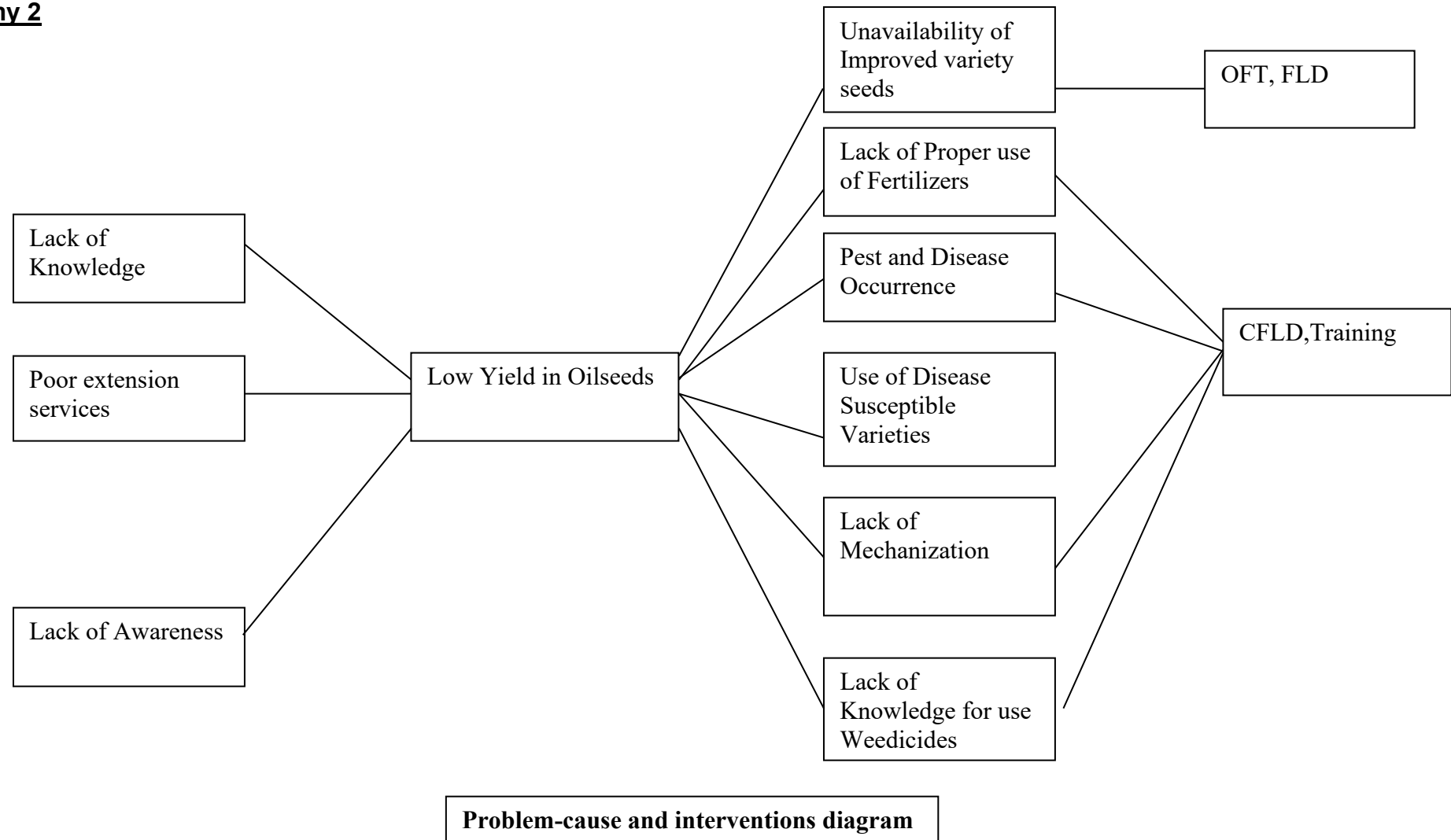
		Heavy infestation of fruit fly in early bahar fruits specifically on NMK cultivar			
9	Onion	Low yield use of local varieties Unknown about right stage of maturity indices Poor keeping quality due to no pre cooling / curing Pest disease occurrence specially thrips & blight	95	Lodga Kharosa Bhoisumundra	OFT, Training
10	Tomato	Low yield due to occurrences of pest and disease Deficiencies of micro nutrients Fruit quality affected by physiological disorders Fruit and flower drop due to extreme climatic conditions Improper use of fertilizers leads to low quality fruit	105	Janval Wadval Boregaon	OFT FLD Training
11	China aster	Low yield and quality due to use local/old varieties Imbalance use of fertilizers	80 %	Pakharsangi	FLD, Training
12	Soybean	Girdle beetle, stem fly, defoliators; charcoal rot and sudden wilt	58,500	Latur, Ausa, Renapur, Nilanga	OFT on IPM module for girdle beetle & stem fly; FLDs on IDM (seed treatment with bio-agents); farmer trainings & WhatsApp advisories
13	Pigeonpea	Pod borer (Helicoverpa), sucking pests; sterility mosaic disease & wilt	22,200	Killari, Chikurda, Wanjarkheda,	OFT on bio-intensive IPM (pheromone traps, HaNPV/Bt); FLDs on wilt-resistant varieties; FFS & village-level trainings
14	Chickpea	Dry root rot, wilt, collar rot; pod borer and aphids	9,600	Lodga, Gategaon, Renapur,	OFT on IDM of soil-borne diseases; FLDs on seed treatment with Trichoderma + Pseudomonas; capacity building on need-based sprays
15	Sorghum (Rabi)	Shoot fly at seedling stage; aphids/armyworm; charcoal rot under moisture stress	6,400	Aurad, Nilanga, Renapur	FLDs on seed treatment and timely sowing; trainings on IPM & drought-linked pest advisories
16	Sugarcane	White grub, pyrilla, early shoot borer; red rot & smut in ratoon	7,300	Tandulja, Poharegaon	OFT on bio-control of white grub (EPF); FLDs on IPM of pyrilla/ESB; sett treatment demonstrations
17	Custard apple	Fruit fly infestation; anthracnose; mealy bug; poor fruit	3,20	Renapur, Gangapur, Talani, Ausa	OFT on Nanogel / bait trap

		set			technology; FLDs on orchard sanitation; trainings on community fruit fly management
18	Guava	Fruit fly; wilt & collar rot; thrips and mites causing fruit scarring	2,80	Ausa, Chakur, Renapur	FLDs on IPM of fruit fly (pheromone + protein bait); OFT on IDM for wilt; orchard advisory camps
19	Post harvest losses.	Absence of proper processing techniques Post harvest management for loss reduction	65%	Bhoisamudraga, Gangapur	OFT, FLD, Trainings & Extension activities
20	Drudgery prone activities at farm.	Unaware about improved tools & techniques Drudgery reducing technologies for loss reduction	55%	Bhoisamudraga, Gangapur	OFT, FLD, Trainings & Extension activities
21	Malnutrition, deficiency of micronutrients.	Unaware about nutritional requirement of family Family nutrition & livelihood security	45%	Bhoisamudraga, Gangapur & Borgaon	FLD, Trainings & Extension activities
22	Post harvest management & value addition	Unemployment youths & women Entrepreneurship development through Processing and value addition in farm produce	60%	Bhoisamudraga, Gangapur & Akarwai	OFT, FLD, Trainings & Extension activities
23	Dairy	Low milk yield. Poor body condition	75 % population	Borgaon N, Khandapur	OFT, FLD, trainings
24	Backyard poultry	Low egg production Low body weight High mortality Less returns	80 % population	Gangapur Shirala Khandapur	OFT, FLD, trainings
25	Goat	Mineral deficiency Late maturity Poor weight gain, High mortality	90 % population	Borgaon N	OFT, FLD, training

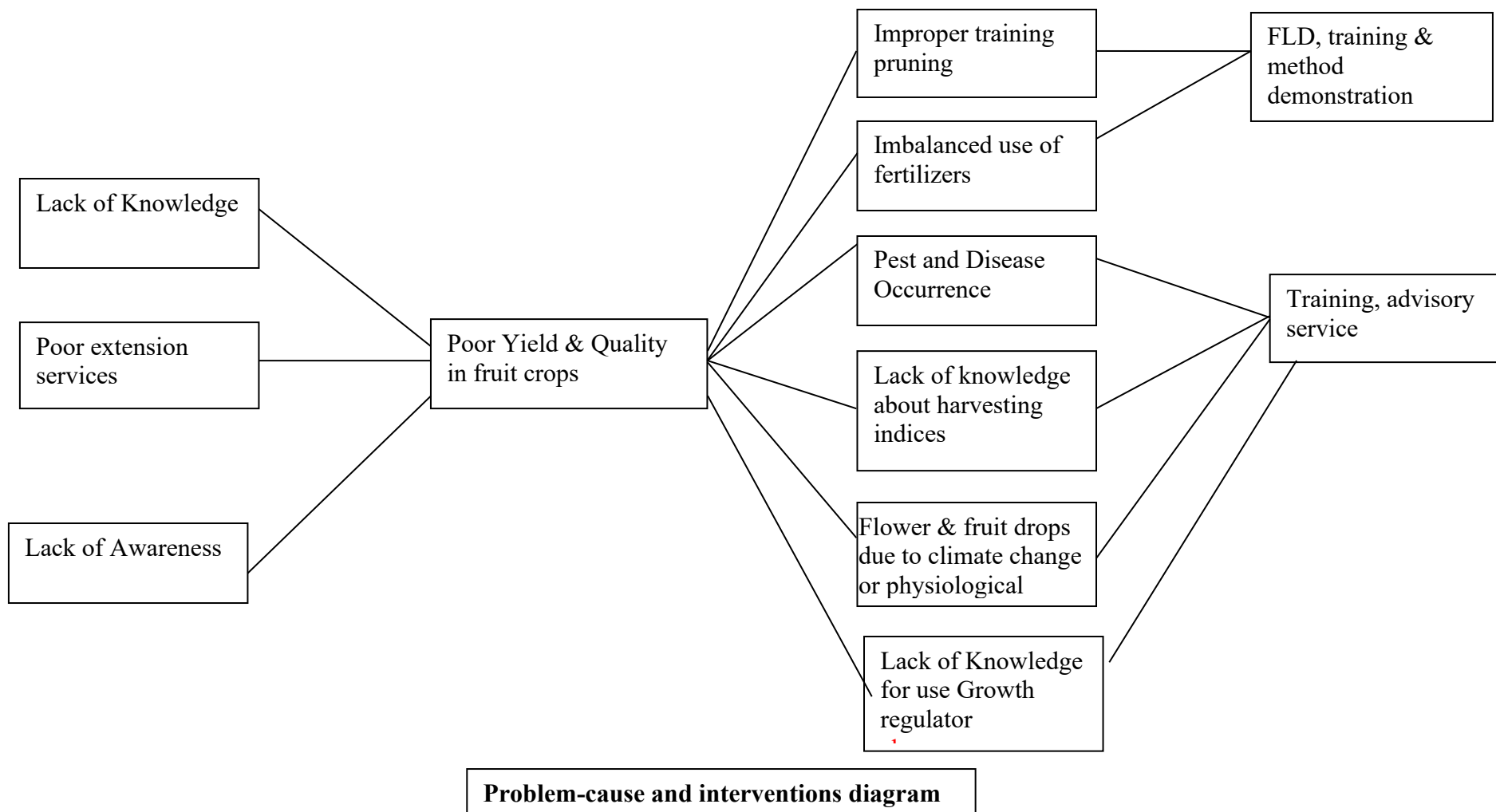
Problem Cause interventions diagrams
Agronomy 1

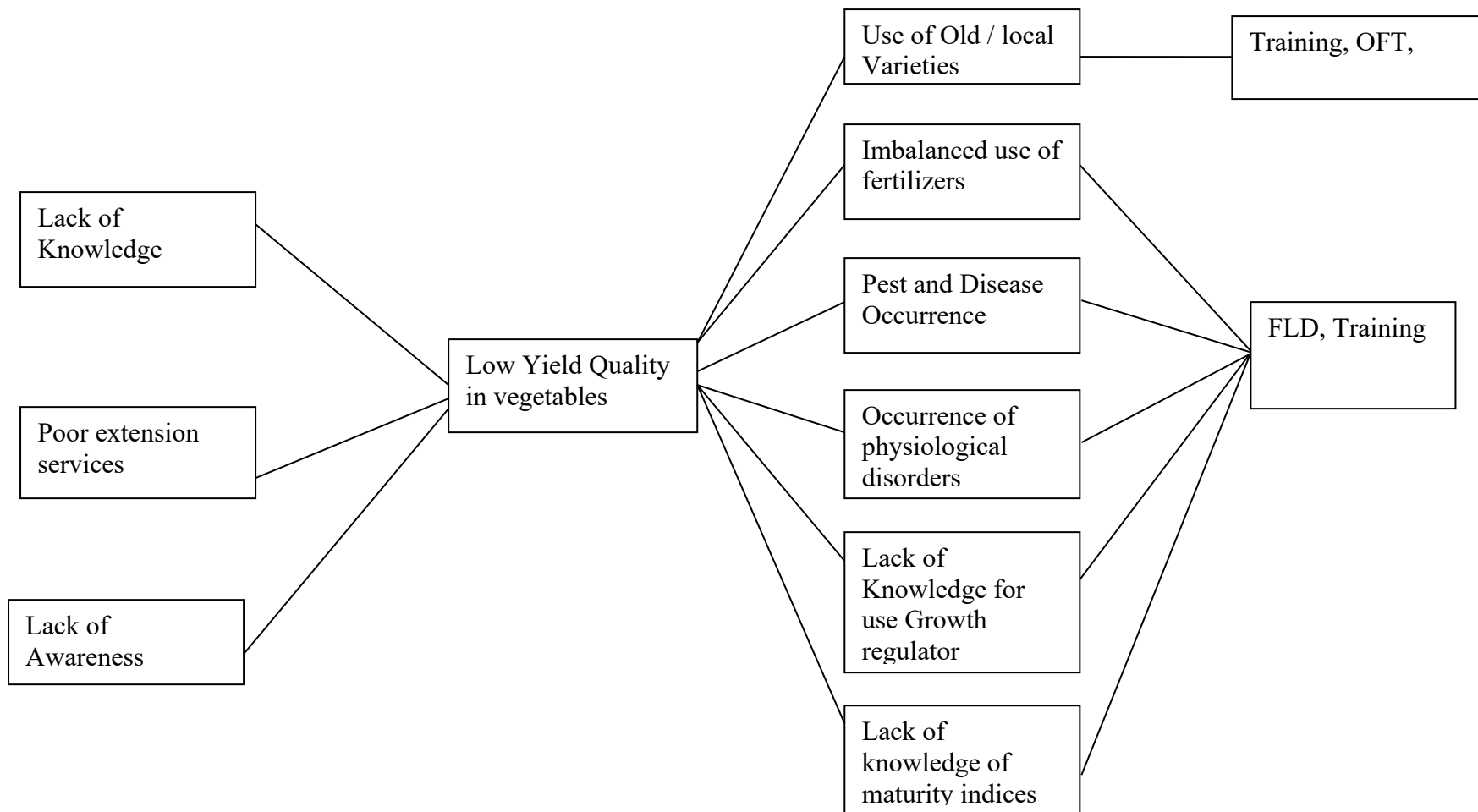


Agronomy 2



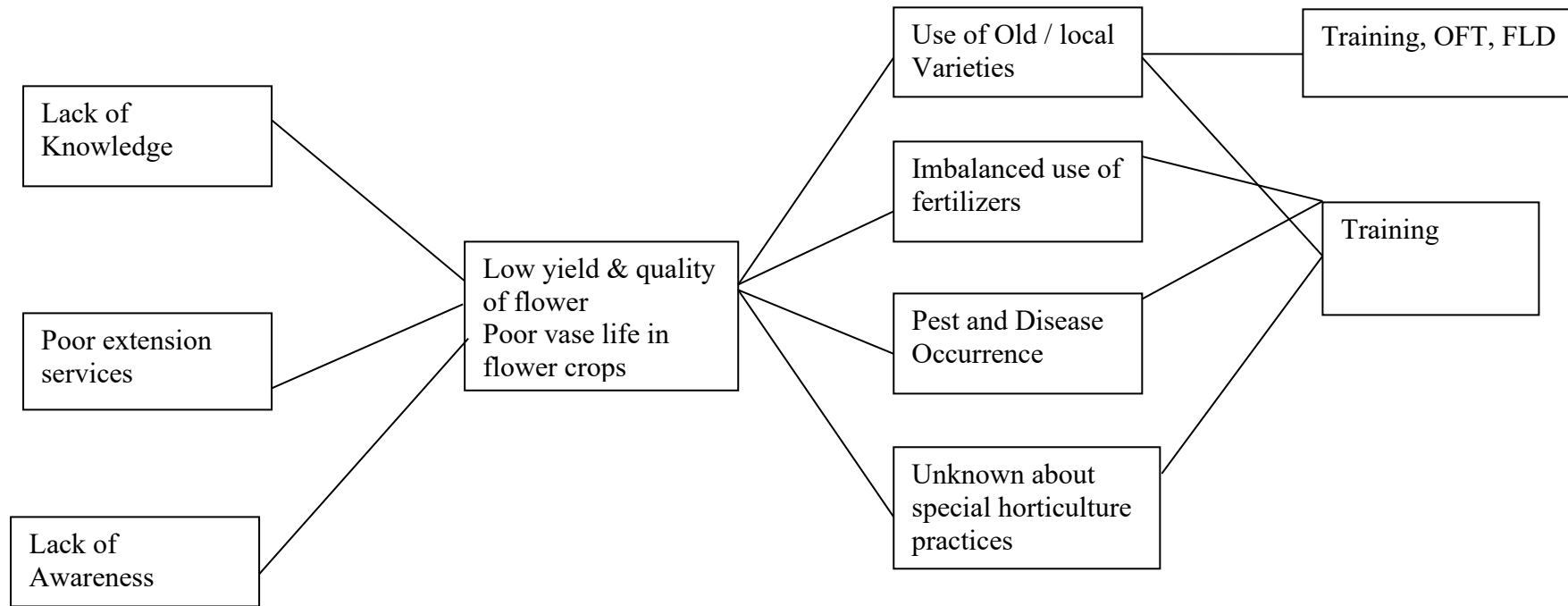
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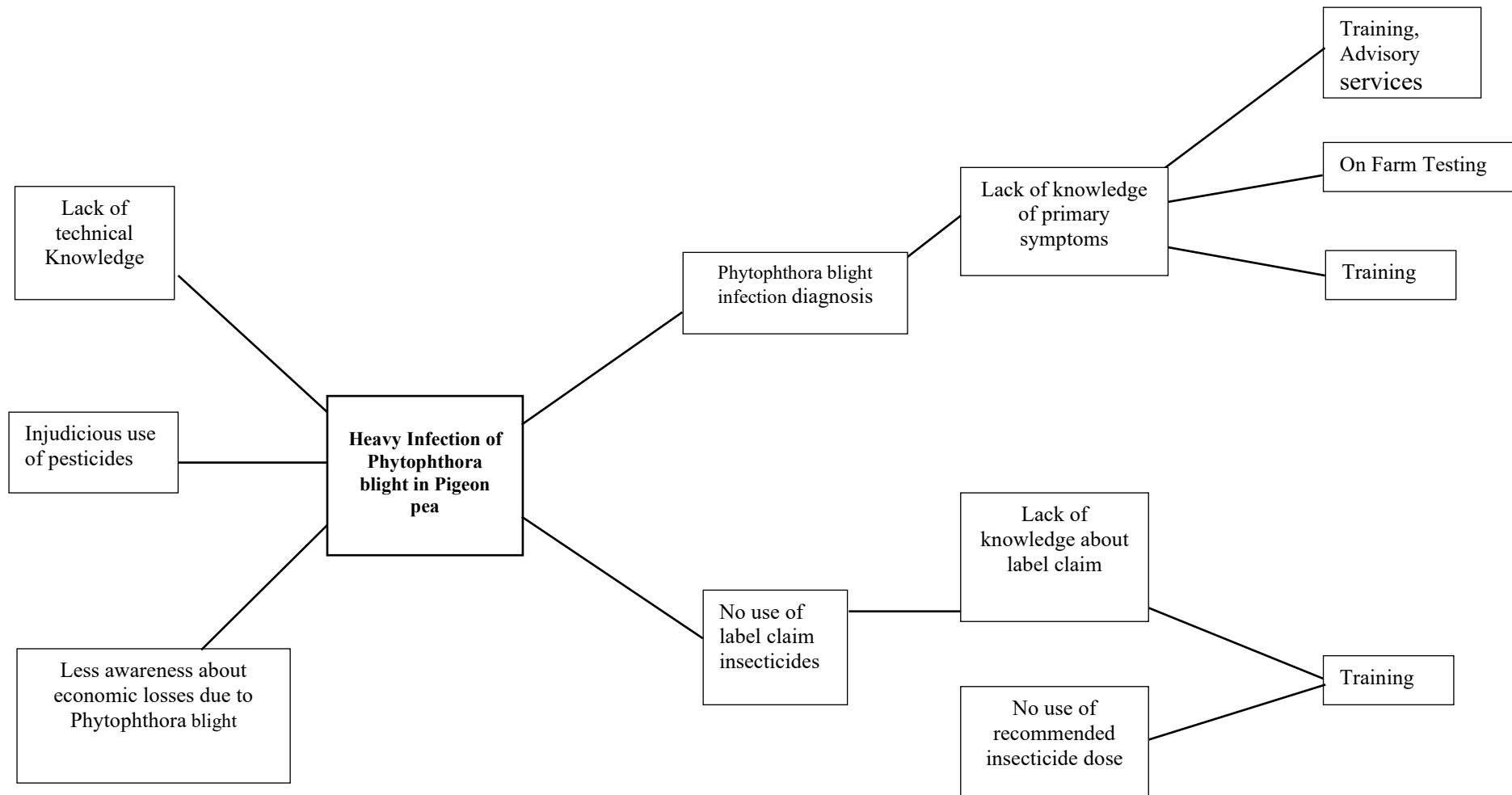


Problem-cause and interventions diagram

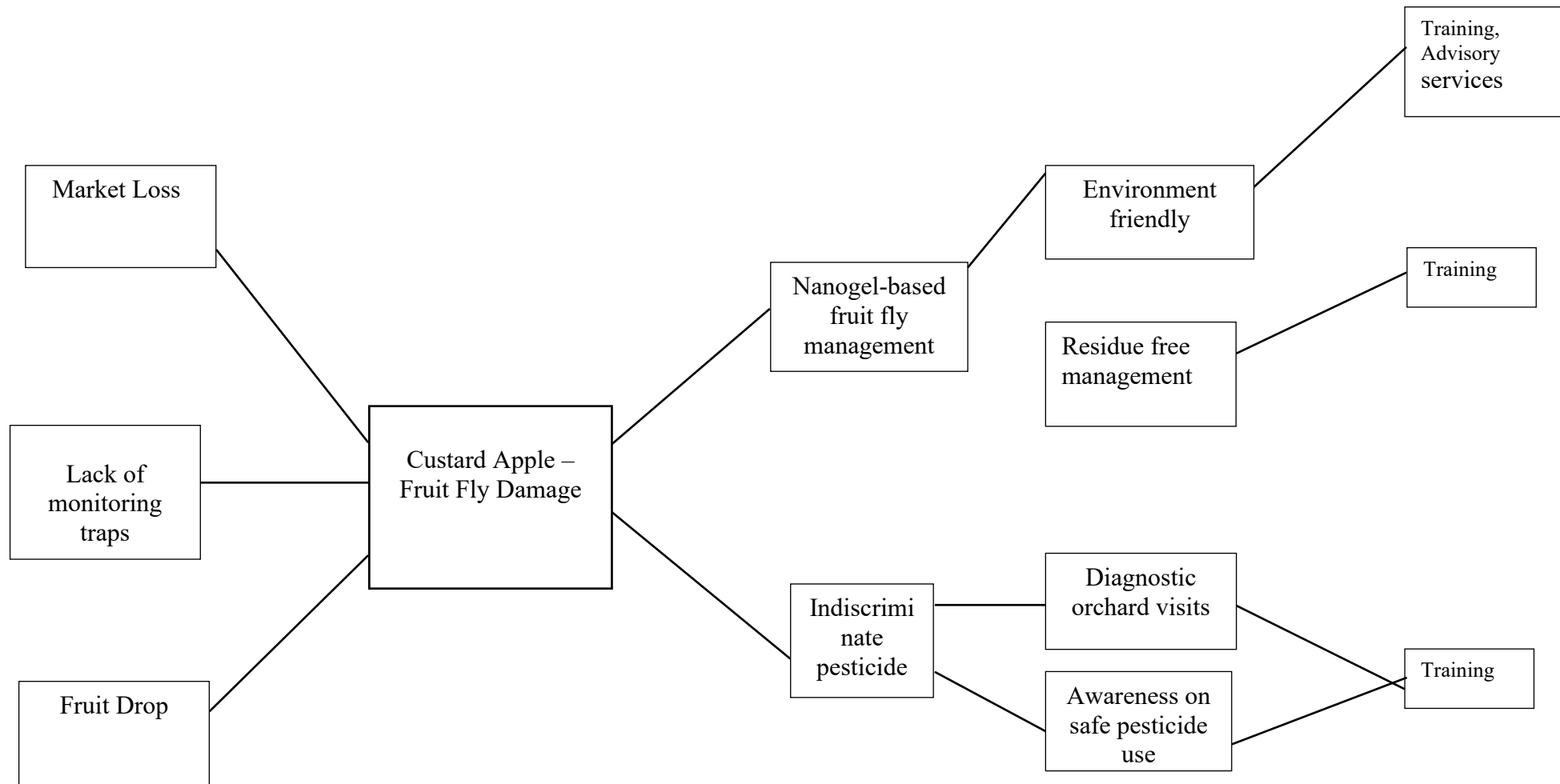
Horticulture-3



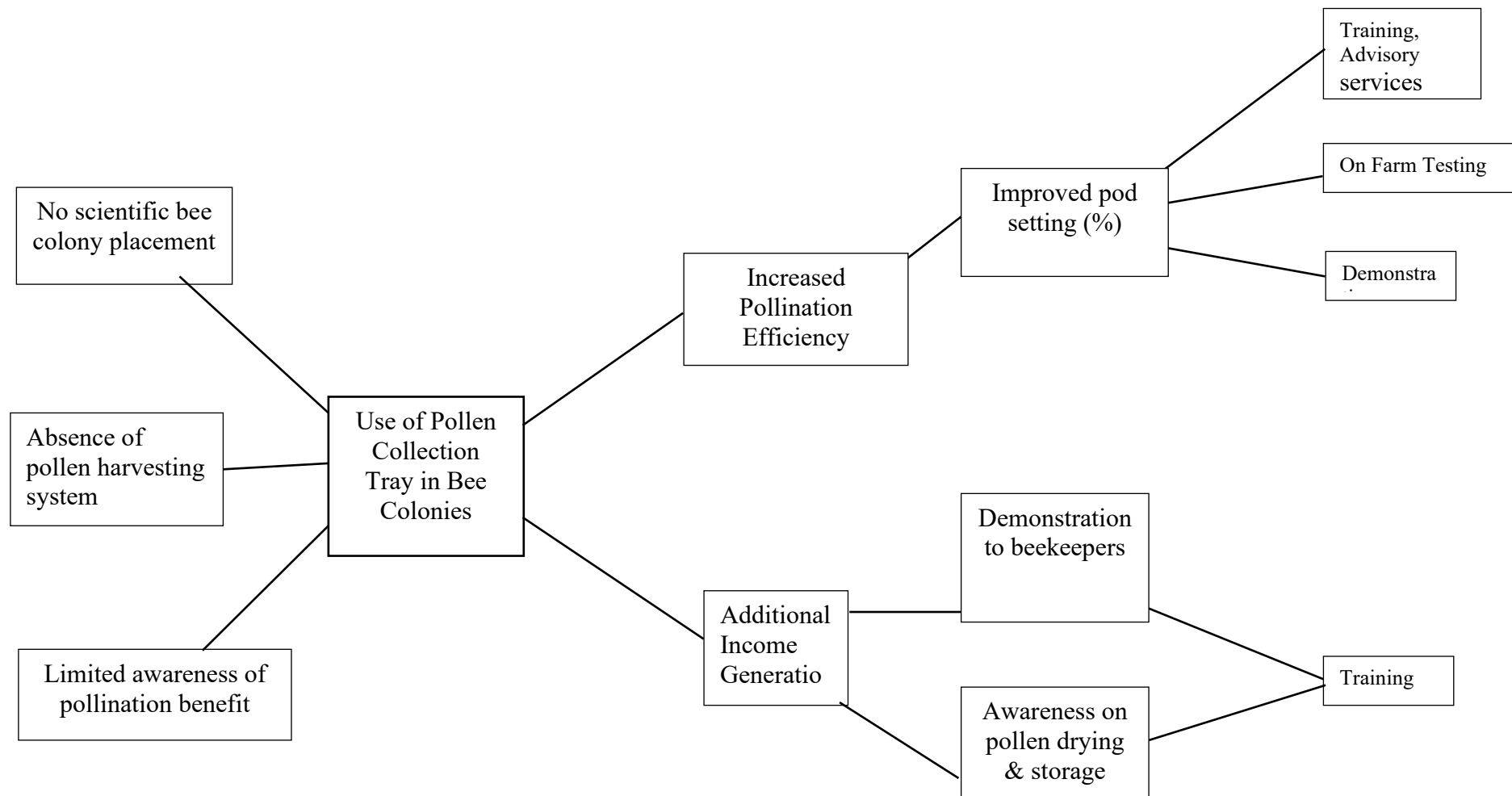
Problem-cause and interventions diagram



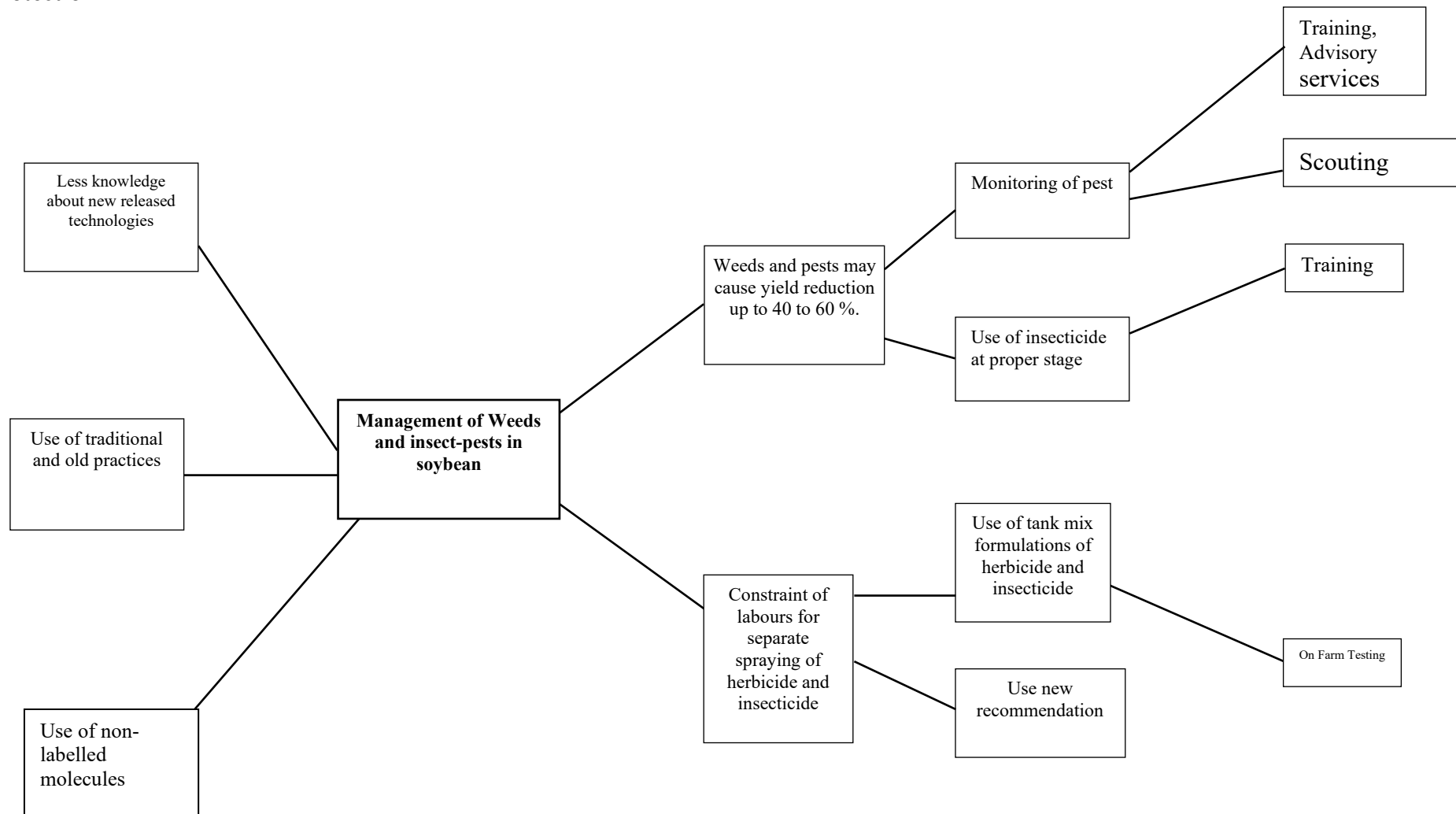
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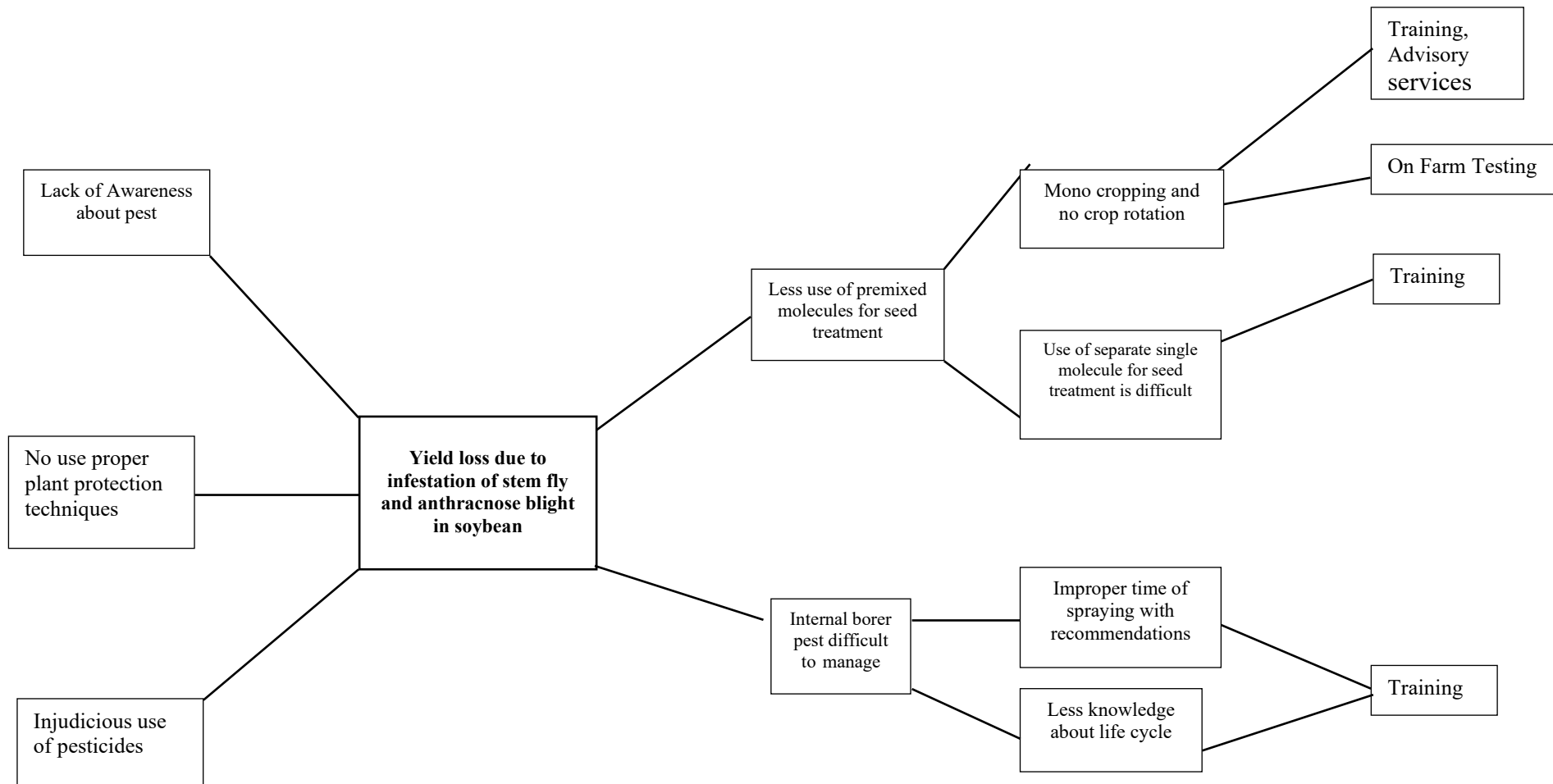
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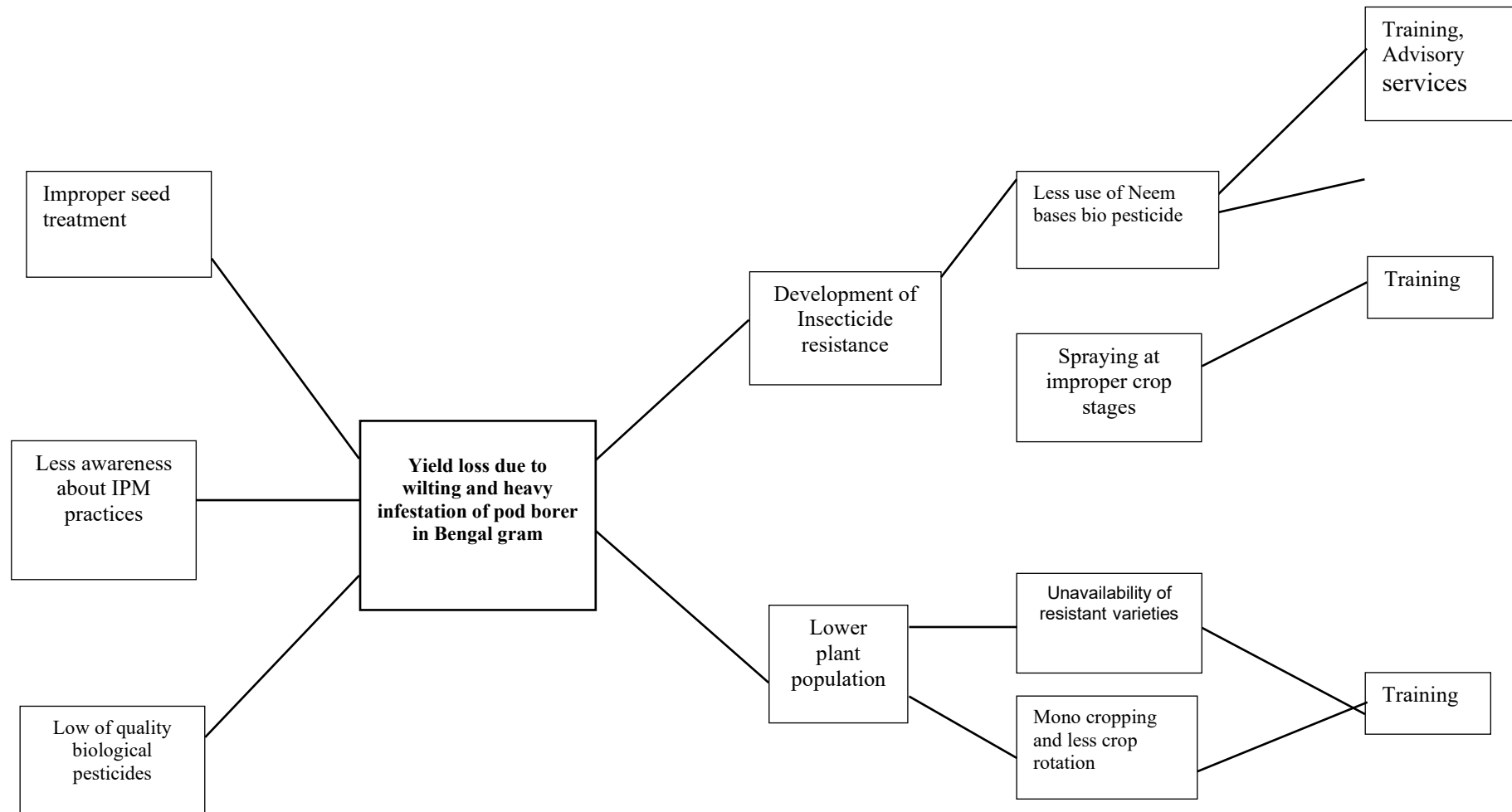
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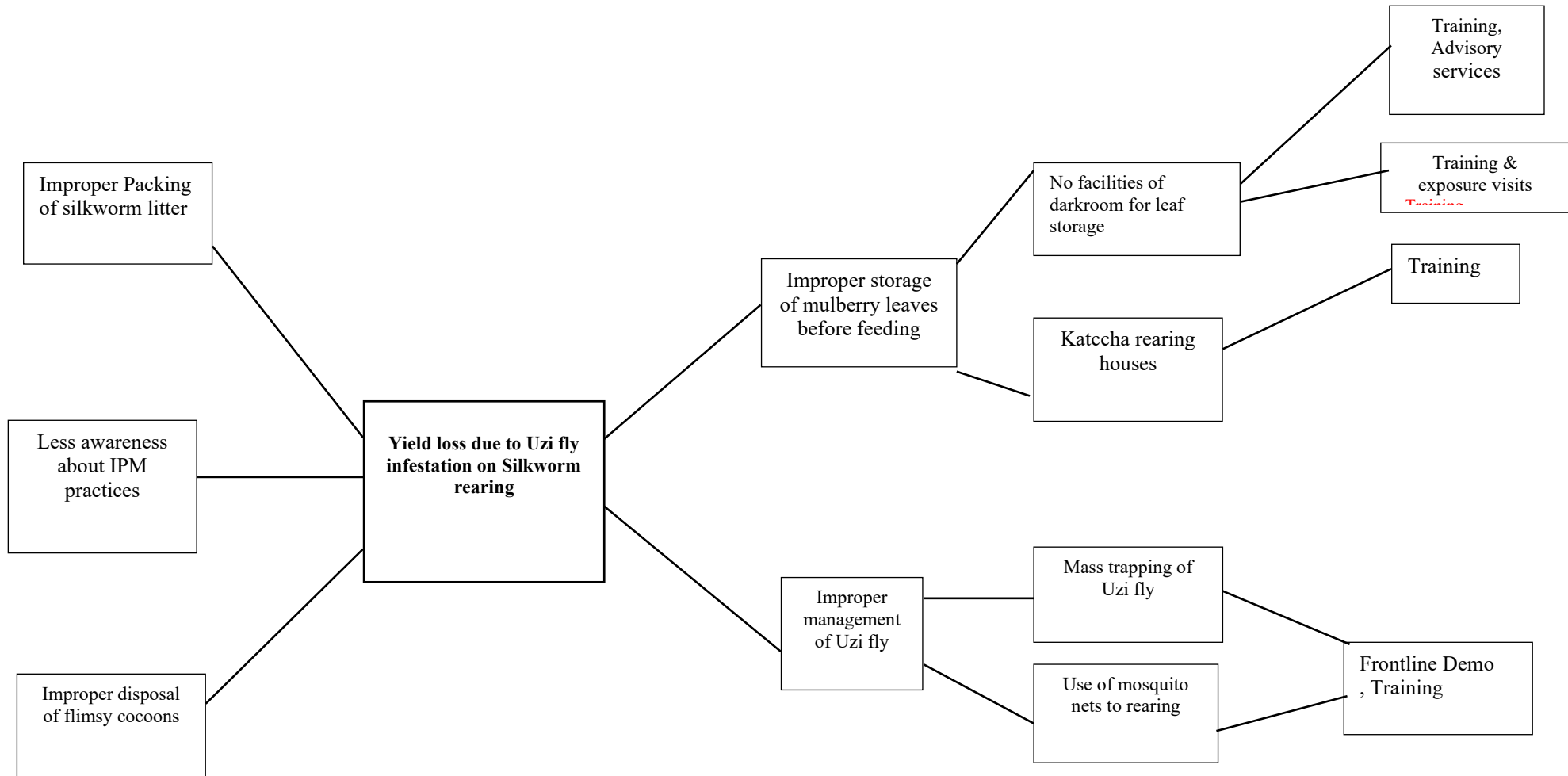
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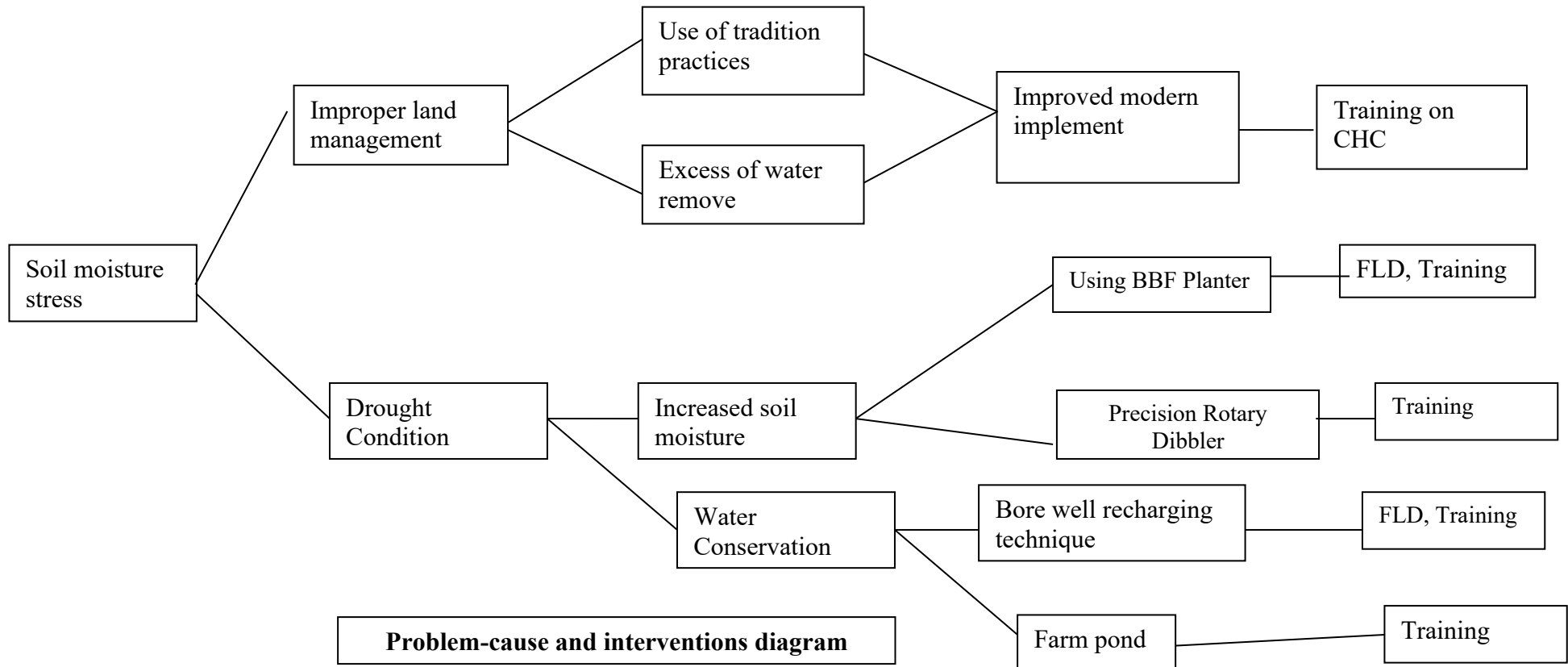


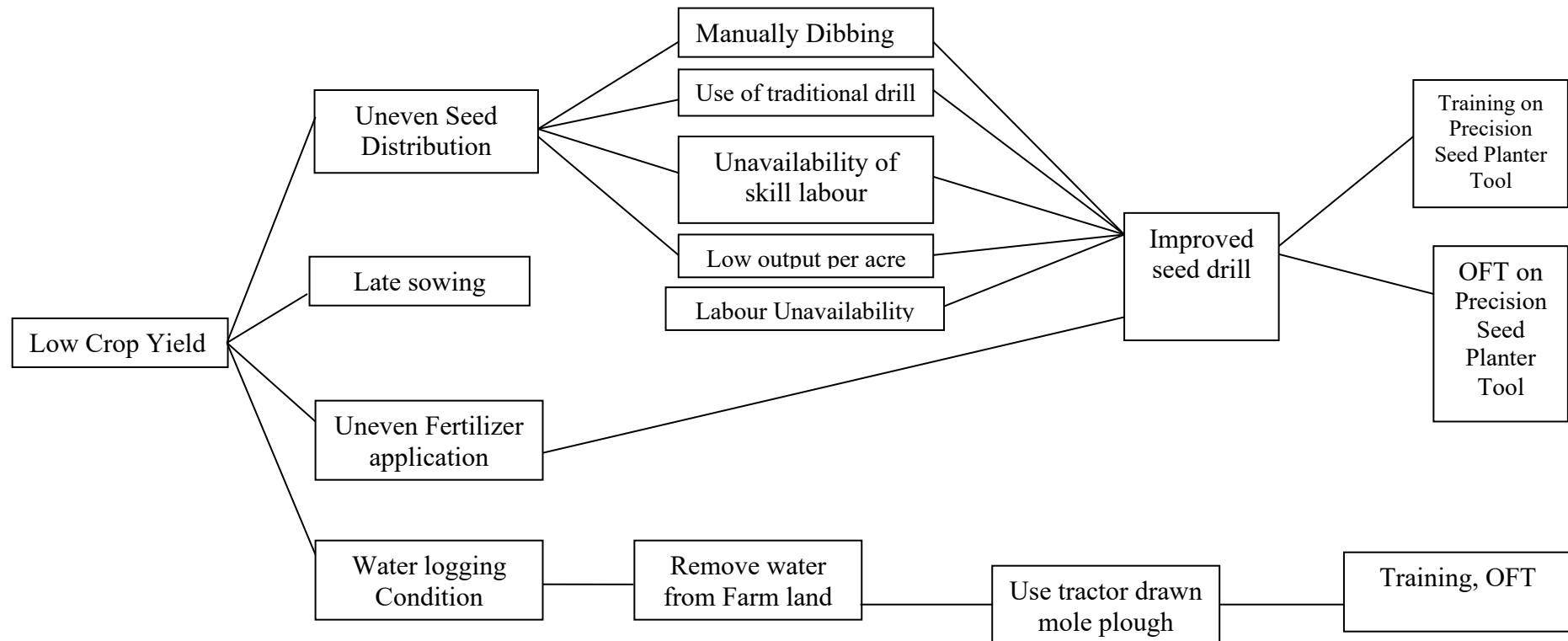
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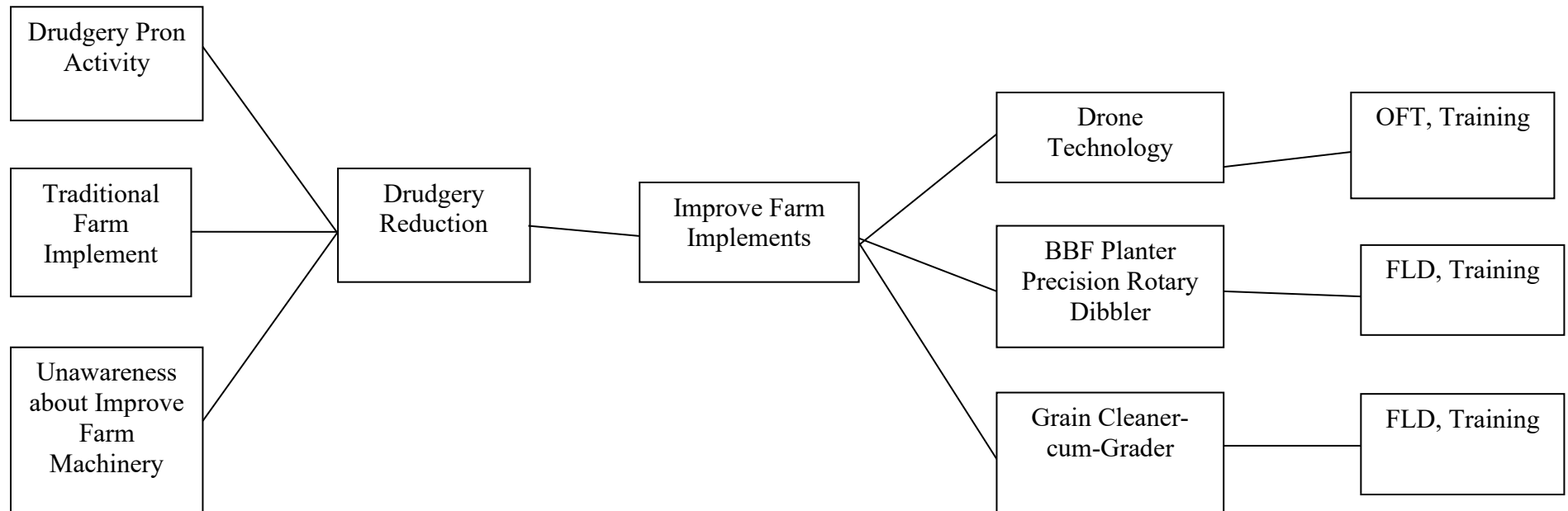
Discipline: Plant Protection - 7



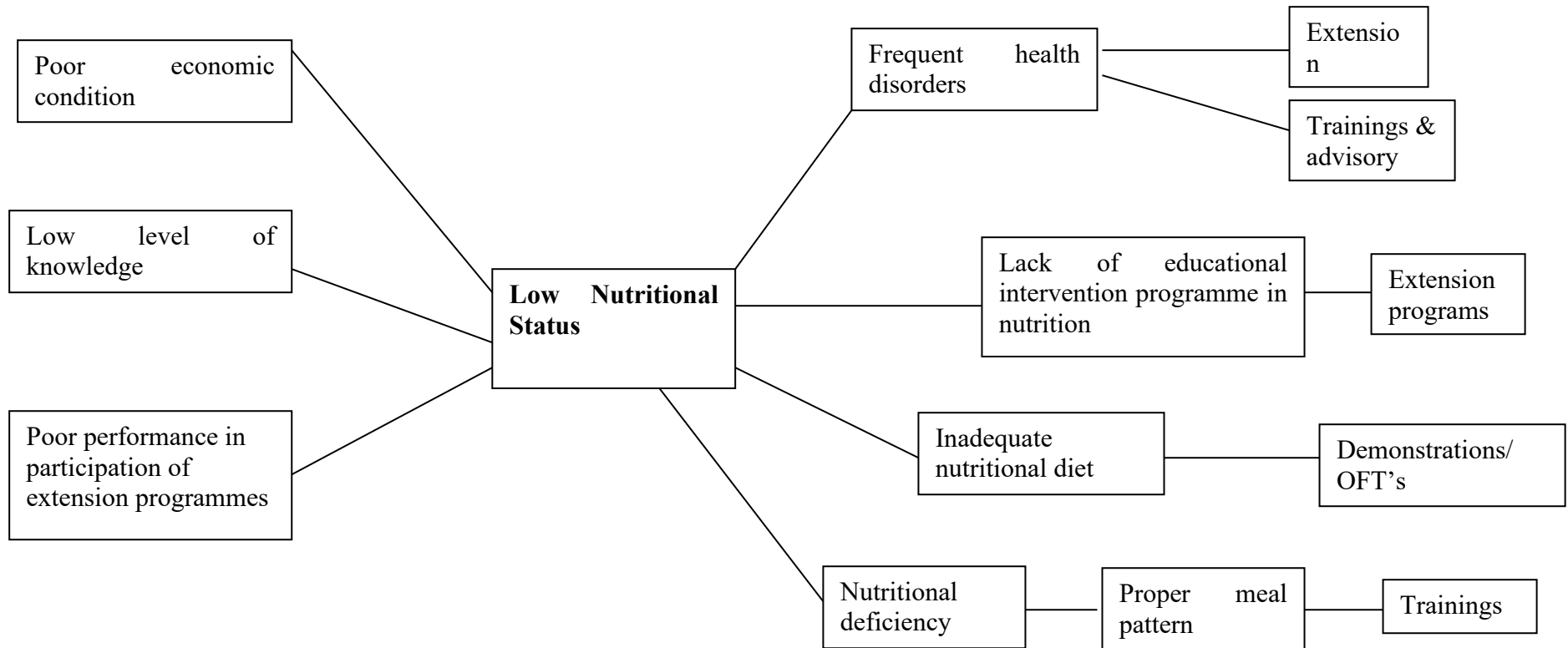




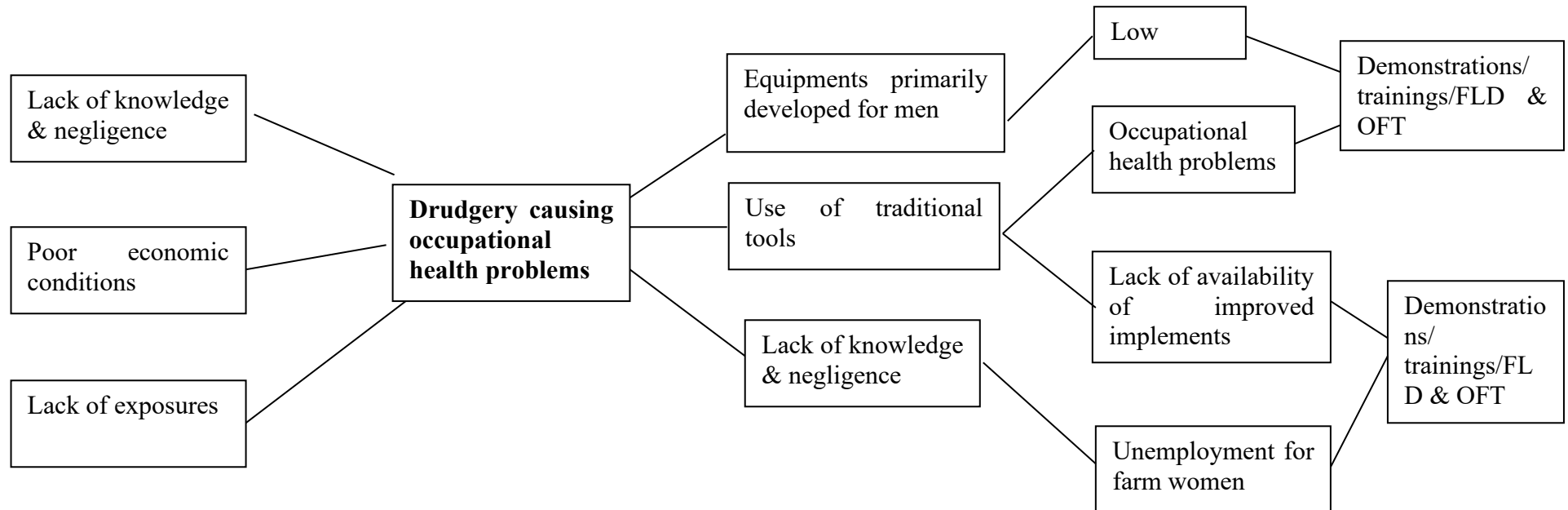
Problem-cause and interventions diagram

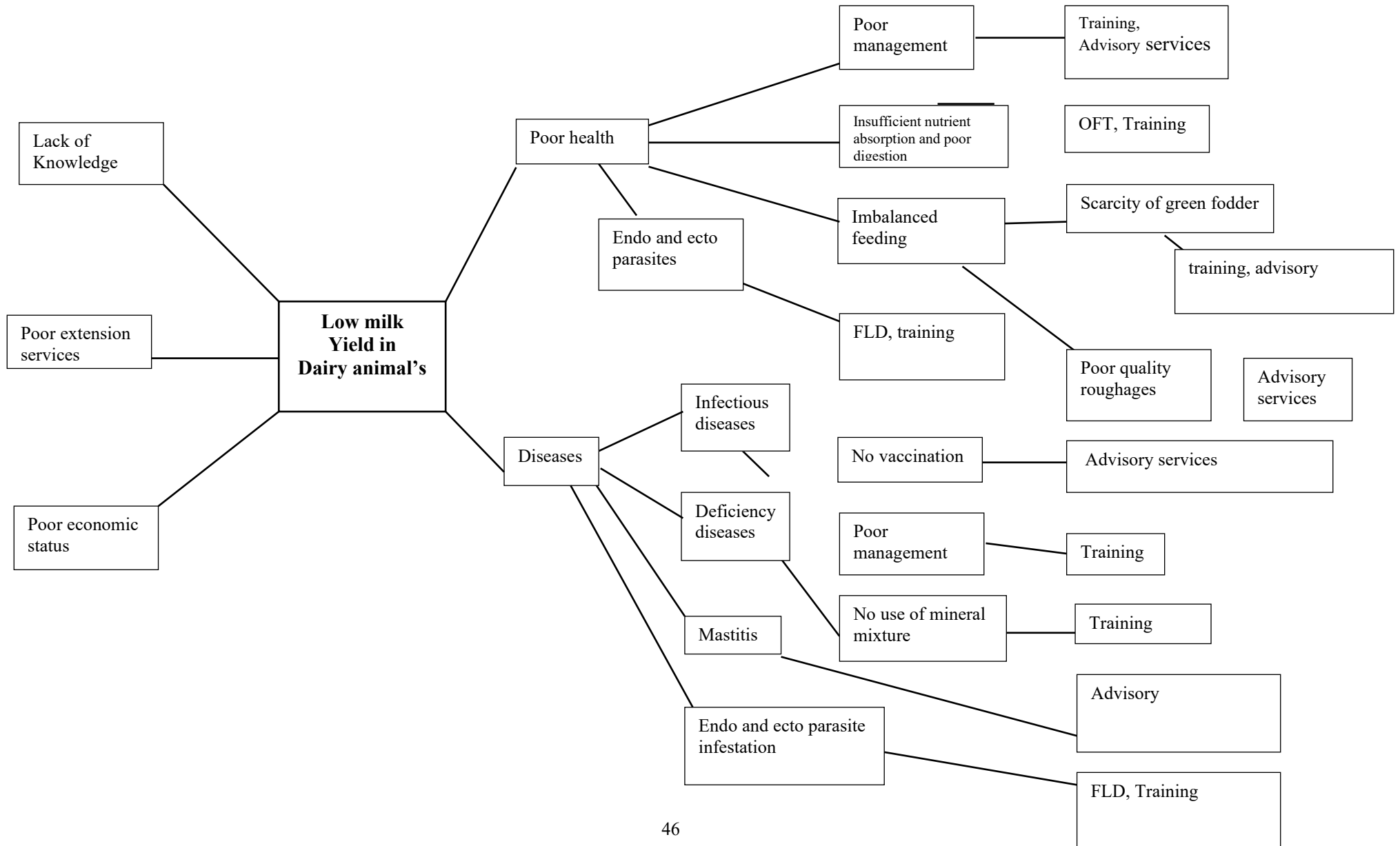


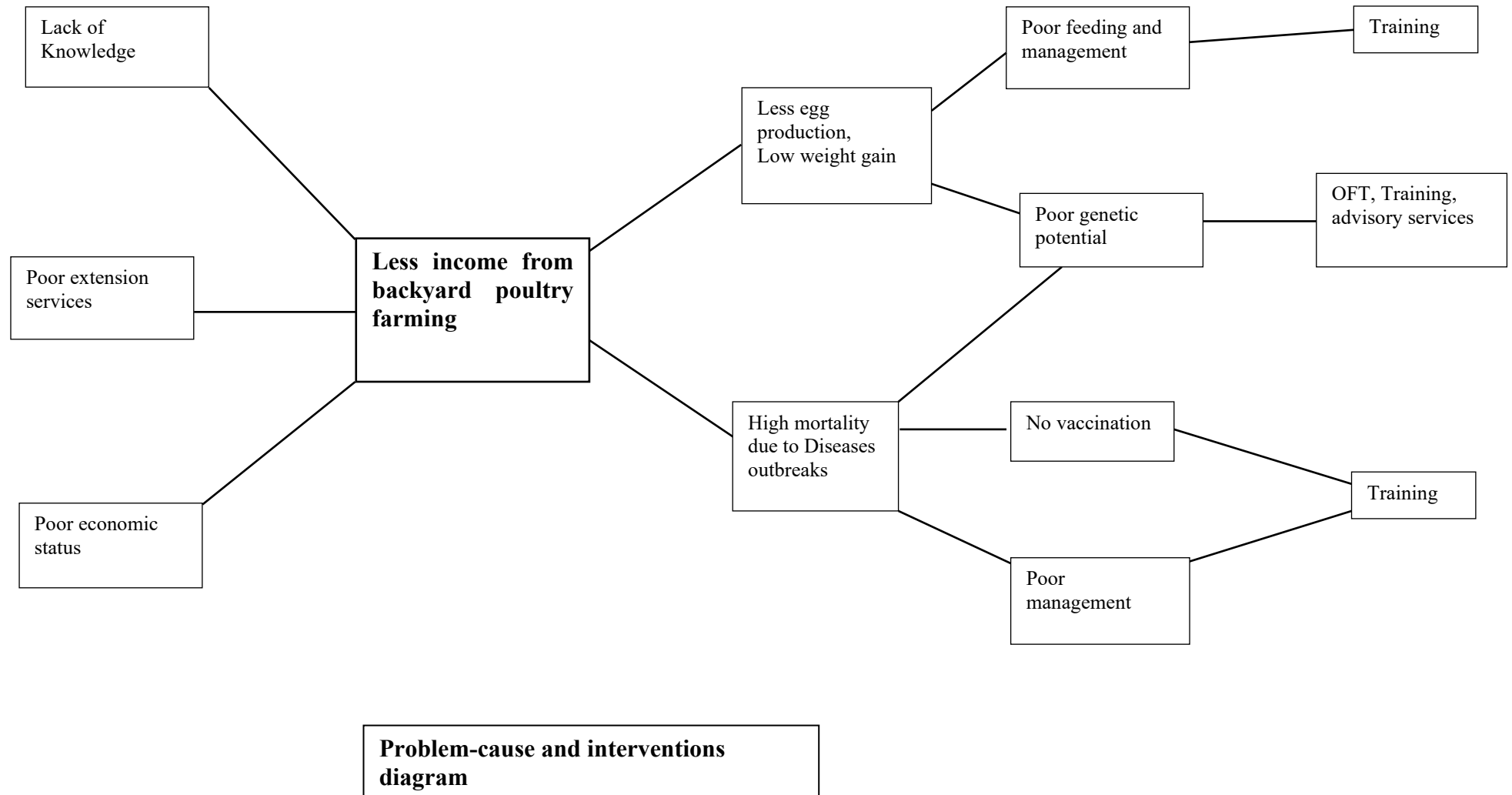
Problem-cause and interventions diagram

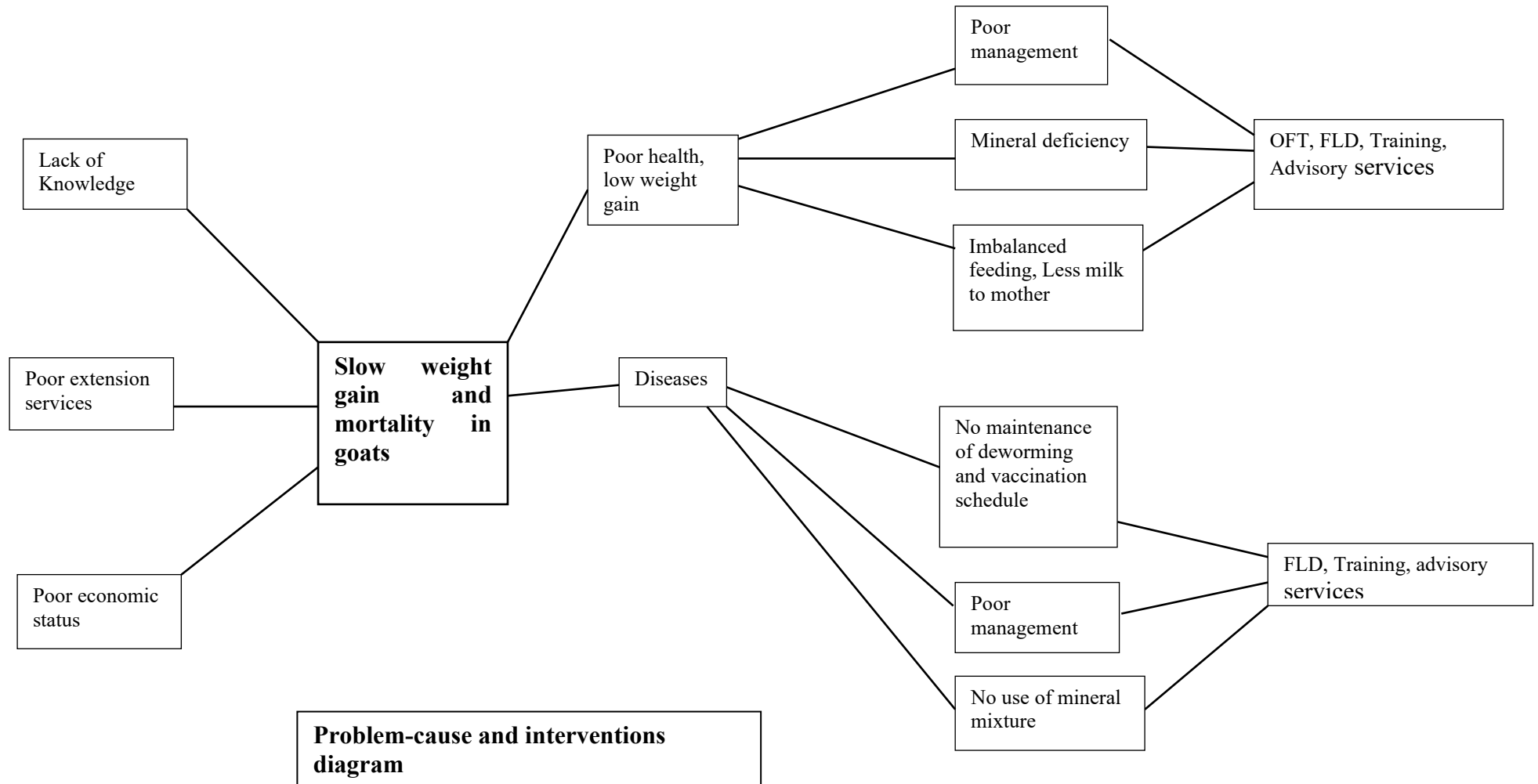


Home Science: 2









3.2. Technology Assessment (Kharif 2025, Rabi 2024-25, Summer 2025)

A1. Abstract on the number of technologies assessed in respect of crops

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	other	Total
Integrated Nutrient Management	-	-	-	-	-	-	-	-	-	-	-
Varietal Evaluation	1	1	-	-	2	-	1	-	-	-	5
Integrated Pest Management	-	-	-	-	-	1	-	-	-	-	1
Integrated Crop Management	-	-	-	-	-	-	-	-	-	-	-
Integrated Disease Management	-	-	1	-	-	-	-	-	-	-	1
Small Scale Income Generation Enterprises	-	-	-	-	-	-	-	-	-	-	-
Weed Management	1	-	-	-	-	-	-	-	-	-	1
Resource Conservation Technology	-	-	1	-	-	-	-	-	-	-	1
Farm Machineries	-	3	-	-	-	-	-	-	-	-	3
Integrated Farming System	-	-	-	-	-	-	-	-	-	-	-
Seed / Plant production	-	-	-	-	-	-	-	-	-	-	-
Value addition	-	-	1	-	-	-	-	-	-	-	1
Drudgery Reduction	-	-	-	-	-	-	-	-	-	-	-
Storage Technique	-	-	-	-	-	-	-	-	-	-	-
Mushroom cultivation	-	-	-	-	-	-	-	-	-	-	-
Other (specify)	-	-	-	-	-	-	-	-	-	-	-
Total	2	4	3		2	1	1				13

A2. Abstract on the number of technologies assessed in respect of livestock enterprises

Thematic areas	Cattle	Poultry	Piggery/Goatery	Rabbitry	Fisheries	TOTAL
Evaluation of Breeds	-	1	-	-	-	1
Nutrition Management	1	-	1	-	-	2
Disease of Management	-	-	-	-	-	-
Value Addition	-	-	-	-	-	-
Production and Management	-	-	-	-	-	-
Feed and Fodder	-	-	-	-	-	-
Small Scale income generating enterprises	-	-	-	-	-	-
TOTAL	1	1	1	-	-	3

B. Achievements on technologies Assessed

B.1. Technologies Assessed under various Crops

Thematic areas	Crop	Name of the technology assessed	No. of trials	Number of farmers	Area in ha (Per trial covering all the Technological Options)
Varietal Evaluation	Chickpea	Assessment on Productivity of Chickpea through Improved Varieties	10	10	1.20
	Soybean	Assessment on Improved Varieties of Soybean	10	10	1.20
	Marigold	Assessment of improved varieties of marigold arka bhanu and arka abhi	10	10	1.0
	Tomato	Assessment of improved varieties of tomato arka vishesh and arka abhed	10	10	1.0
	Onion	Assessment of improved varieties of bhima raj and bhima shakti	10	10	1.0
Integrated Pest Management	Custard Apple	Management of Fruit Fly in Custard Apple and Gauva Fruit Crop using Nanogel Technology	10	10	04
Integrated Disease Management	Pigeon pea	Assessment of Integrated Management Stem Blight (Phytophthora drechsleri) Disease of Pigeon pea	10	10	04
Weed Management	Soybean	Assessment on Pre & Post Emergence of Herbicide for effective weed management in Sole Soybean	10	10	1.20
Farm Machineries	Soybean	Assessment of Kisan Drone for spraying crops	10	10	4.0
	Soybean	Assessment of Manual Operated Precision Rotary Dibbler (Token Yantra)	10	10	4.0
	Soybean	Assessment of Mole plough to enhance crop yield in waterlogged soils	10	10	4.0
Total			110	110	3.60

B. 2. Technologies assessed under Livestock & fishery assessment

Thematic areas	Name of the livestock enterprise	Name of the technology assessed	No. of trials	No. of farmers
Evaluation of breeds	Poultry	Vanashree and Nicobari Poultry birds	10	10
Dairy Management	Dairy	Probiotic (Em Solution)	10	10
Nutrition management	Goat	Milk Replacer	10	10
Total			30	30

B.3 Technologies assessed under other enterprises

Name of Enterprises	Name of the technology assessed	No. of trials	No. of farmers
Bee keeping	Pollen collection trap	05	05

B 4. Technologies assessed under Women empowerment assessment

Name of Enterprises	Name of the technology assessed	No. of trials	No. of farmers
Value addition	Use of custard apple seed powder for storage of pulses	10	10

C. 1. Results of Technologies Assessed
Results of On Farm Trial

OFT : 1

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trial s	Technology Assessed	Paramete rs of assessme nt	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinem ent needed	Justificat ion for refineme nt
1	2	3	4	5	6	7	8			9	10	11	12
Chickp ea	Irrigat ed	Low yield due to uneven distribution of rainfall, prolonged dry spells, evapotranspiration losses in low rainfall conditions, imbalanced fertilizer application, lack of awareness about foliar fertilizers, and limited knowledge of biofertilizers.	Assess ment on Producti vity of Chickpe a through Improve d Varietie s	1 0	T1: Variety Jaki-9218	Pods/P lant	T1	T2	T3	The results indicated that Treatment T3 performed best, recording a higher yield of 22.40 q/ha, which was 64.42% higher than the farmer’s practice and 25.49% higher than Treatment T2.	Phule Vishwaraj is a high-yielding chickpea variety with early maturity, resistance to major diseases (Ascochyta blight and Fusarium wilt), better drought tolerance, and superior grain quality, making it highly preferred by farmers for better market price and profitability.	-	-
						38-42	48-52	60-65					
					T2: Variety Phule Vikrant	Yield (q/ha)	13.30	17.85	22.40				
					T3: Variety Phule Vishwaraj								

Contd..

Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
T1: Variety Jaki-9218 (Farmer's practice)	PDKV,Akola	13.30	Q/ha	27227	1.60
T2: Variety Phule Vikrant	MPKV,Rahuri	17.85	Q/ha	54479	2.27
T3: Variety Phule Vishwaraj	MPKV,Rahuri	22.40	Q/ha	79231	2.85

OFT: 2

Crop/enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Soybean	Rainfed with Protective Irrigation	Late onset of the monsoon. The continued cultivation of the old variety JS-335 , which is susceptible to major pests and diseases, further contributes to low yields. In addition, labour shortages during peak operations, imbalanced fertilizer application,	Assessment on Improved Varieties of Soybean	10	T1: Variety –Js-335	100 seed weight (g)	T1	T2	T3	Result observed that T ₃ gave higher yield 24.32 q/ha which was about 33.62% higher over farmer practice and 14.87% over T2.	MAUS 725 Highly preferred due to higher yield, bold grains, better market price, and tolerance to moisture stress.	-	-
					T2: Variety-MAUS-612	Yield (q/ha)	10-11.5	11-13.5	12-14.5				
							18.2	21.17	24.32				
					T3: Variety-MAUS-725								

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	BC Ratio
13	14	15	16	17	18
T1: Variety –Js-335	JNKVV,Jabalpur	18.20	Q/ha	28569	1.41
T2: Variety- MAUS-612	MPKV,Rahuri	21.17	Q/ha	49093	1.77
T3: Variety- MAUS-725	VNMKV,Parbhani	24.32	Q/ha	65876	2.03

OFT: 3

Crop/enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Soybean	Rainfed with Protective Irrigation	Labour shortages for hand weeding during the Kharif season, yield losses of up to 30% in soybean due to severe weed infestation, and limited awareness about integrated weed management practices are major constraints affecting soybean productivity	Assessment of Pre & Post emergence of Herbicide for Effective Weed Management in Sole Soybean	10	T1: Control (Hand Weeding)	Plant Height (cm)	T1	T2	T3	The results revealed that Treatment T3 performed best, recording the highest yield of 26.04 q/ha, followed by T2 (22.32 q/ha) and T1 (19.22 q/ha). Treatment T3 showed a yield advantage of 35.48% over T1 and 16.66% over T2.	Use of a pre-emergence herbicide was most effective in controlling a broad spectrum of weeds in sole soybean. It significantly reduced weed density, improved crop growth and yield attributes, and resulted in higher grain yield compared to the farmers' practice of hoeing and hand weeding	-	-
					T2: Post Emergence Herbicide (Propaquizafop @0.050 kg.a.i +Imazethapyr @0.075 kg.a.i/ha at 21 DAS)	Yield (q/ha)	48-50	50-52	55-58				
					T3: Pre Emergence Herbicide (Diclosulam 84% WDG@0.026 kg.a.i./ha) (30 gm/ha)		19.22	22.32	26.04				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	BC Ratio
13	14	15	16	17	18
T1: Control (Hand Weeding)	PDKV, Akola (2020)	19.22	Q/ha	30004	1.41
T2:) Post Emergence Herbicide (Propaquizafop @0.050 kg.a.i +Imazethapyr @0.075 kg.a.i/ha at 21 DAS)		22.32	Q/ha	53920	1.82
T3: Pre Emergence Herbicide (Diclosulam 84% WDG@0.026 kg.a.i./ha) (30 gm/ha)		26.04	Q/ha	73741	2.13

OFT:4

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7		8		9	10	11	12
Marigold	Irrigation	Low yield and poor keeping quality flowers	Assessment of marigold varieties- Arka Bhanu and Arka Abhi	10	T1- Local variety	Number of flower/plants	T1 32.58	T2 36.66	T3 42.92	The trial data indicated that the highest yield (88.83 q ha ⁻¹) and number of flowers per plant (42.92) were recorded in treatment T3 (Arka Abhi), showing an increase of 7.71% and 31.74%, respectively, over the check. The maximum vase life of flowers (7.35 days) was also observed in T3, which was 42.17% higher than the check.	Arka Abhi and Arka Bhanu are high- yielding varieties characterized by strong, compact flowers with attractive yellow colour. Arka Abhi exhibits superior keeping quality (7.35 days).	Nil	
					T2- Arka Bhanu	Yield (q/ha)	75.65	81.48	88.83				
					T3- Arka Abhi	Vase life of flower (days)	5.17	5.75	7.35				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)	Farmer's practice	75.65	Qui/ha	206000	2.64
Technology option 2 arka bhanu	IIHR Bengaluru	81.48	Qui/ha	225955	2.80
Technology option 3 arka abhi	IIHR Bengaluru	88.83	Qui/ha	276425	3.32

OFT:5

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7		8		9	10	11	12
Tomato	Irrigation	Low yield and quality of fruit	Assessment of tomato varieties- Arka Vishesh and Arka Abhed	10	T1- Local variety	Weight of fruit (g)	T1	T2	T3	The data indicated that the highest yield (564.15 q ha ⁻¹) and number of fruits per plant (69.11) were recorded in treatment T3 (Arka Abhed), showing increases of 29.15% and 10.21%, respectively, over the check. Furthermore, the maximum fruit weight (68.22 g) was also observed in T3, which was 16.62% higher than the check	Arka Abhed is a high-yielding hybrid with resistance to multiple diseases. The fruits are firm, oblate-round and medium to large in size. It is suitable for cultivation throughout the year	Nil	-
					T2- Arka Vishesh	Yield (q/ha)	436.82	525.16	564.15				
					T3-Arka Abhed	Number of fruit/plants	62.71	68.09	69.11				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)	Farmer's practice	436.82	Qui/ha	233475	2.28
Technology option 2 (Arka vishesh)	IIHR, Bengaluru	525.16	Qui/ha	314218	2.73
Technology option 3 (Arka abhed)	IIHR, Bengaluru	564.15	Qui/ha	339591	2.87

OFT:6

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refine ment needed	Justifica tion for refinem ent
1	2	3	4	5	6	7		8		9	10	11	12
Onion	Irrigation	Low yield and quality	Assessment of onion varieties- Bhima Raj and Bhima Shakti	10	T1- Local variety	Weight of bulb (g)	T1 66.46	T2 74.59	T3 85.64	The comparison data revealed that the maximum total yield (408.46 q ha ⁻¹) with the highest marketable bulb yield (88.62%) was recorded in treatment T3 (Bhima Shakti), showing an increase of 33.11% and 17.55%, respectively, over the check. Treatment T3 (Bhima Shakti) also registered the highest average bulb weight (85.64 g), which was 28.86% higher than the check.	Bhima Shakti bulb has attractive colour which is well accepted in the local market, with good keeping quality of 5–6 months. It also recorded the highest marketable yield. Both Bhima Shakti and Bhima Raj are suitable for cultivation during late Kharif as well as Rabi season.	Nil	-
					T2- Bhima raj	Yield (q/ha)	306.85	313.16	408.46				
					T3- Bhima shakti	Marketable bulb yield (%)	75.39	83.46	88.62				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)	Farmer's practice	292.57	Qui/ha	260303	2.48
Technology option 2	DOGR, Pune	323.84	Qui/ha	296352	2.69
Technology option 3	DOGR, Pune	388.67	Qui/ha	339993	2.94

OFT - 7

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter		Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8		9	10	11	12
Pigeonpea	Rainfed with protective irrigation, Light to medium black soil	Severe stem blight (<i>Phytophthora drechsleri</i>) causing 30– 70% yield loss during heavy rainfall	Assessment of Integrated Management of Stem Blight (<i>Phytophthora drechsleri</i>) in Pigeonpea	10	T1: Farmer's practice (Thiophanate Methyl spray after symptoms) T2: IDM (Seed treatment with <i>Trichoderma</i> @5g/kg + Drainage + Metalaxyl + Mancozeb spray)	% Disease Incidence	T1 38.5 %	T2 14.2 %	44.4% higher yield and 24.3% disease reduction under T2; Net return increased by ₹30,100/ha	Farmers observed better crop stand, less mortality and uniform pod filling; Slightly higher cost acceptable due to profit	Inclusion of resistant variety and strengthening drainage at community level	To further reduce disease incidence under extreme rainfall and improve sustainability & adoption
						% Reduction	—	63.1 %				
						Plant Protection Cost (Rs/ha)	4,800	7,200				
						Yield (kg/ha)	1,080	1,560				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)	Local practice / Farmer innovation	1080	kg/ha	29120	1.55
Technology option 2 (Integrated Disease Management – Seed treatment + Drainage + Metalaxyl + Mancozeb)	ICAR–IIPR, Kanpur	1560	kg/ha	59210	2.10

OFT-8

Crop/enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Custard Apple	Rainfed with protective irrigation; light to medium black soil	30–50% fruit fly infestation causing fruit rot, premature drop and market loss	Management of Fruit Fly in Custard Apple & Guava using Nanogel Technology	10	T1: Farmer's Practice (Irregular insecticide sprays), T2: Integrated Pest Management of custard Apple T3: Nano Gel @ 250 g/acre (40–42 days residual)	% Fruit infestation	T1 36.8%	T2 14.6	T3 12.4%	Application of Nanogel technology significantly reduced fruit fly infestation from 36.8% (Farmer's Practice) to 12.4%, recording a 66.3% reduction over control. The 30.6% yield improvement.	Farmers observed significant reduction in fruit damage, improved fruit quality & better shelf life, Higher profit realized 85% farmers willing to adopt	Integration with pheromone traps & orchard sanitation strengthening Need cluster level adoption Awareness training required Market linkage strengthening Multi-season validation	To further minimize infestation below 10% and ensure sustainable IPM To improve area-wide suppression To enhance acceptance of gel formulation To maximize price realization For long-term recommendation
						Plant Protection Cost (Rs. /ha)	11,500	9,850	9,200				
						Yield (t/ha)	7.5	9.2	9.8				
						Net Return (Rs. /ha)	74,600	103,200	113,100				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's Practice)	Local practice	7.5 t/ha (Avg.)	t/ha	74,600	2.47
T2: Integrated Pest Management of custard Apple	MPKV, Rahuri	9.2 t/ha (Avg.)	t/ha	103,200	2.98
Technology option 2 (Nanogel Technology)	IIHR, Bengaluru	9.8 t/ha (Avg.)	t/ha	113,100	3.25

OFT :9

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter		Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8		9	10	11	12
Apiculture	Rainfed pigeon pea flowering period (Dec–Jan) with beekeepers	Beekeeper–farmers not harvesting pollen; limited income during flowering; sub-optimal pollination	Assessment on Use of Pollen Collection Tray during Pigeon pea Flowering Period (Dec–Jan) for Extra Income and Yield Enhancement among Beekeepers	05	T1: No use of honey bee hives T2: Pollen collection tray with managed honeybee colonies @ 5 hives/ha		T1	T2	T2 resulted in 3.6 kg/ha pollen harvest and ~10–11% increase in pigeon pea yield over T1, providing additional income to beekeepers	Easy to adopt; visible increase in pod setting; pollen sale gave quick cash during lean period	Standardization of pollen trapping schedule (alternate day collection)	To avoid over-harvesting of pollen and to maintain colony strength and sustained pollination services
						1) Pollen collected (kg/ha/season)	0	3.6 kg/ha				
						2) Pod setting (%)	58	66				
						3) Pigeon pea yield (q/ha)	12.5 q/ha	13.8 q/ha				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Farmers Practice	-	Pollen: 0 Pigeon pea grain: 12.5	kg/ha/season q/ha	43000	2.34
Pollen collection tray with managed honeybee colonies in pigeon pea	Central Bee Research & Training Institute, Pune	Pollen: 3.6 Pigeon pea grain: 13.8	kg/ha/season q/ha	55700	2.62

OFT: 10

Crop/ enterpris e	Farmin g situatio n	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refin eme nt need ed	Justificati on for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Improved spraying equipmen t.	Rainfed with Protectiv e Irrigatio n	Lack of Labour, Less area Coverage, High cost of Spraying and Pesticide poisoning, Drudgery- prone activity.	Assessme nt of Kisan Drone for spraying crops	10	T1: Battery operated Knapsack Sprayer	Field capacity (ha/h)	T1	T2	T3	Treatment T ₂ (drone sprayer) demonstrated superior performance with a working efficiency of 1.81 ha/h and a low application rate of 25 L/ha, resulting in a higher yield of 22.5 q/ha. The net income achieved with drone technology was ₹71,733/ha, indicating its efficiency and economic viability.	Drone spraying is effective under diverse field conditions, including rainy and flood- affected areas where conventional machinery cannot operate efficiently. It saves time, reduces dependence on manual labour, and ensures precise application of agrochemicals. Moreover, it minimizes human exposure to pesticides, thereby reducing health risks.	-	-
						0.24	1.81	1.73					
					T2: Drone Sprayer	Field Efficiency (%)	74	75.45	79				
					T3: Boom Sprayer	Application Rate (l/ha)	200	25	180				
						Operating cost Rs/ha	472	1017	1262				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
T1: Battery operated Knapsack Sprayer	Farmer's practice	14.70	Q/ha	29378	1.57
T2: Drone Sprayer	SOP, Ministry of Agriculture & Farmers' Welfare, GOI.	22.50	Q/ha	71733	2.37
T3: Boom Sprayer	MPKV, Rahuri	19.80	Q/ha	56638	2.08

OFT: 11

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Improved Farm implements	Rainfed with Protective Irrigation	Poor germination/crop stand, Less area Coverage, Lack of Labour, High cost of Sowing.	Assessment of Manual Operated Precision Rotary Dibbler (Token Yantra)	10	T1: Bullock drawn <i>tifan</i>	Field capacity, ha/h	T1	T2	T3	The result showed that Treatment T2 performed well, field capacity of the planter was 0.062 ha/day with a highest field efficiency of 91 % and provided higher yield 33.00 q/ha. It's worth Net income of Rs. 135823/ha with Precision Rotary Dibbler.	Use of the Precision Rotary Dibbler (Token Yantra) resulted in a 20–25% increase in crop yield compared to the conventional bullock- drawn <i>tifan</i> method. It also reduced seed rate by 40–45%, leading to significant seed savings and a reduction in overall cost of cultivation.	-	-
					T2: Precision Rotary Dibbler (Token Yantra)	Field efficiency, %	79	91	87				
						Seed rate, kg/ha	75	28.75	55				
					T3: Tractor drawn BBF planter	Operating cost, Rs/ha	549	1177	1372				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / Unit	B:C Ratio
13	14	15	16	17	18
T1: Bullock drawn <i>tifan</i>	Farmer's practice	18.75	Q/ha	54076	2.10
T2: Precision Rotary Dibbler (Token Yantra)	CIAE, Bhopal	33.00	Q/ha	135823	3.97
T3: Tractor drawn BBF planter	Dr. PDKV, Akola	25.50	Q/ha	90378	2.81

OFT: 12

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter			Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8			9	10	11	12
Improved Farm implements	High rainfall situations, the field remains waterlogged for 3-10 days.	Poor internal drainability, Lack of water management practices, Crop failure due to stagnant water for 3- 10 days during high rainfall, Low yield.	Assessment of Mole plough to enhance crop yield in waterlogged soils.	10	T1: No drainage	Field capacity, ha/h	T1	T2	T3	The implementation of mole drainage technology significantly improved soybean yield under waterlogged conditions. Yield increased by 25–30% in fields with mole plough drainage compared to those without drainage, demonstrating its effectiveness in mitigating excess moisture stress and enhancing crop productivity.	The implementation of mole drainage technology significantly enhanced soybean yield under waterlogged conditions by improving subsurface drainage and aeration.	-	-
						0.22	0.25	0.27					
					T2: Mole drains at 2-6 m distance using tractor drawn mole plough	Field efficiency, %	84	82	75				
					T3: MB Plough	Operating cost, Rs/ha	540	1750	1125				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / Unit	B:C Ratio
13	14	15	16	17	18
T1: No drainage	Farmer's practice	16.20	Q/ha	46400	2.08
T2: Mole drains at 2-6 m distance using tractor drawn mole plough	CIAE, Bhopal	28.50	Q/ha	109250	3.30
T3: MB Plough	MPKV, Rahuri	21.50	Q/ha	73250	2.62

OFT : 13

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8	9	10	11	12
Pulses	Irrigated	Damage of pulses during storage period	Assessment of use of custard apple seed powder for storage of pulses	10	No any treatment for storage of pulses	Damage Percentage %	43.8	Use of custard apple seed powder (15 gms/kg) to stored green gram reduces grain damage by 65.52% and increased shelf life of pulses.	This treatment to pulses in pest management strategies significantly superior over farmers' practice. Useful for small scale farmers who store small amounts of pulses for consumption and planting.		
						Shelf life in a day	27				
					Use of custard apple seed powder 15 gm/kg	Damage Percentage %	15.1				
						Shelf life in a day	69				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / unit	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice)					
Technology option 2					
Technology option 3					

OFT: 14

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8	9	10	11	12
Dairy	Stallfed	Low milk yield and poor health despite of proper feeding	Assessment of use of Pro-biotic (EM Solution) in feed for milk yield improvement in C B cows	10	T1- No use of pro-biotic in animal feed.	Milk Yield, L/Day/animal	11.6	The use of probiotics (EM solution) in feed showed positive results compared to traditional farming practices. In the farmers' practice (T1), milk production was 11.6 liters per day per animal with 3.5% fat, while in the probiotic-fed group (T2), milk production increased to 13.2 liters per day with an improvement in fat percentage (3.7%). The cost of production in T2 was marginally higher (Rs. 260 vs. Rs 252), but the gross returns were significantly better at Rs 475 per animal compared to Rs 373 in T1. Additionally, probiotic use contributed to better general health in animals and reduced odor in the shed, making it a beneficial intervention for dairy farming.	The use of probiotics increased milk production, reduced odor in the shed, improved dung quality, and enhanced the overall health of the animals.	-	-
						Fat %	3.5				
					(T2)-Technology assessed: Use of pro-biotic (EM solution) 20ml/Animal/Day	Milk Yield, L/Day/animal	13.2				
						Fat %	3.7				

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Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / animal/day	B:C Ratio
13	14	15	16	17	18
Technology option 1 (Farmer's practice) No use of pro-biotic in animal feed.	-	11.6	Milk yield, liter/animal/day	121	1.48
Technology option 2 (Assessment) Use of pro-biotic (EM solution) 20ml/Animal/Day	MAFSU, Nagpur	13.2	Milk yield, liter/animal/day	215	1.82

OFT 15 :

Crop/ enterprise	Farming situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement						
1	2	3	4	5	6	7	8	9	10	11	12						
Poultry	Backyard farming	Low egg production, slow growth rate, high mortality, and low economic returns limit the profitability of backyard poultry with traditional indigenous birds.	Assessment of Nicobari and Vanashree Purebred Native chicken for free range or backyard farming to increase the profitability.	10	T1 – Farmers practice – Rearing of Indigenous poultry birds	Annual Egg production, No.	63	The Nicobari breed outperforms both Desi and Vanashree birds in egg production, laying 152 eggs in 72 weeks, making it the best choice for profitability. Vanashree birds, while slightly behind in egg production (116 eggs), excel in body weight (2.04 kg), making them ideal for both meat and egg production. Desi birds lag in productivity, with only 63 eggs and the lowest body weight (1.27 kg), making them less suitable for commercial farming. Nicobari birds also provide the highest profit (Rs.907 per bird), followed by Vanashree (Rs. 818), while Desi birds offer the least (Rs. 397). Overall, Nicobari is the best for egg production and profitability, Vanashree is optimal for dual-purpose farming than the desi birds.	"Nicobari and Vanashree breeds produced more eggs and had lower mortality rates compared to Desi birds. Both breeds started laying eggs earlier and produced larger eggs than Desi birds. They adapted well to local conditions. Farmers preferred Nicobari birds over Vanashree due to their appearance and higher egg production, making them a more favorable choice for backyard poultry farming."		-						
						Avg body weight at maturity, kg	1.27										
						Mortality, %	8										
						Age at first egg, days.	205										
						Egg Weight, gms	37										
					T2 – Technology Assessed- Rearing of Nicobari poultry birds	Annual Egg production, No.	152										
						Avg body weight at maturity, kg	1.43										
						Mortality, %	6										
						Age at first egg, days.	182										
						Egg Weight, gms	43										
					T1 – Technology Assessed- Rearing of Vanashree poultry birds	Annual Egg production, No.	116										
						Avg body weight at maturity, kg	2.04										
						Mortality, %	6										
						Age at first egg, days.	188										
						Egg Weight, gms	44										

Contd..

Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / bird	B:C Ratio
13	14	15	16	17	18
T1 – Rearing of Indigenous poultry birds	-	63	Annual Egg Production, No.	397	1.56
T2 – Rearing of Nicobari poultry birds	Directorate of Poultry Research, Hyderabad	152	Annual Egg Production, No.	907	1.99
1.99T1 – Rearing of Vanashree poultry birds	Directorate of Poultry Research, Hyderabad	116	Annual Egg Production, No.	818	1.86

OFT : 16

Crop / enter prise	Farmin g situation	Problem definition	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer	Any refinement needed	Justification for refinement
1	2	3	4	5	6	7	8	9	10	11	12
Goat	Free Range Farming	High pre-weaning mortality and poor growth performance in goat kids and lambs due to inadequate milk supply, multiple births, and unscientific feeding practices result in significant economic losses to farmers.	Assessment of milk replacer supplementation for economic meat production in lamb/kids	10	T1 – Farmers practice – Natural suckling to mother T2 – Technology Assessed- Natural suckling to mother + Supplementation of Milk Replacer at the rate of 40g/day for a period of 60 days	Kids-Weight at market age, Kg/animal. Kids-Mortality rate, % Kids-Prewaning phase weight gain, gms/day Lamb-Weight at market age, Kg/animal. Lamb-Mortality rate, % Kids-Prewaning phase weight gain, gms/day Kids-Weight at market age, Kg/animal. Kids-Mortality rate, % Kids-Prewaning phase weight gain, gms/day Lamb-Weight at market age, Kg/animal. Lamb-Mortality rate, % Lamb-Prewaning phase weight gain, gms/day	15.0 20.0 81 16.9 20.0 92.0 18.1 10.0 97 20.7 10.0 126.0	The use of milk replacer in kids and lambs significantly improved growth performance, survival rate, and overall profitability under field conditions. In kids, milk replacer feeding resulted in a body weight of 18.1 kg at six months compared to 15.0 kg under farmers' traditional practice. Pre-weaning average daily gain improved markedly from 77 g/day to 106 g/day. Mortality was reduced by 50%, decreasing from 20% to 10%, ensuring better survival and uniform growth of kids. The gross profit per kid increased substantially from Rs. 5119 to Rs. 6925. Although the cost of production was slightly higher (Rs. 3130 compared to Rs. 2735 under farmers' practice), the additional returns more than compensated for the extra investment, resulting in improved net income and economic efficiency. Similarly, in lambs, milk replacer feeding enhanced six-month body weight to 20.7 kg compared to 16.99 kg under conventional rearing. Pre-weaning daily weight gain increased from 92 g/day to 126 g/day. Mortality was reduced from 20% to 10%, improving flock productivity and survival. Gross profit increased significantly from Rs. 5437 to Rs. 7452 per lamb. Despite a slightly higher cost of production (RS. 3130 versus Rs.2735), the improved growth and survivability led to higher overall profitability. Overall, milk replacer feeding proved to be an effective nutritional intervention for small ruminant rearing, reducing pre-weaning losses, enhancing growth rate, improving market weight attainment, and increasing farmers' income. The practice demonstrated clear advantages over traditional rearing methods.	After adopting milk replacer feeding, mortality in kids decreased significantly. The kids showed better weight gain and were ready for market earlier, increasing our income.		-

Contd..

Technology Assessed	Source of Technology	Production	Unit	Net Return (Profit) in Rs. / Unit	B:C Ratio
13	14	15	16	17	18
T1 – Farmers practice – Natural suckling to mother	-	Kid-15 Lamb-16.9	Weight at market age, Kg/animal.	Goat-2384 Sheep-2702	Goat-1.87 Sheep-1.98
T2 – Technology Assessed- Natural suckling to mother + Supplementation of Milk Replacer at the rate of 40g/day for a period of 60 days	ICAR-National Institute of Animal Nutrition and Physiology (NIANP), Bengaluru	Kid-18.1 Lamb -20.7	Weight at market age, Kg/animal.	Goat-3795 Sheep-4322	Goat-2.21 Sheep-2.38

C. 2. Details of each On Farm Trial for assessment to be furnished in the following format separately as per the following details:

OFT: 1

1. **Title of Technology Assessed:** Assessment on Productivity of Chickpea Through Improved Varieties
2. **Problem Definition:** Low yield due to uneven distribution of rainfall, prolonged dry spells, evapotranspiration losses in low rainfall conditions, imbalanced fertilizer application, lack of awareness about foliar fertilizers, and limited knowledge of biofertilizers
3. **Details of technologies selected for assessment:**
T1: Cultivation of Soybean Variety: Jaki-9218
T2: Cultivation of Soybean Variety: Phule Vikrant
T3: Cultivation of Soybean Variety: Phule Vishwaraj
4. **Source of technology:** PDKV,Akola & MPKV Rahuri
5. **Production system and thematic area:** Varietal Evaluation
6. **Performance of the Technology with performance indicators:**
 - The chickpea variety Phule Vishwaraj recorded a significantly higher yield of 22.40 q/ha, which is 64.42% higher than the farmers' practice (13.30 q/ha). This clearly indicates its superior yield potential under local agro-climatic conditions.
 - Phule Vikrant is characterized by earlier maturity compared to Phule Vishwaraj making it suitable for situations where early harvest is preferred or where terminal moisture stress is anticipated.
 - Phule Vishwaraj has a higher yield potential compared to older chickpea varieties and exhibits resistance to major chickpea diseases such as Ascochyta blight and Fusarium wilt, resulting in stable yields. The variety is also relatively early maturing, produces bold and superior quality grains and therefore commands better market demand and higher prices. In addition, farmers have observed that Phule Vishwaraj shows better drought tolerance compared to several other chickpea varieties making it well suited for rainfed and moisture-stress conditions.
7. **Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:**

S.N.	Perticular	T1	T2	T3
1.	Resistant to Pest and diseases	III	II	I
2.	No. of Maturity Days	I	II	III
3.	% Increase in Yield	III	II	I

8 Final recommendations for micro level situation:

- ❑ Adoption of improved soybean varieties such as **Phule Vikrant** and **Phule Vishwaraj**, which are tolerant to major pests and diseases.
- ❑ Application of foliar fertilizers at the vegetative, flowering, and pod formation stages to enhance growth and productivity.
- ❑ Use of **Broad Bed and Furrow (BBF)** technology to facilitate efficient intercultural operations and improve drainage.
- ❑ Providing 2–3 irrigations at critical growth stages to minimize moisture stress and improve yield.

9 Constraints identified and feedback for research:

- ❑ Limited availability of good quality seed of improved varieties.
- ❑ Lack of awareness among farmers about newly released and high-yielding varieties.
- ❑ Need for bulk production and timely supply of improved variety seeds by the University, KVK, and research institutes to ensure wider adoption.

10 Process of farmers participation and their reaction:

- Farmers actively participated through various extension activities such as **group discussions, trainings, and field visits**.
- Their participation further increased through the **soybean seed production programme** implemented in different villages of the jurisdiction.

11. Photographs :



OFT on Phule Vikrant



OFT on Phule Vishwaraj



Seed Distribution

OFT: 2

1. **Title of Technology Assessed:** Assessment of different varieties of Soybean
2. **Problem Definition:** Late onset of the monsoon. The continued cultivation of the old variety JS-335, which is susceptible to major pests and diseases, further, contributes to low yields. In addition labour shortages during peak operations, imbalanced fertilizer application.
3. **Details of technologies selected for assessment:**
 - T1: Cultivation of Soybean Variety JS-335
 - T2: Cultivation of Soybean Variety MAUS-612
 - T3: Cultivation of Soybean Variety MAUS-725
4. **Source of technology:** VNMKV, Parbhani & JNKVV, Jabalpur
5. **Production system and thematic area:** Varietal Evaluation
6. **Performance of the Technology with performance indicators:**
 - The results revealed that Treatment T3 recorded a higher yield of 24.32q/ha, which was about 64.42% higher than the farmers' practice.
 - The soybean variety MAUS-725 exhibits earlier maturity compared to MAUS-612. A distinctive characteristic of this variety is its close pod bearing habit with predominantly four-seeded pods.
 - MAUS-725 has shown better performance under drought conditions and produces stable yields under moisture stress. The variety can tolerate dry spells, and 1–2 protective irrigations at critical stages are sufficient to enhance productivity.
7. **Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:**

S.N.	Perticular	T1	T2	T3
1.	Resistant to Pest and diseases	III	II	I
2.	No. of pods/plant	III	II	I
3.	No. of Maturity Days	I	III	II
4.	% Increase in Yield	III	II	I

8. Final recommendation for micro level situation:

- ☐ Adoption of improved soybean varieties such as **MAUS-612 and MAUS-725** which are tolerant to major pests and diseases.

- ❑ Application of foliar fertilizers at the vegetative, flowering, and pod formation stages to enhance growth and productivity.
- ❑ Use of **Broad Bed and Furrow (BBF)** technology to facilitate efficient intercultural operations and improve drainage.
- ❑ Providing 2–3 irrigations at critical growth stages to reduce moisture stress and increase yield.

9. Constraints identified and feedback for research:

- Availability of good quality seeds of improved varieties.
- Unawareness among farmers about newly released varieties.
- Need to available improved variety seeds in bulk by University, KVK and research institute

10. Process of farmers participation and their reaction:

- Farmers actively participated through various extension activities such as **group discussions, trainings, and field visits.**
- Their participation further increased through the **soybean seed production programme** implemented in different villages of the jurisdiction.

11. Photographs:



Variety MAUS-725



OFT on Soybean



Variety MAUS-612

OFT: 3

1. **Title of Technology Assessed:** Assessment of Pre & Post emergence of Herbicide for Effective Weed Management in Sole Soybean
2. **Problem Definition:** Labour Shortage, High cost of Cultivation for weed management, Unawareness about Integrated weed management practices, Uneven distribution of rainfall creates obstacles in weed management.

3 Details of technologies selected for assessment:

T1: Control (Hand Weeding)

T2: Post Emergence Herbicide (Propaquizafop @0.050 kg.a.i +Imazethapyr @0.075 kg.a.i/ha at 21 DAS)

T3: Pre Emergence Herbicide (Diclosulam 84% WDG@0.026 kg.a.i./ha) (30 gm/ha)

4 Source of technology: PDKV,Akola

5 Production system and thematic area: Weed Management

6 Performance of the Technology with performance indicators:

The results showed that Treatment T3 performed the best, achieving the highest yield of 26.04 q/ha, followed by Treatment T2 with 22.32 q/ha, and Treatment T1 with 19.22 q/ha. This indicates that T3 (35.48%) outperformed over T1 and (16.66%) over T2 in terms of yield improvement.

Pre Emergence Herbicide helps to minimize weeds before germination of soybean crop which results to better vegetative growth of crop.

Field level results of Pre Emergence Herbicide performed well for dicot and monocot weeds as compared to post emergence of herbicide.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:

S.N.	Perticular	T1	T2	T3
1.	Weed Density (No/m ²)	III	II	I
2.	Weed Dry Matter 60 DAS	III	II	I
3.	No. of Pods/Plant	III	II	I
4.	Labour Shortage Problem	I	II	III

8 Final recommendation for micro level situation:

Use of herbicide according to type of weeds is most important.

Need to use integrated weed management practices to improve productivity.

Knowledge about herbicide molecules should be required.

9 Constraints identified and feedback for research:

Unavailability of labours for weed management

Unawareness among farmers about use of herbicides and dose of herbicides.

Uneven distribution of rainfall creates obstacles during vegetative growth of soybean so difficult task to weed management.

10 Process of farmers participation and their reaction:

Farmers participated through various extension activities like group discussions, trainings, literature, field visit etc.

11 Photographs



Inputs Distribution



Pre emergence application



Post emergence application

OFT : 4

1. **Title of Technology Assessed** – Assessment of marigold varieties Arka Bhanu and Arka Abhi

2. **Problem Definition**- Low yield and poor keeping quality flowers

3. Details of technologies selected for assessment

T1- Local variety

T2- Arka Bhanu

T3- Arka Abhi

4. **Source of technology**- IIHR, Bengaluru

5. Production system and thematic area- Varietal Evaluation

6. Performance of the Technology with performance indicators

The present findings indicated that the highest yield of marigold flowers (88.83 q ha⁻¹) and the number of flowers per plant (42.92) were recorded in treatment T3 (Arka Abhi), showing an increase of 7.71% and 31.74%, respectively, over the check. The maximum vase life of flowers (7.35 days) was also observed in T3, representing a 42.17% increase over the check.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques

Parameter	Local	Bhima Raj	Bhima Shakti
Yield	III	II	I
No of flower/plant	III	II	I
Keeping Quality	III	II	I
Compactness of flower	III	II	I
B:C ratio	III	II	I

Matrix Scoring: - Based on matrix scoring, the Bhima Shakti variety was most preferred by farmers due to its superior performance in terms of high yield and better flower quality attributes, along with good keeping quality, compared to the other two varieties.

8. **Final recommendation for micro level situation**

1. Fertilizer application should be carried out as per soil test–based recommendations supplemented with foliar nutrient sprays.
2. Pinching should be performed at the proper physiological stage to ensure better branching and flowering.
3. Flowers should be harvested during early morning or evening to maintain freshness and improve vase life.

9. Constraints identified and feedback for research

Constraints

1. Non-availability of good quality seed.
2. Poor flower quality with respect to colour and compactness.

Feedback

There is a need to develop or recommend varieties with high yield potential and good keeping quality of flowers.

10. Process of farmers participation and their reaction

Farmers participated through various extension activities such as group discussions, live demonstrations, training programmes, distribution of literature, and field visits. Through these activities, farmers became aware of the importance of the trial results in improving flower yield and keeping quality for distant markets by adopting new marigold varieties. Farmers expressed positive reactions and showed keen interest in cultivating improved marigold varieties for obtaining higher yield and better flower quality

11. Photographs:



Assessment of different varieties of marigold

OFT : 5

1. **Title of Technology Assessed** – Assessment of tomato varieties Arka Vishesh and Arka Abhed

2. **Problem Definition**- Low yield and quality of fruit

3. Details of technologies selected for assessment

T1- Local variety

T2- Arka Vishesh

T3- Arka Abhed

4. Source of technology- IIHR, Bengaluru

5. Production system and thematic area- Varietal Evaluation

6. Performance of the Technology with performance indicators

Results revealed that treatment T3 (Arka Abhed) produced the highest yield (564.15 q ha⁻¹) and number of fruits per plant (69.11), registering increases of 29.15% and 10.21%, respectively, over the check. The highest average fruit weight (68.22 g) was also recorded in the same treatment, representing a 16.62% improvement over the check.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques

Parameter	Local	Arka Vishesh	Arka Abhed
Yield	III	II	I
Weight of fruit	III	II	I
Colour of fruit	III	I	II
No of fruit	III	II	I
B:C ratio	III	II	I

Matrix Scoring: - Revealed that Arka Abhed was the most preferred variety among farmers owing to its high yield potential and better fruit quality characteristics as compared to the other varieties

8. Final recommendation for micro level situation
 1. Fertilizer application should be based on soil test recommendations, with special emphasis on micronutrients.
 2. Tomato should be planted on ridges and furrows or on broad bed furrow (BBF) systems with appropriate plant-to-plant spacing to obtain higher yield
 3. Proper plant protection measures should be followed regularly.
9. Constraints identified and feedback for research

Constraints

Unavailability of good quality seed

Unavailability of source seed for multiplication of varieties

Feedback

Arka Abhed F1 hybrid should have been high yielding with quality fruits among others
10. Process of farmers participation and their reaction

Farmers participated through various extension activities such as group discussions, training programmes, distribution of literature, and field visits.

Through these activities, farmers became aware of the importance of the trial results in improving yield and fruit quality by adopting new tomato hybrids

11. Photographs :



Assessment of different varieties of tomato

OFT 6 :

1. **Title of Technology Assessed** – Assessment of onion varieties Bhima Raj and Bhima Shakti

2. Problem Definition- Low yield and quality of bulb

3. Details of technologies selected for assessment

T1- Local variety

T2- Bhima Raj

T3- Bhima Shakti

4. Source of technology- DOGR, Pune

5. Production system and thematic area- Varietal Evaluation

6. Performance of the Technology with performance indicators

The data revealed that the maximum total yield (408.46 q ha⁻¹) with the highest marketable bulb yield (88.62%) was recorded in treatment T3 (Bhima Shakti), showing an increase of 33.11% and 17.55%, respectively, over the check. Treatment T3 (Bhima Shakti) also registered the highest average bulb weight (85.64 g), which was 28.86% higher than the check.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques

Parameter	Local	Bhima Raj	Bhima Shakti
Yield	III	II	I
Weight of bulb	III	II	I
Colour	III	I	II
Keeping Quality	III	II	I
Marketable bulb yield	III	II	I
B:C ratio	III	II	I

Matrix Scoring: - The Bhima Shakti variety was preferred by farmers due to its higher marketable bulb yield and superior quality attributes, along with good bulb keeping quality, compared to other varieties.

8. Final recommendation for micro level situation

Adoption of soil test–based fertilizer application supplemented with foliar nutrition is recommended. Harvesting should be done at the neck-fall stage (when about two-thirds of tops have fallen). Proper curing of bulbs after harvest is essential for ensuring better keeping quality and long-term storage.

9. Constraints identified and feedback for research

Constraints

Unavailability of good quality seed

Unavailability of source seed for multiplication of varieties

Feedback

The variety should give more marketable bulbs and have good keeping quality for storage

10. Process of farmers participation and their reaction

Farmers participated in various extension activities including group discussions, trainings, distribution of literature, and field visits. These activities helped farmers understand the significance of the trial results for enhancing yield and quality through the adoption of the new onion variety.

11. Photographs:



Assessment of different varieties of onion

OFT- 7 :

1. **Title of Technology Assessed:** Assessment of Integrated Disease Management (IDM) Module for Stem Blight in Pigeon pea under Rainfed Conditions

2. **Problem Definition:**

Pigeon pea is one of the major pulse crops cultivated under rainfed conditions in Latur district. It serves as an important source of protein for rural households and contributes significantly to farm income due to its relatively stable market price. However, in recent years, the productivity of pigeonpea has been severely affected by the increasing incidence of Stem Blight caused by *Phytophthora drechsleri*. The problem has become more prominent due to erratic and heavy rainfall events during the early vegetative stage of the crop, leading to temporary water stagnation and high soil moisture conditions that favor pathogen multiplication and rapid disease spread.

In epidemic years, especially when heavy rainfall occurs within a short duration followed by humid weather, disease incidence has been recorded between 30 to 70 percent in farmers' fields. In poorly drained soils, plant mortality has reached up to 60 percent, leading to severe gaps in plant population and poor pod formation. As a consequence, yield losses ranging from 35 to 50 percent have been observed, directly affecting farmers' profitability.

The major contributing factors identified during diagnostic field visits include lack of preventive seed treatment, absence of proper drainage channels, dense sowing, and exclusive reliance on curative fungicidal sprays after the appearance of symptoms. Most farmers follow a reactive approach by spraying systemic fungicides such as Metalaxyl or Thiophanate Methyl only after visible symptoms appear, which often proves ineffective under high disease pressure. Additionally, limited awareness about integrated disease management practices and non-availability of quality bio-control agents at the village level further aggravate the situation.

Therefore, there was an urgent need to scientifically assess an integrated and preventive disease management module under farmers' field conditions to minimize yield loss, improve crop stand, and enhance economic returns in rainfed pigeonpea production systems.

3. **Details of technologies selected for assessment**

The assessment focused on preventive versus curative approaches under rainfed conditions where intermittent heavy rainfall and temporary water stagnation create favorable conditions for disease development.

Two technology options were evaluated in farmers' fields under similar agronomic conditions to ensure comparability.

◆ **T1 – Farmer's Practice (Control)**

The existing practice followed by the majority of farmers in the cluster villages was largely reactive and symptom-based. Plant protection measures were generally adopted only after visible disease symptoms appeared in the field.

Major components of T1:

- ✓ No seed treatment before sowing, Normal sowing in flat beds without drainage planning
- ✓ Application of fungicide (Thiophanate Methyl or Metalaxyl) only after disease appearance

- ✓ Irregular spray schedule depending on farmer perception, No removal of infected plants at early stage
- ✓ Limited awareness about preventive management. This practice primarily focused on curative spraying and lacked integration of biological, cultural, and preventive measures.

◆ T2 – Recommended Integrated Disease Management (IDM) Module

The recommended module was preventive and holistic in approach, integrating biological, cultural, and chemical methods to reduce primary inoculum, prevent disease establishment, and manage secondary spread.

The IDM module was implemented from seed stage to vegetative stage for maximum effectiveness.

1. Seed Treatment (Biological Control)

- ✓ Seed treatment with *Trichoderma viride* @ 5 g per kg seed
- ✓ Purpose: Suppression of soil-borne inoculum and enhancement of rhizosphere protection
- ✓ Benefit: Reduced early seedling mortality and improved plant vigor

2 Cultural Management

- ✓ Provision of proper drainage channels to avoid water stagnation
- ✓ Raised bed or ridge sowing wherever feasible
- ✓ Timely removal (roguing) of infected seedlings at initial stage
- ✓ Maintenance of recommended spacing (90 × 20 cm) for aeration
- ✓ These practices minimized favorable microclimate conditions for pathogen multiplication.

3. Chemical Control (Need-based Preventive Spray)

- ✓ Two foliar sprays of Metalaxyl 4% + Mancozeb 64% WP @ 1.5 g per liter of water
- ✓ First spray at 15 days after germination
- ✓ Second spray at 15 days interval

4. Source of technology: ICAR- Indian Institute of Pulses Research, Kanpur

5. Production system and thematic area:

The present On Farm Trial was conducted under the **rainfed pigeon pea-based cropping system** prevailing in Latur district of Maharashtra. Pigeon pea is predominantly cultivated during the Kharif season and serves as a major pulse crop contributing to household food security and income

generation. The crop is generally grown under **low-input conditions** with dependence on monsoon rainfall, making it highly vulnerable to weather variability and soil moisture fluctuations.

The farming situation of the selected villages was characterized by **light to medium black soils** with moderate water-holding capacity. During periods of continuous or heavy rainfall, temporary water stagnation was observed in poorly drained fields, creating favorable conditions for the development of *Phytophthora drechsleri* causing stem blight. The disease incidence was particularly severe in compact soils and fields lacking proper drainage channels.

6. Performance of the Technology with performance indicators

The performance of the Integrated Disease Management (IDM) module was assessed under farmers' field conditions and compared with the existing farmer's practice during Kharif season. Observations were recorded at vegetative stage, flowering stage and at harvest.

The average **disease incidence** under farmer's practice (T1) was recorded as **38.5 percent**, mainly due to absence of seed treatment and delayed fungicidal spray after symptom appearance. In contrast, plots under IDM module (T2) recorded only **14.2 percent disease incidence**, indicating a substantial reduction in disease severity. The IDM technology achieved **63.1 percent reduction over control**, clearly demonstrating the effectiveness of preventive seed treatment with *Trichoderma viride*, proper drainage management and timely fungicidal application.

With respect to **plant protection cost**, the farmer's practice incurred an average expenditure of **Rs. 4,800 per hectare**, mainly for one or two curative fungicide sprays. The IDM module required **Rs. 7,200 per hectare**, which included cost of bio-agent seed treatment, improved fungicide and two scheduled sprays. Although the cost was approximately **Rs. 2,400 higher per hectare**, the additional investment resulted in significantly improved crop health and productivity.

The impact on **yield performance** was clearly visible at harvest. The average grain yield under farmer's practice was **1,080 kg per hectare**, whereas the IDM-treated plots produced **1,560 kg per hectare**, resulting in an additional yield of **480 kg per hectare**, which corresponds to a **44.4 percent increase over control**. The yield improvement was mainly attributed to reduced plant mortality, better pod formation and uniform crop stand under IDM.

Economic analysis further revealed that the **net return** from farmer's practice was **Rs. 27,100 per hectare**, whereas IDM module generated **Rs. 57,200 per hectare**, nearly doubling the profitability. The **Benefit: Cost ratio** improved from **1.55 under T1 to 2.10 under T2**, confirming the economic viability of the recommended technology.

Overall, the Integrated Disease Management module proved technically effective, economically profitable and practically feasible under rainfed pigeon pea cultivation. The preventive approach significantly minimized disease incidence, enhanced yield levels and improved farmers' income despite slightly higher input cost.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques

Farmer feedback was systematically collected through Participatory Rural Appraisal (PRA), focused group discussions (FGDs), and structured interaction meetings conducted at critical stages of the crop/enterprise cycle. A matrix scoring technique was employed to assess the relative performance of the demonstrated technology vis-à-vis farmers' practice across key evaluation parameters.

The matrix included indicators such as productivity enhancement, cost-effectiveness, ease of implementation, risk reduction, input availability, compatibility with existing farming systems, market acceptability, and overall profitability. Each parameter was scored on a 1–5 scale (1 = very poor, 5 = excellent) by participating farmers after field observation and economic comparison.

The improved technology secured higher mean scores (4.2–4.6 range) across major parameters compared to farmers' practice (2.8–3.5 range). Maximum differential scoring was observed in yield performance, reduction in pest/disease incidence, and net return realization. Farmers particularly appreciated the visible crop vigor, uniform produce quality, and timely advisory support. Ease of adoption and compatibility with existing practices also received favorable ratings, indicating low technological complexity and good adaptability under local conditions.

The overall composite score indicated strong farmer preference toward the demonstrated technology, with more than 80% of participating farmers expressing willingness to adopt the technology in the subsequent season. Minor concerns raised were related to initial learning requirements and input procurement timing, which were documented for refinement and future advisory support.

The participatory matrix scoring exercise validated the technical and economic superiority of the assessed technology and strengthened confidence among stakeholders for its wider dissemination at the micro-level.

8. Final recommendation for micro level situation

The technology proved technically feasible, economically viable, and compatible with the existing production system of small and medium farmers.

It is particularly suitable for farmers operating under rainfed/semi-irrigated conditions with moderate input capacity, as it enhances productivity while ensuring better resource use efficiency and risk mitigation. The improved benefit–cost ratio and positive farmer feedback further justify its horizontal expansion within cluster villages.

However, successful implementation requires timely availability of quality inputs, proper technical guidance, and capacity building through field demonstrations and advisory services. With appropriate institutional support and farmer training, the technology can be effectively scaled up at village level to improve productivity, profitability, and sustainability of the farming system.

9. Constraints identified and feedback for research

During the implementation of the On-Farm Trial, certain technical and operational constraints were identified. Limited awareness about preventive management practices, delayed availability of critical inputs at village level, and partial adoption of recommended components were observed among some farmers. In a few locations, variability in soil conditions and micro-climatic factors also influenced the uniform performance of the technology. Additionally, initial hesitation due to comparatively higher input cost and lack of local access to quality bio-agents/fungicides was reported.

From the research perspective, farmers suggested the need for development of more location-specific and climate-resilient varieties or modules with reduced dependency on chemical inputs. Simplification of the technology package for easier adoption, cost reduction strategies, and refinement of dose and timing under variable rainfall conditions were also recommended. Further validation under multi-location and multi-season conditions is required to enhance confidence and ensure stability across diverse farming situations.

Overall, the feedback highlights the necessity for adaptive research, strengthening last-mile input delivery systems, and continuous farmer capacity building to maximize the impact of the technology.

10. Process of farmers participation and their reaction

Farmers were selected through a cluster approach and involved from the planning stage of the On-Farm Trial. Pre-season orientation and training programmes were conducted to explain the technology components and methodology. Farmers actively participated in sowing, implementation of treatments, periodic field observations, and recording of yield data. Joint monitoring visits and field days were organized to facilitate participatory evaluation and matrix scoring.

The overall reaction of farmers was positive. They observed visible improvement in crop performance, yield, and profitability under the improved technology. Most participating farmers expressed willingness to adopt the technology in the subsequent season and recommended its extension to other farmers in the village.

11. Photographs :



Assessment of of Integrated Disease Management (IDM) Module for Stem Blight in Pigeon pea under Rainfed Conditions

OFT 8 :

1. **Title of Technology Assessed:** Assessment of Nanogel Technology for Management of Fruit Fly in Custard Apple under Rainfed and Semi-Irrigated Conditions

2. **Problem Definition:**

Custard apple and guava are important fruit crops cultivated in Latur district under rainfed and semi-irrigated conditions. These crops serve as major sources of income for small and medium orchard growers due to high market demand and seasonal price advantage. However, in recent years, severe infestation of fruit fly (*Bactrocera spp.*) has emerged as a major constraint affecting fruit quality and marketable yield.

Fruit flies lay eggs inside developing fruits, and the maggots feed on the pulp, leading to fruit rotting, premature fruit drop, deformation, and reduced shelf life. In peak infestation periods, particularly during humid weather following intermittent rainfall, fruit damage has been recorded between **30 to 50 percent** in farmers' orchards. In unmanaged orchards, losses occasionally exceeded 60 percent, resulting in drastic reduction in marketable produce and price realization.

Diagnostic field visits revealed that most farmers relied heavily on repeated sprays of conventional insecticides such as Malathion or Dimethoate after visible infestation. This reactive approach was often ineffective because larvae remain protected inside fruits. Excessive spraying increased cost of cultivation, chemical residues, and environmental concerns without ensuring satisfactory control. Additionally, lack of awareness about innovative delivery systems and absence of preventive orchard sanitation aggravated the problem.

Therefore, there was a need to scientifically assess a simple, low-cost, long-lasting, and eco-friendly alternative such as Nanogel technology under farmers' field conditions to reduce fruit fly incidence, improve marketable yield, and enhance profitability.

3. **Details of technologies selected for assessment**

The assessment focused on comparing the existing conventional insecticide-based practice with an improved Nanogel-based attract-and-kill technology for management of fruit fly in custard apple and guava under field conditions.

Two technology options were evaluated under similar orchard conditions to ensure uniform comparison.

◆ **T1 – Farmer's Practice (Control)**

The prevailing practice among orchard growers was largely spray-oriented and reactive in nature.

Major components of T1:

- Repeated spraying of chemical insecticides such as organophosphates/synthetic pyrethroids after observing fruit infestation
- No preventive attractant-based system
- Irregular spray intervals depending on pest incidence
- Higher labor requirement and repeated spray cost
- Limited effectiveness due to internal feeding habit of maggots inside fruits

This practice often resulted in partial control, higher residue risk, and increased cost of cultivation.

◆ T2 – Integrated Pest Management of Custard Apple

- Installation of Methyl eugenol pheromone traps (10–12 traps/ha)
- Protein bait spray (jaggery + insecticide mixture)
- Orchard sanitation (collection & destruction of infested fruits)
- Need-based insecticide spray
- Monitoring-based approach

T3 – Nanogel Technology (Improved Practice)

The improved technology involved application of **Attractant-based Nanogel (Aakarsh M.E.)**, which attracts both male and female fruit flies and provides effective control.

1. Time of Application

- **Application at flowering stage or immediately after fruit set**
- **Early application helps in maintaining fruit fly population below economic threshold level**

2. Method of Application

- **Nanogel @ 250 g per acre**
- Mixed with recommended insecticidal component (e.g., Fipronil 5% SC @ 7.5 ml or Spinosad 45% SC as per recommendation)
- Applied as small gel spots (approximately 1 g per spot)
- Placement on trunk or main branches
- Re-application at **30–35 days interval** for effective management

3. Mode of Action

- Attracts fruit flies through semiochemical components
- Provides long residual activity (about 40–42 days)
- Controls adult population before egg laying
- Breaks pest life cycle and reduces oviposition

4. Additional Supportive Practices

- Orchard sanitation (collection and destruction of infested fallen fruits)
- Monitoring of pest incidence at regular intervals

4. **Source of technology:** ICAR- Indian Institute of Horticultural Research (IIHR), Bengaluru

5. **Production system and thematic area:**

The On Farm Trial was conducted under the orchard-based production system of custard apple and guava prevailing in Latur district. The crops are grown under rainfed and semi-irrigated conditions on light to medium black soils. Farmers depend on monsoon rainfall with limited protective irrigation.

High humidity and moderate temperature during fruiting stage create favorable conditions for rapid multiplication of fruit flies. The thematic area of the OFT was **Integrated Pest Management (IPM) in Fruit Crops**, focusing on eco-friendly and cost-effective pest management technologies.

6. **Performance of the Technology with performance indicators**

Under the existing farmer's practice (T1), the average fruit fly infestation was recorded at **34.6 percent**. Infestation symptoms included oviposition punctures, internal maggot feeding, fruit rotting, premature fruit drop, and reduced marketable quality.

The IPM module (T2) significantly reduced infestation to **18.6 percent**, registering a **46.2 percent reduction** over farmer's practice. The reduction was attributed to integrated components such as pheromone traps, bait sprays, orchard sanitation, and need-based insecticide application, which collectively suppressed adult fly population and reduced oviposition. The Nanogel technology (T3) recorded the lowest infestation level of **11.9 percent**, corresponding to a **65.6 percent reduction** over T1. The attract-and-kill mechanism of Nanogel effectively reduced adult fruit fly population before egg laying and interrupted the pest life cycle. Its long residual activity (40–42 days) ensured sustained suppression.

The average marketable yield under farmer's practice (T1) was **7.5 t/ha**. Under the IPM module (T2), yield increased to **8.8 t/ha**, representing a **17.3 percent improvement** over T1. The improvement was mainly due to better monitoring, reduced fruit drop, and lower infestation. The highest yield was recorded under Nanogel technology (T3) at **9.75 t/ha**, indicating a **30.0 percent enhancement** over control. Improved fruit retention, reduced internal damage, and better fruit size and quality contributed to higher marketable produce.

Treatment	Fruit fly infestation (%)	Reduction over T1 (%)	Marketable yield (t/ha)	Yield increase over T1 (%)
T1 – Farmer's Practice	34.6	—	7.50	—
T2 – IPM (MPKV, Rahuri)	18.6	46.2	8.80	17.3
T3 – Nanogel (IIHR, Bengaluru)	11.9	65.6	9.75	30.0

Farmer's practice involved repeated insecticidal sprays (4–5 per season), resulting in an average plant protection cost of **Rs. 12,880 per hectare**. The IPM module required installation of traps and limited sprays, with an average cost of **Rs. 10,750 per hectare**, resulting in a cost saving of approximately **Rs. 2,130 per ha (16.5% reduction)** over T1.

The Nanogel module incurred a lower cost of **Rs. 9,630 per hectare**, including material cost and limited supplementary sprays. This represented a cost saving of **Rs. 3,250 per hectare (25.2% reduction)** over T1 due to reduced spray frequency and labor requirement.

The net return improved substantially from **Rs. 74,600/ha under T1** to **Rs. 96,400/ha under IPM (T2)** and further to **Rs. 113,100/ha under Nanogel (T3)**. The Benefit: Cost ratio increased from **2.47 (T1)** to **2.85 (T2)** and **3.25 (T3)**, confirming higher profitability and economic sustainability of the improved technologies.

Treatment	Gross Cost (Rs./ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	B:C Ratio
T1 –	50,830	125,400	74,600	2.47
T2 –	50,600	147,000	96,400	2.85
T3 –	50,400	163,500	113,100	3.25

The results clearly indicate that: **IPM technology (MPKV, Rahuri)** provides sustainable and environmentally safer management with moderate but consistent reduction in infestation and improved profitability. **Nanogel technology (IIHR, Bengaluru)** offers maximum reduction in fruit fly incidence, highest yield, and superior economic returns due to its preventive attract-and-kill mechanism and long residual action. Both improved technologies significantly outperformed the conventional spray-based farmer's practice. Overall, Nanogel technology proved technically effective, economically viable, and practically feasible under orchard-based production systems of custard apple in rainfed and semi-irrigated conditions. However, integration of IPM components with Nanogel application may further strengthen area-wide suppression and long-term sustainability of fruit fly management.

7. **Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques**

Farmer feedback on the assessed technologies was collected through structured meetings, joint field observations, and focused group discussions conducted at flowering and harvest stages. The participatory evaluation included T1 – Farmer's Practice (conventional spray method), T2 – Integrated Pest Management (IPM) module developed by Mahatma Phule Krishi Vidyapeeth, and T3 – Nanogel Technology developed by ICAR-Indian Institute of Horticultural Research. Farmers applied a matrix scoring technique using a 1–5 scale (1 = very poor, 5 = excellent) based on field performance and economic returns. Under T1, farmers reported inconsistent pest control due to repeated insecticidal sprays and internal feeding habit of maggots. They observed higher labor requirement, increased plant protection cost, and moderate yield improvement. As a result, T1 received average scores between 2.8 and 3.2 across parameters.

The IPM module (T2) was appreciated for its scientific and eco-friendly approach involving pheromone traps, bait sprays, orchard sanitation, and need-based chemical use. Farmers observed clear reduction in fruit infestation and better fruit retention compared to T1. The reduced chemical load and environmental safety were highly valued. However, some farmers mentioned that IPM required regular monitoring and technical guidance. T2 generally secured scores between 3.8 and 4.4, particularly high for sustainability and safety to non-target organisms.

The Nanogel technology (T3) received the highest ratings, with mean scores ranging from 4.3 to 4.7. Farmers observed significant visible reduction in fruit damage, improved fruit size and shine, and better shelf life. The long residual effect (40–42 days) and spot application method reduced labor and spray frequency. Lower plant protection cost and higher net returns were strongly appreciated. More than 85–90 percent of farmers expressed willingness to adopt T3 in the next season, while many also recommended integration of IPM and Nanogel for long-term sustainability. Overall, participatory scoring confirmed that both T2 and T3 were superior to conventional farmer's practice, with Nanogel technology emerging as the most preferred option under orchard conditions.

8. **Final recommendation for micro level situation**

The Based-on field performance, economic analysis, and participatory evaluation, the Nanogel technology is recommended for management of fruit fly in custard apple orchards under rainfed and semi-irrigated conditions of Latur district. The technology proved technically effective in reducing fruit infestation, economically viable due to higher net returns, and practically feasible because of its simple spot application method and long residual activity.

It is particularly suitable for small and medium orchard growers who face heavy fruit fly incidence during humid weather conditions. The reduced spray frequency, lower labor requirement, and improved fruit quality make it highly adaptable at village level. For effective implementation, timely availability of Nanogel, awareness training, and integration with orchard sanitation practices are essential. With proper extension support, the technology can be scaled up through cluster-based adoption for sustainable and profitable fruit production.

9. Constraints identified and feedback for research

During the implementation of the On-Farm Trial, certain practical constraints were observed. Limited initial awareness about attract-and-kill technology among orchard growers and hesitation in shifting from conventional spray-based methods were noted. In some villages, timely availability of Nanogel and recommended insecticidal components at local input outlets was a challenge. Variation in orchard sanitation practices also influenced uniform effectiveness across locations. Additionally, heavy and continuous rainfall in a few instances reduced gel persistence at certain spots, necessitating timely reapplication.

From a research perspective, farmers suggested refinement in formulation for enhanced rain-fastness and longer field stability under high humidity conditions. Development of crop-specific dosage recommendations and integration with other eco-friendly IPM components such as pheromone traps and biological control agents were also recommended. Further multi-location and multi-season validation trials are required to strengthen confidence and generate more location-specific recommendations. Overall, the feedback emphasizes the need for continuous adaptive research, improved last-mile input supply systems, and sustained extension support for wider adoption.

10. Process of farmers participation and their reaction

Farmers were selected through a cluster-based approach and involved from the initial planning stage of the On-Farm Trial. Pre-season meetings and orientation programmes were conducted to explain the concept, method of Nanogel application, and expected outcomes. Participating orchard growers actively implemented the treatments in their fields under technical guidance. Periodic joint field visits, monitoring of fruit infestation, and recording of yield data were carried out with farmer participation. Field days and group discussions were organized at fruit development and harvest stages to facilitate participatory evaluation and matrix scoring.

The overall reaction of farmers was highly positive. They observed visible reduction in fruit infestation, improved fruit quality, and better marketable yield under the Nanogel-treated plots. Farmers appreciated the ease of spot application and reduced dependency on repeated chemical sprays. Most participants expressed willingness to continue the technology in the next season and recommended its adoption within neighboring orchards, indicating strong acceptance at the village level.

11. Photographs :



Management of Fruit Fly in Custard Apple Fruit Crop using Nanogel Technology



Good Quality of Custard Apple fruit after using Nanogel Technology for Management of Fruit fly

OFT 9:

1. Title of Technology Assessed: Assessment on Use of Pollen Collection Tray during Pigeon pea Flowering Period (Dec–Jan) for Extra Income and Yield Enhancement through Managed Honeybee Pollination among Beekeepers

2. Problem Definition:

In the pigeon pea growing areas of the Latur district, the flowering period during December–January offers rich nectar and pollen resources, but this potential remains largely unutilized for additional income generation. Under the prevailing farmer’s practice, managed honeybee colonies are rarely deployed in pigeon pea fields in a systematic manner, and pollen collection as a value-added activity is almost absent. Consequently, farmers miss an important opportunity to generate supplementary income from bee pollen, a high-value apicultural product. Moreover, inadequate presence of managed pollinators results in sub-optimal pollination, leading to lower pod setting, uneven seed filling, and reduced realizable yields.

Natural pollinator populations alone are often insufficient due to declining abundance caused by habitat degradation, erratic weather conditions, and agrochemical use in surrounding cropping systems. Farmers have limited awareness about the economic benefits of integrating apiculture with pigeon pea cultivation. Lack of technical knowledge on scientific placement of honeybee colonies and use of pollen collection trays further constrains adoption.

There is also apprehension among farmers that pollen harvesting may weaken colonies or adversely affect crop performance. Limited local availability of pollen traps and weak market linkages for bee pollen add to the constraints. As a result, the pigeon pea-based production system remains mono-crop oriented with low scope for enterprise diversification. Addressing these gaps requires field-level validation of pollen collection technology integrated with managed honeybee pollination.

3. Details of technologies selected for assessment

The assessment focused on comparing the existing practice of beekeeper–farmers with an improved apiculture-based intervention integrated in pigeon pea during the flowering period (Dec–Jan):

◆ T1 – Farmer’s Practice (Control):

- Pigeon pea cultivated under rainfed conditions without planned placement of managed honeybee colonies.
- No use of pollen collection trays; hence no pollen harvesting and no additional income from pollen.
- Pollination depends mainly on natural pollinators available in the area, resulting in sub-optimal flower visitation and pod setting.
- Represents the baseline practice followed by beekeeper–farmers in the locality.

◆ T2 – Improved Technology:

- Planned deployment of 5 honeybee colonies per hectare (*Apis mellifera*) in pigeon pea fields during flowering (December –January).
- Installation of pollen collection trays on colonies for partial harvesting of pollen.
- Scientific management of pollen trapping (intermittent/alternate day trapping) to maintain colony health.

- Enables additional income to beekeepers from bee pollen (₹2000/kg) and improves crop yield through enhanced honeybee-mediated pollination.

4. **Source of technology:** Central Bee Research and Training Institute, Pune

5. **Production system and thematic area:**

Rainfed **pigeon pea-based cropping system** integrated with managed apiculture (beekeeping) during the flowering period (Dec–Jan), involving placement of honeybee colonies in farmers' fields. Apiculture & Managed Pollination

6. **Performance of the Technology with performance indicators**

The performance of the pollen collection tray technology integrated with managed honeybee pollination in pigeon pea was evaluated under farmers' field conditions during the flowering period (Dec–Jan). The improved technology (T2), involving the planned deployment of five honeybee colonies per hectare along with installation of pollen collection trays, demonstrated clear technical and economic advantages over the existing farmer's practice (T1).

Performance Indicator	T1 – Farmer's Practice	T2 – Improved Technology
No. of honeybee colonies deployed	0	5 colonies per ha
Pollen collected (per tray/season)	Nil	650–800 g (Avg. ~720 g)
Total pollen harvested	0.0 kg/ha	~3.6 kg/ha/season
Income from pollen	₹0/ha	₹7,200/ha (@ ₹2000/kg)
Pod setting (%)	58	66
Pigeon pea grain yield	12.5 q/ha	13.8 q/ha

Under T1, beekeeper–farmers did not use pollen collection trays and did not deploy managed honeybee colonies in a planned manner. As a result, no pollen was harvested and no additional income from pollen was realized. The pigeon pea crop depended largely on natural/open pollination, which resulted in comparatively lower flower visitation by pollinators, sub-optimal pod setting, and reduced yield potential. The average pigeon pea grain yield recorded under T1 was 12.5 quintals per hectare, which reflects the typical productivity under rainfed conditions without systematic pollination support.

In contrast, under T2, the scientific integration of apiculture with pigeon pea cropping system led to significant improvements. The installation of pollen collection trays enabled the harvesting of 650–800 g pollen per tray per season, with an average of about 720 g per tray. With five honeybee colonies placed per hectare, the total pollen harvested amounted to approximately 3.6 kg per hectare per season. At the prevailing market rate of ₹2000 per kg of bee pollen, this translated into an additional income of about ₹7,200 per hectare for beekeeper–farmers during the pigeon pea flowering period.

Simultaneously, the presence of managed honeybee colonies in T2 ensured higher and more uniform pollinator visitation to pigeon pea flowers, leading to improved fertilization, better pod setting, and reduced flower drop. This resulted in a yield increase of about 10–11 percent over the farmer's practice. The average grain yield under T2 was 13.8 quintals per hectare, compared to 12.5 quintals per hectare under T1. The improved pollination effect was also reflected in better pod uniformity and higher proportion of marketable produce.

Overall, the combined effect of additional income from pollen harvesting and yield enhancement due to managed honeybee pollination significantly improved the economic performance of the pigeon pea-based production system. The improved technology thus proved to be technically feasible, economically viable, and farmer-friendly for adoption by beekeeper–farmers under rainfed conditions.

7. **Feedback, matrix scoring of various technology parameters done through farmer’s participation / other scoring techniques**

The feedback on the assessed technology was obtained through participatory interaction with beekeeper–farmers and pigeon pea growers involved in the On-Farm Trial (OFT). Farmers were engaged at different stages of the trial, including installation of honeybee colonies, operation of pollen collection trays, periodic field observations during flowering, and post-harvest evaluation meetings. A participatory matrix scoring technique was used to assess farmers’ perceptions of key technology parameters such as ease of adoption, cost-effectiveness, income potential, compatibility with existing farming systems, and perceived impact on crop yield. Farmers were oriented about the scoring criteria and were requested to assign scores based on their practical experience with the technology during the trial period.

The participatory evaluation revealed that farmers perceived the improved technology (T2) as far superior to the existing practice (T1) in terms of income generation potential and overall usefulness. Beekeeper–farmers particularly appreciated the opportunity to earn additional cash income from bee pollen during the pigeon pea flowering period, which is otherwise considered a lean period for beekeeping. Crop farmers observed better flower visitation, improved pod setting, and more uniform crop development in fields where managed honeybee colonies were deployed. The operation and maintenance of pollen collection trays were found to be simple after basic orientation, and farmers expressed confidence in continuing the practice in subsequent seasons. Overall, the technology received a positive response, with strong willingness among participants to adopt and recommend it to neighboring farmers.

Participatory Matrix Scoring Table (Scale: 1 = Very Poor, 5 = Excellent)

Technology Parameter	T1 – Farmer’s Practice	T2 – Improved Technology
Ease of understanding & operation	2.0	4.5
Compatibility with existing farming system	3.0	4.6
Cost-effectiveness	2.5	4.4
Additional income potential (pollen)	1.0	4.8
Perceived impact on pigeon pea yield	2.2	4.3
Risk & reliability	2.8	4.2
Scope for scaling/adoption	2.5	4.6
Overall farmer preference	2.1	4.7

8. **Final recommendation for micro level situation**

Based on the performance of the technology under On-Farm Trial (OFT) conditions, participatory feedback from beekeeper–farmers and economic analysis, the following micro-level recommendations are made for similar agro-ecological situations:

- ✓ The integration of managed honeybee colonies @ 5 hives per hectare in pigeon pea fields during the flowering period (Dec–Jan) is strongly recommended to enhance pollination efficiency, improve pod setting, and increase grain yield under rainfed conditions.
- ✓ The use of pollen collection trays on honeybee colonies is recommended for beekeeper–farmers as a low-cost value addition technology to generate additional income during the pigeon pea flowering period, which is otherwise a lean income phase for beekeeping.

- ✓ The technology is suitable for small and marginal farmers with access to 3–5 bee colonies, and can be effectively adopted through individual beekeepers, SHGs, FPOs, and beekeeper groups at the village level.
- ✓ For sustained benefits, scientific pollen trapping protocols should be followed, including intermittent/alternate-day trapping and monitoring of colony strength to avoid nutritional stress on honeybee colonies.
- ✓ The practice can be promoted as a micro-enterprise model for beekeeper–farmers in pulse-growing belts, and can be integrated with existing government schemes related to beekeeping and pollination services for wider dissemination.

In summary, at the micro (village/farm) level, the technology of pollen collection tray combined with managed honeybee pollination in pigeon pea is recommended as a technically feasible, economically viable, and eco-friendly intervention for enhancing both beekeeper income and crop productivity under rainfed pulse-based production systems.

9. Constraints identified and feedback for research

During the implementation of the technology, a few practical constraints were identified at the field level. Limited local availability of quality pollen collection trays and accessories posed initial difficulties for beekeeper–farmers, indicating the need for strengthening local supply chains or custom fabrication options. Some farmers expressed concerns regarding continuous pollen trapping potentially affecting colony strength, highlighting the importance of refining guidelines on optimal duration and frequency of pollen collection to balance income generation with colony health. Variations in pigeon pea flowering intensity due to weather fluctuations influenced pollen yield across locations, suggesting the need for location-specific advisories. Additionally, assured market linkages for bee pollen were not uniformly available, which may affect adoption unless organized marketing channels are developed.

From a research perspective, further studies are required to standardize pollen trapping protocols for different pulse crops and agro-climatic conditions, assess the long-term impact of repeated pollen harvesting on colony productivity, and develop simple post-harvest handling and storage protocols to maintain pollen quality and shelf life. Strengthening farmer-friendly designs of pollen trays and evaluating their performance under migratory beekeeping systems are also suggested to enhance adoption and scalability.

10. Process of farmers participation and their reaction

Farmers' participation in the On-Farm Trial (OFT) was ensured through a participatory approach involving selection of representative beekeeper–farmers, planning of field activities, and on-site demonstrations on the installation and operation of honeybee colonies and pollen collection trays. Farmers were actively involved in monitoring flowering, observing honeybee foraging activity, periodic collection of pollen, and recording basic observations on crop performance. Regular field visits and interactive discussions were conducted to address operational issues and reinforce scientific practices.

The overall reaction of farmers was positive and encouraging. Beekeeper–farmers appreciated the opportunity to generate additional cash income from pollen during the flowering period, while crop farmers observed visible improvements in pod setting and crop uniformity due to increased honeybee activity. The technology was perceived as simple, low-cost, and compatible with existing farming practices, and most participants expressed willingness to continue the practice and recommend it to neighboring farmers in subsequent seasons.

11. Photographs:



Assessment on Use of Pollen Collection Tray during Pigeon pea Flowering Period for Extra Income and Yield Enhancement through Managed Honeybee Pollination among Beekeepers



Pollen Collected in Pollen Collection Tray



Market ready Pollen Packed

OFT :10

1. **Title of Technology Assessed:** Assessment of Kisan Drone for spraying crops.
2. **Problem Definition:** Farmers face significant challenges in pesticide application due to labour shortages, limited area coverage, high spraying costs and health risks associated with pesticide exposure. Manual spraying is labour-intensive, inefficient and expensive, while conventional methods often result in excessive chemical use and uneven application. Furthermore, farmworkers are vulnerable to pesticide poisoning because of direct exposure. The Kisan Drone is evaluated as a potential solution to improve efficiency, reduce costs and ensure safer pesticide application in agriculture.
3. **Details of technologies selected for assessment:**
 - T1: Battery operated Knapsack Sprayer
 - T2: Drone Sprayer
 - T3: Boom Sprayer
4. **Source of technology:** SOP, Ministry of Agriculture & Farmers' Welfare, GOI.
5. **Production system and thematic area:** The Kisan Drone is an advanced farm mechanization technology developed for efficient crop protection against biotic stresses such as pests, diseases and weeds. It enables precise pesticide application, thereby reducing chemical overuse while improving field coverage. By minimizing labour dependency and preventing direct exposure to pesticides, it significantly enhances worker safety and reduces health risks. Moreover, as a drudgery-reducing innovation, it increases operational efficiency, lowers input costs and supports sustainable agricultural practices.
6. **Performance of the Technology with performance indicators:**

The assessment of the Kisan Drone Sprayer demonstrated its superior efficiency in agricultural pesticide application compared to conventional spraying methods. The key performance indicators analyzed include time efficiency, crop yield, net income, operational efficiency and resource optimization.

Time Efficiency:

The Kisan Drone Sprayer significantly reduced the time required for insecticide application, achieving up to 99%-time savings compared to traditional manual spraying methods. This efficiency allows for rapid and uniform pesticide application, ensuring timely crop protection and reducing the risk of pest infestations.

Crop Yield and Economic Returns:

The T₂ treatment (Drone Sprayer Application) exhibited superior performance, resulting in a higher crop yield of 22.5 quintals per hectare (q/ha). The increased productivity translated into a net income of ₹71,733 per hectare, highlighting the economic viability and profitability of drone-based spraying technology.

Operational Efficiency:

The working efficiency of the drone sprayer was recorded at 1.81 hectares per hour (ha/h). When compared to other spraying methods:

The drone sprayer's efficiency was 1.71 times higher than that of the boom sprayer. It was 3.45 times more efficient than the battery-operated knapsack sprayer, which had significantly lower area coverage.

Resource Optimization:

The Kisan Drone Sprayer demonstrated substantial reductions in water and labor requirements, further enhancing its suitability for large-scale farming operations. The precise application mechanism ensured optimal pesticide utilization, reducing chemical wastage and minimizing environmental contamination.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:

The performance evaluation of different spraying technologies—Battery-Operated Knapsack Sprayer, Drone Sprayer, and Boom Sprayer—was conducted through farmer participation and matrix scoring techniques. The assessment considered key parameters such as field capacity, field efficiency, application rate, operating cost, and yield.

Technology Performance Comparison (Matrix Scoring)

Parameter	Battery-Operated Knapsack Sprayer	Drone Sprayer	Boom Sprayer	Best Performer
Field Capacity (ha/h)	★ ★ ★ (Low)	★ ★ ★ ★ ★ (High)	★ ★ ★ ★ (Moderate)	Drone Sprayer
Field Efficiency (%)	★ ★ ★ ★ (Moderate)	★ ★ ★ ★ ★ (High)	★ ★ ★ (Low)	Drone Sprayer
Application Rate (L/ha)	★ ★ ★ (Low)	★ ★ ★ ★ ★ (High)	★ ★ ★ ★ (Moderate)	Drone Sprayer
Operating Cost (₹/ha)	★ ★ ★ ★ ★ (Low)	★ ★ ★ ★ (Moderate)	★ ★ ★ (High)	Knapsack Sprayer
Yield (q/ha)	★ ★ ★ (Low)	★ ★ ★ ★ ★ (High)	★ ★ ★ ★ (Moderate)	Drone Sprayer

Farmer Preference and Key Findings

Based on the matrix ranking, farmers preferred the Drone Sprayer due to:

- ✓ Higher yield output (22.7 q/ha) compared to other spraying methods.
- ✓ More efficient pesticide application, reducing wastage and improving coverage.
- ✓ Higher net profit per hectare, making it economically viable despite higher initial investment.

While Drone Sprayers excelled in field capacity and cost-effectiveness, and Knapsack Sprayers had lower operational costs, the Drone Sprayer outperformed in efficiency, yield, and profitability, making it the most technologically advanced and farmer-preferred option.

8. Final recommendation for micro level situation:

The Kisan Drone Sprayer is ideal for sugarcane fields, orchards, and terrains where manual spraying is difficult. It ensures precise pesticide application, minimizing droplet losses and enhancing crop protection efficiency. The automated GPS-guided system enables uniform spraying, reducing chemical wastage and environmental impact.

Additionally, drone technology eliminates human exposure to hazardous pesticides, improving farmworker safety while optimizing labor and resource use. Given its efficiency, precision, and adaptability, the Kisan Drone Sprayer is a highly effective solution for modern, sustainable agriculture.

9. Constraints identified and feedback for research:

Constraints:

- High Initial Cost – Expensive purchase, maintenance, and battery replacement; financial burden for small farmers.
- Limited Suitability – Less effective in intercropping and multi-cropping due to uneven canopy structure.
- Technical Expertise Required – Needs specialized training in drone operation, calibration, and pesticide application.
- Weather Sensitivity – Affected by wind, temperature, and humidity; unsuitable during the flowering stage due to pollination risks.

Feedback:

- Adaptability to Various Field Conditions – The drone sprayer operates efficiently in challenging environments, including wet, flooded, and uneven terrains, ensuring continuous crop protection even in adverse weather conditions.
- Time-Efficient and Labor-Saving – The automated spraying system significantly reduces application time compared to manual methods, addressing labor shortages and enhancing operational efficiency in large-scale farming.
- Minimized Health Risks – Drone spraying eliminates direct human exposure to pesticides, reducing occupational health hazards such as chemical poisoning and respiratory issues commonly associated with manual spraying.
- Precision and Uniformity – The advanced GPS and sensor-based technology ensure accurate and consistent pesticide application, optimizing input usage, minimizing environmental impact, and improving crop protection effectiveness.

10. Process of farmers participation and their reaction:

Farmers actively participated in the assessment of Kisan Drone Sprayer technology through various extension activities, including field demonstrations, group discussions, training programs, literature distribution, and field visits. Field demonstrations provided hands-on exposure, allowing farmers to observe the efficiency and effectiveness of drone spraying in real conditions. Group discussions and training programs helped enhance their understanding of drone operation, calibration, and safe pesticide application, addressing their queries and concerns. Additionally, literature distribution supplemented their knowledge, while field visits enabled practical assessment of the technology's benefits.

Farmers responded positively, recognizing the significant advantages of drone spraying, particularly in terms of efficiency, labor savings, and safety. The demonstrations effectively highlighted the potential for increased yield and precise pesticide application, leading to greater acceptance and willingness to adopt the technology in their farming practices.

11. Photographs:



Photographs of Assessment of Kisan Drone for spraying crops

OFT 11 :

1. **Title of Technology Assessed:** Assessment of Manual Operated Precision Rotary Dibbler (Token Yantra)
2. **Problem Definition:** Traditional sowing methods frequently result in poor germination and an uneven crop stand due to inconsistent seed placement. Moreover, farmers encounter challenges such as limited area coverage, labour scarcity, high sowing costs, and improper plant-to-plant spacing, which adversely affect overall productivity and resource-use efficiency.
3. **Details of technologies selected for assessment:**
 - T1: Bullock drawn tiffan
 - T2: Manual Operated Precision Rotary Dibbler
 - T3: Tractor drawn BBF planter
4. **Source of technology:** CIAE, Bhopal
5. **Production system and thematic area:** The Manual Operated Precision Rotary Dibbler (Token Yantra) is suitable for both rainfed and irrigated cropping systems. It is particularly beneficial in small and marginal farming conditions where mechanized sowing is not feasible. This technology ensures efficient seed placement, making it ideal for diverse agro-climatic conditions and multiple cropping patterns.

The assessment of the Manual Operated Precision Rotary Dibbler falls under the thematic area of improved small farm equipment for precision sowing. The technology is designed to enhance the sowing accuracy of both small and bold-seeded crops, ensuring uniform plant population across the field. Proper seed-to-seed spacing is maintained, which optimizes crop establishment, minimizes seed wastage and enhances resource use efficiency. Additionally, it contributes to balancing yield levels by improving crop stand, germination rates and overall productivity. This precision sowing method addresses challenges such as labor shortages, high sowing costs and inconsistent plant spacing while promoting sustainable and efficient agricultural practices.
6. **Performance of the Technology with performance indicators:**

The Manual Operated Precision Rotary Dibbler demonstrated high efficiency in sowing soybean, a major crop in the district. The field capacity of the dibbler was recorded at 0.062 ha/day with a field efficiency of 91%. Compared to conventional sowing methods using tractor-drawn BBF planters and bullock-drawn tiffans, the technology resulted in a 40–45% reduction in seed rate and a 15–20% increase in crop yield. Following on-field demonstrations, 10 farmers in the village adopted the technology, highlighting its effectiveness in enhancing productivity and resource efficiency.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:

A matrix scoring approach was used to evaluate various sowing technologies based on key performance parameters through farmer participation. The assessment compared bullock-drawn tiffan, Precision Rotary Dribbler, and BBF planter in terms of field capacity, field efficiency, seed rate, operating cost and yield.

Parameter	Bullock drawn tiffan	Precision Rotary Dribbler	BBF planter	Best Performer
Field Capacity, (ha/day)	★ ★ (Low)	★ ★ ★ (Moderate)	★ ★ ★ ★ (High)	BBF Planter
Field Efficiency, (%)	★ ★ (Low)	★ ★ ★ ★ ★ (High)	★ ★ ★ (Moderate)	Precision Rotary Dribbler
Seed Rate, (kg/ha)	★ ★ ★ (High)	★ ★ ★ ★ ★ (Low)	★ ★ ★ ★ (Moderate)	Precision Rotary Dribbler
Operating Cost, (₹/ha)	★ ★ ★ ★ ★ (Low)	★ ★ ★ ★ (Moderate)	★ ★ (High)	Bullock-Drawn Tiffan
Yield, (q/ha)	★ ★ (Low)	★ ★ ★ ★ ★ (High)	★ ★ ★ ★ (Moderate)	Precision Rotary Dribbler

Matrix Scoring: Based on matrix ranking, farmers preferred Treatment T₂ (Soybean sowing through Precision Rotary Dribbler) due to its higher yield, superior field efficiency, and increased net profit compared to the other sowing methods. The technology also demonstrated significant advantages in seed saving and resource utilization, making it a promising option for small and marginal farmers.

8. Final recommendation for micro level situation:

The Precision Rotary Dribbler planter is an efficient sowing technology, particularly beneficial for small and marginal farmers who cannot invest in large machinery or operate in fields unsuitable for heavy equipment. The planter significantly reduces sowing costs compared to traditional methods while enhancing resource efficiency. It enables optimal seed placement, leading to reduced seed rate, labour and time requirements compared to manual sowing techniques, thereby improving overall productivity and cost-effectiveness.

9. Constraints identified and feedback for research:

Constraints:

Higher Operating Time and Labor Intensity:

The Manual Operated Precision Rotary Dribbler requires more time and physical effort compared to mechanized sowing methods. Since it is manually operated, the sowing speed is lower, limiting its efficiency in large-scale farming operations. Additionally, continuous manual operation can lead to fatigue among laborers, affecting precision and consistency in sowing.

Limited Awareness of Modern Agricultural Technologies:

Many small and marginal farmers lack adequate knowledge about newly developed precision sowing technologies like the Manual Operated Precision Rotary Dribbler. The adoption rate is low due to limited access to extension services, demonstrations, and training programs. Additionally, traditional sowing practices are deeply ingrained, making it difficult for farmers to shift to modern precision farming techniques without proper awareness and guidance.

Feedback: The Precision Rotary Dibbler (Token Yantra) demonstrated significant improvements in crop productivity and resource efficiency. Field assessments revealed a 20–25% increase in yield compared to conventional sowing methods using the bullock-drawn tiffan. This yield enhancement is attributed to precise seed placement, uniform plant spacing, and improved crop establishment, leading to better resource utilization and plant growth.

Additionally, the seed rate was reduced by 40–45%, minimizing seed wastage while maintaining optimal plant population. This reduction in seed usage directly contributes to lower input costs, making the technology economically viable for small and marginal farmers. The decrease in cultivation expenses, coupled with improved productivity, underscores the potential of the Precision Rotary Dibbler in promoting cost-effective and sustainable precision farming practices.

10. Process of farmers participation and their reaction:

Farmers actively engaged in the assessment of the Precision Rotary Dibbler (Token Yantra) through various extension activities, including on-field demonstrations, group discussions, training programs, distribution of technical literature and exposure visits. These participatory approaches facilitated knowledge dissemination and skill development, enabling farmers to understand the technical advantages and economic benefits of adopting precision sowing technology. Through demonstrations, farmers observed a significant yield improvement and realized the potential of optimized seed placement, reduced seed rate and cost savings. The hands-on experience enhanced their confidence in adopting the technology, leading to increased interest in modern precision farming techniques. Farmers acknowledged the effectiveness of such demonstrations in bridging the gap between traditional practices and advanced mechanized sowing methods, ultimately contributing to improved farm productivity and profitability.

11. Photographs:



Photographs of Assessment of Manual Operated Precision Rotary Dibbler (Token Yantra)

OFT 12 :

1. **Title of Technology Assessed:** Assessment of Mole plough to enhance crop yield in waterlogged soils
2. **Problem Definition:** Waterlogged soils pose a major constraint to crop productivity due to poor internal drainage and inadequate water management practices. Stagnant water for 3 to 10 days during periods of high rainfall leads to anaerobic soil conditions, root suffocation, and increased susceptibility to crop failure. The lack of effective subsurface drainage solutions results in low yield potential and limits the cultivation of high-yielding crops in such affected areas.
3. **Details of technologies selected for assessment:**
 - T1: No drainage
 - T2: Mole drains at 2-6 m distance using tractor drawn mole plough
 - T3: MB Plough
4. **Source of technology:** CIAE, Bhopal
5. **Production system and thematic area:** The mole plough technology is assessed under rainfed and irrigated cropping systems where seasonal waterlogging significantly affects crop growth and yield. Waterlogging occurs due to poor soil internal drainage, leading to oxygen deficiency, root suffocation, and reduced nutrient uptake, ultimately causing crop failure or severe yield reduction. Implementing mole drainage technology improves subsurface drainage, facilitating better root aeration, enhanced soil structure and increased crop resilience to excessive moisture conditions.

The study focuses on soil and water conservation techniques, with an emphasis on subsurface drainage solutions for waterlogged conditions. It explores the effectiveness of mole plough technology in improving soil aeration, reducing crop losses due to excess water, and enhancing farm mechanization for sustainable agricultural practices. The thematic approach integrates mechanized interventions in land and water management, contributing to increased crop productivity, improved resource efficiency, and climate-resilient farming systems.
6. **Performance of the Technology with performance indicators:** The assessment of the Mole Plough for enhancing crop yield in waterlogged soils demonstrated significant improvements in soil drainage and overall crop performance. The technology effectively alleviated water stagnation issues by creating subsurface drainage channels, which improved root aeration, nutrient availability, and soil structure, leading to better plant growth. The field capacity of the mole plough was recorded at 0.25 ha/h, ensuring efficient land coverage, while the field efficiency was 82%, indicating high operational effectiveness in field conditions. The operating cost was found to be ₹1750 per hectare, making it a cost-effective solution for farmers dealing with waterlogged soils. As a result, the crop yield increased to 28.5 q/ha, which was 25–30% higher compared to conventional methods, demonstrating the effectiveness of mole plough technology in mitigating waterlogging stress and significantly enhancing agricultural productivity.
7. **Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:**

The assessment of Mole Plough for improving crop yield under waterlogged conditions was conducted through farmer participation using demonstrations, field observations, and group discussions. Farmers evaluated the technology based on key performance indicators such as field capacity, field efficiency, operating cost, and yield.

Parameter	No drainage	Mole Plough	MB Plough	Best Performer
Field Capacity, (ha/h)	★ (Low)	★★★ (Moderate)	★★★★★ (High)	MB Plough
Field Efficiency, (%)	★★★ (Moderate)	★★★★★ (High)	★ (Low)	Mole Plough
Operating Cost, (₹/ha)	★★★★★ (Low)	★ (High)	★★★ (Moderate)	No Drainage
Yield, (q/ha)	★ (Low)	★★★★★ (High)	★★★ (Moderate)	Mole Plough

Matrix Scoring: Farmers preferred Mole Plough due to its higher yield potential (28.5 q/ha), effective subsurface drainage and improved soil structure. While MB Plough had the highest field capacity, the Mole Plough outperformed in yield enhancement and long-term soil benefits. The operating cost was higher, but the increase in yield (25-30%) justified the investment, making Mole Plough the best choice for waterlogged conditions.

8. **Final recommendation for micro level situation:** Based on the assessment of the Mole Plough for enhancing crop yield in waterlogged soils, it is recommended as an effective technology for areas experiencing poor internal drainage, prolonged water stagnation (3–10 days), and low crop productivity due to excessive moisture stress. The implementation of mole drainage significantly improves soil aeration, root development, and nutrient uptake, leading to a 25–30% increase in yield compared to conventional methods.

For micro-level adoption, Mole Plough is best suited for heavy clayey soils prone to waterlogging in regions with high rainfall. Farmers should integrate this technology with proper field leveling and surface drainage to maximize benefits. Despite its higher initial cost (₹1750/ha), the long-term yield gains (28.5 q/ha) and reduced crop failure risks make it a highly viable solution. The technology is especially beneficial for soybean cultivation in waterlogged areas, ensuring sustainable productivity and improved farm profitability.

9. **Constraints identified and feedback for research:**

Constraints: Mole plough adoption faces challenges such as high initial cost, limited awareness among farmers and specific soil requirements, making it less effective in sandy soils. It demands skilled labour, optimal soil moisture conditions and periodic maintenance of drainage channels. Additionally, equipment availability is limited and operation requires more time compared to conventional methods. Despite these constraints, Mole Plough significantly improves drainage and enhances crop yield in waterlogged soils.

Feedback: Farmers observed a significant improvement in soybean yield, with an increase of 25-30% compared to fields without drainage. The field capacity of 0.25 ha/h and field efficiency of 82% ensured better land preparation under waterlogged conditions. The operating cost of ₹1750/ha was justified by the improved crop health and reduced losses due to water stagnation. Additionally, farmers reported better root development, reduced plant mortality and easier field operations after mole ploughing. However, some expressed concerns about high initial costs and the need for periodic maintenance of the drainage channels. Overall, mole ploughing was highly effective in mitigating waterlogging and enhancing crop productivity.

10. **Process of farmers participation and their reaction:** Farmers actively participated in the assessment of mole plough technology through field demonstrations, training sessions, group discussions, and field visits. They gained practical insights into its effectiveness in improving drainage and enhancing crop yields under waterlogged conditions.

During demonstrations, farmers observed that mole ploughing significantly reduced water stagnation, leading to better root development and plant growth. After implementation, they reported an increase in soybean yield by 25-30%, along with easier field operations and reduced crop losses. Farmers appreciated its long-term benefits but expressed concerns regarding high initial costs and the need for periodic maintenance. Overall, their reaction was positive, with many showing interest in adopting the technology for improved soil drainage and higher productivity

11. Photographs:



Photographs of Assessment of Mole plough to enhance crop yield in waterlogged soils

OFT 13 :

1. **Title of Technology Assessed:** Assess the use of custard apple seed powder for storage of pulses
2. **Problem Definition:** Damage of pulses during storage period. Pulse beetles are serious pests of stored pulses like pigeon pea, green gram, black gram.
3. **Details of technologies selected for assessment:**
T1: Farmers Practice: No any treatment for storage of pulses
T2: Dr PDKV, Akola: Use of custard apple seed powder 15 gm/kg
4. **Source of technology:** Dr PDKV, Akola
5. Production system and thematic area: Storage loss minimization technologies
6. Performance of the Technology with performance indicators
Applying custard apple seed powder (15 gms/kg) to stored green gram reduces grain damage by 59.91% and increased shelf life of pulses.
7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring techniques

Sr no	Particulars	T1	T2
1	Damage Percentage %	II	I
2	Shelf life in a day	II	I

This treatment to pulses in pest management strategies significantly superior over farmers' practice.

8. Final recommendation for micro level situation
Useful for small scale farmers who store small amounts of pulses for consumption and planting.
9. Constraints identified and feedback for research
It is hard to protect pulses from the stored grain insect's damage

10. Process of farmers participation and their reaction

Farm women were participated through group discussions, trainings, method demonstration & OFT. The farm women are well aware about this technology & using this technology

11. Photographs :



Photographs of Assess the use of custard apple seed powder for storage of pulses

OFT : 14

- 1 **Title of Technology Assessed:** Assessment of use of Pro-biotic (EM Solution) in feed for milk yield improvement in C B cows
- 2 **Problem Definition:** In crossbred (CB) cows, low milk yield and poor health persist despite proper feeding practices, leading to reduced productivity and economic losses for dairy farmers. The inefficiency in nutrient absorption and digestion may be due to imbalanced rumen microflora, digestive stress, or suboptimal feed utilization. These factors contribute to lower lactation performance, weaker immunity, and higher veterinary costs, ultimately affecting farm profitability. Intervention: The use of Probiotic (EM Solution) in feed is assessed as a potential strategy to enhance rumen function, improve digestion, and increase milk yield in CB cows
- 3 **Details of technologies selected for assessment:**
 - T1 – Farmers practice – No use of pro-biotic in animal feed
 - T2- Technology Assessed- Use of pro-biotic (EM solution) 20ml/Animal/Day
- 4 **Source of technology:** MAFSU, Nagpur
- 5 **Production system and thematic area:** Dairy Farming (Intensive System) – Crossbred cows are reared under an intensive system, where they are provided with stall feeding. Despite being fed fodder and concentrates, milk yield remains suboptimal due to digestive inefficiencies and poor nutrient absorption.

Thematic Area: Nutrient Management – Assessing the use of probiotics (EM Solution) in feed to improve digestion, enhance nutrient absorption, and increase milk yield in crossbred cows.
- 6 **Performance of the Technology with performance indicators:** The use of probiotics (EM Solution) in feed for crossbred cows was assessed based on key performance indicators, and the results are as follows:
 1. **Milk Yield Improvement**
 - T1 (Farmers' Practice - No Probiotic Use): 11.6 L/day/animal
 - T2 (Technology Assessed - Probiotic Use): 13.2 L/day/animal
 - Improvement: 13.79 % increase in milk yield due to better digestion and nutrient absorption.
 2. **Fat Percentage Enhancement**
 - T1 (No Probiotic): 3.5% fat
 - T2 (With Probiotic): 3.7% fat
 - Improvement: Indicates enhanced digestion and better utilization of dietary nutrients.

3. Economic Viability

Parameter	T1 (No Probiotic)	T2 (With Probiotic)	Difference
Cost of Production (Rs. /day/animal)	Rs. 252	Rs. 260	+ Rs.8
Gross Returns (Rs. /day/animal)	Rs.373	Rs. 475	+ Rs.102
Net Profit Increase (Rs. /day/animal)	-	Rs. 94 more per animal per day	-

Higher profitability despite a slight increase in feeding cost.

4. Additional Observations:

- Improved General Health – Animals showed better digestion, reduced bloating, and enhanced immunity.
- Better Dung Quality & Reduced Shed Odor – Indicating improved gut health and fermentation efficiency.
- Higher Feed Efficiency – More effective utilization of nutrients leading to better milk yield and quality.

Conclusion: The use of probiotics (EM Solution) at 20ml/animal/day proved to be an effective and profitable intervention in dairy farming, enhancing milk yield, fat content, and overall cow health. This technology is recommended for wider adoption in intensive stall-fed dairy systems.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:

Farmers Feedback: After participating in the trial and observing the results, farmers provided the following feedback:

- Increased Milk Yield: Farmers noticed a consistent increase in daily milk production (by 13.79%), making dairy farming more profitable.
- Improved Milk Quality: An increase in fat percentage (from 3.5% to 3.7%) was observed, leading to better milk pricing, better Digestion & General Health. Cows showed improved appetite, reduced bloating, and better overall health, reducing veterinary costs.
- Reduced Shed Odor & Improved Dung Quality: Farmers reported a significant reduction in bad Odor in cow sheds and improved dung texture, making manure handling easier.
- Economic Benefits: Despite a marginal increase in feeding costs (Rs. 8 more per day per cow), farmers earned Rs.94 more per cow per day, making probiotic use highly cost-effective.

Matrix Scoring of Technology Parameters (Farmer's Participation Method)

A **participatory scoring method** was used to evaluate different aspects of the probiotic intervention, with farmers rating each parameter on a **scale of 1 to 5** (1 = Poor, 5 = Excellent).

Parameter	Farmers' Practice (T1)	Probiotic Use (T2)
Milk Yield	3.0	4.5
Fat % in Milk	3.5	4.0
Digestive Health	3.0	4.8
Feed Efficiency	3.2	4.5
Economic Returns	3.5	4.7
Shed Cleanliness & Odor Reduction	2.5	4.5
Overall Farmer Satisfaction	3.0	4.6

Interpretation of Matrix Ranking

The matrix ranking method helped evaluate farmers' perceptions of probiotic (EM Solution) use in dairy cows by comparing it with traditional feeding practices. The ranking highlights key improvements and challenges based on farmer participation and observations.

1. Significant Improvement in Milk Yield (4.5/5)

- Farmers observed a 13.79% increase in milk yield in probiotic-fed cows (T2) compared to the traditional practice (T1).
- This was the most appreciated aspect as it directly increased their daily income.

2. Enhanced Milk Quality – Fat Percentage (4.0/5)

- Though the fat percentage increase was marginal (from 3.5% to 3.7%), farmers noted better milk consistency and market value.

3. Improved Digestive Health (4.8/5) – Highest Rated Parameter

- Farmers noticed better feed digestion, reduced bloating, and improved appetite, leading to healthier cows.
- This improvement contributed to higher feed efficiency and lower veterinary expenses.

4. Increased Feed Efficiency (4.5/5)

- Cows on probiotics utilized nutrients more effectively, leading to better conversion of feed into milk.
- This resulted in lower wastage and improved economic efficiency.

5. Economic Returns (4.7/5) – Strong Justification for Adoption

- Despite a slight increase in feeding costs (+Rs.8/day per cow), farmers saw a Rs. 94 additional profit per cow/day.

- Higher returns made probiotic use financially viable and scalable.
6. Better Shed Cleanliness & Odor Control (4.5/5)
- Farmers strongly favored the reduction in shed odor and improved dung consistency, which made manure handling easier.
7. Overall Farmer Satisfaction (4.6/5) – Willingness to Continue Use
- Farmers found probiotic supplementation practical, cost-effective, and beneficial.
 - They showed a high willingness to adopt probiotics as a regular feeding practice.

Conclusion from Matrix Ranking

- Probiotic use (EM Solution) outperformed traditional feeding practices in every aspect.
- Best improvements were seen in digestive health, milk yield, and economic returns, which are critical for dairy profitability.
- Farmers are ready to adopt the technology but need better market availability of probiotics.

8. **Final recommendations for micro level situation:** The addition of probiotics (EM Solution) in dairy nutrition is an effective, economical, and farmer-friendly intervention that enhances milk yield, cow health, and farm profitability. Given its proven benefits.

9. **Constraints identified and feedback for research:**

Constraints

- Farmers were unaware of the role of probiotics in improving digestion and milk yield.
- The ideal dosage and duration for maximum benefits are not well established
- Some cows showed faster improvement in milk yield and digestion than others. Research is needed to study variations based on breed, lactation stage, and feeding conditions

Feedback for research:

Study different doses (10ml, 20ml, 30ml) and frequencies (once or twice daily) to determine the most cost-effective and productive dosage.

10. **Process of farmer's participation and their reaction:**

Process of Farmer's Participation:

Farmers were actively involved in the assessment of probiotic (EM Solution) use in dairy cows through various participatory approaches, ensuring practical knowledge transfer and real-world evaluation. The key methods used were:

Group Discussions:

Farmers shared their current feeding practices, challenges, and expectations.

Explained the role of probiotics in improving digestion, milk yield, and cow health.

Training Sessions:

- Farmers were trained in handling and mixing probiotics with feed and also explained how to monitor animal health improvements.

On-Farm trial:

- Selected farmers participated in real-time trials on their dairy farms.
- Probiotic (EM Solution) was introduced into the daily feed ration of cows.
- Farmers were guided on recording milk yield, fat percentage, and animal health parameters.

Farmers' Reactions:

- Farmers observed a visible improvement in milk yield (13.79% increase) within a short period.
- Many appreciated the better digestion, reduced bloating, and improved overall health of cows.
- Odor reduction in cow sheds was a surprising and well-received benefit.
- They expressed willingness to continue probiotic supplementation in their dairy farming

11. Photographs :



Input Distribution and demonstration how to feed EM solution



Feeding of Probiotics (Em solution) along with concentrates

OFT : 15

- 1. Title of Technology Assessed:** Assessment of Improved Poultry breeds Nicobari and Vanashree for backyard poultry farming
- 2. Problem Definition:** Backyard poultry farming is a crucial source of livelihood for rural farmers, but challenges such as low egg production, slow growth rate, high mortality, and low economic returns limit its profitability. Traditional native breeds often struggle with poor feed efficiency and disease resistance, affecting overall productivity. Assessing the performance of Nicobari and Vanashree purebred native chickens under free-range conditions is essential to determine their suitability for improving egg and meat production while ensuring better survivability and higher returns for farmers
- 3. Details of technologies selected for assessment:**
 - T1- Rearing of deshi poultry birds
 - T2-rearing of Nicobari Poultry birds
 - T3- Rearing of Vanashree poultry birds
- 4. Source of technology:** Directorate of poultry research, Hyderabad
- 5. Production system and thematic area:** The assessment was conducted under a backyard poultry system where birds were allowed to scavenge freely with minimal supplemental feeding. This system is widely adopted by rural farmers for low-input, sustainable poultry farming. / Breed evaluation
- 6. Performance of the Technology with performance indicators:**

The assessment of Nicobari and Vanashree purebred native chickens for free-range or backyard farming was conducted to evaluate their productivity and profitability compared to traditional Desi birds. The study measured key performance indicators, including annual egg production, body weight, mortality rate, age at first egg, and egg weight.

Performance Indicator	Desi Birds (T1 - Farmers' Practice)	Nicobari (T2 - Technology Assessed)	Vanashree (T3 - Technology Assessed)
Annual Egg Production (No.)	63	152	116
Average Body Weight at Maturity (kg)	1.27	1.43	2.04
Mortality Rate (%)	8	6	6
Age at First Egg (Days)	205	182	188
Egg Weight (g)	37	43	44
Profit per Bird (Rs.)	397	907	818

Observations recorded:

- Nicobari chickens had the highest egg production (152 eggs/year), making them the best choice for egg-focused backyard farming.
- Vanashree chickens exhibited the highest body weight (2.04 kg), making them ideal for both meat and egg production.
- Desi birds lagged behind in all parameters, with low egg production, slow growth, and the highest mortality rate (8%), making them the least suitable for commercial backyard farming.
- Nicobari birds generated the highest profit per bird (Rs. 907), followed by Vanashree (Rs. 818), while Desi birds provided the least return (Rs.397).

Conclusion:

- Nicobari breed is the best for maximizing egg production and profitability.
- Vanashree is more suitable for dual-purpose (meat and egg) farming.
- Replacing Desi birds with either Nicobari or Vanashree can significantly improve farmer incomes and backyard poultry productivity.

7. Feedback, matrix scoring of various technology parameters done through farmer's participation / other scoring Techniques:

Farmers Feedback: Farmers actively participated in the evaluation of Nicobari and Vanashree breeds through OFT in field and discussions. Their feedback was collected based on key performance parameters such as egg production, body weight, mortality, adaptability, and profitability.

Key Farmer Feedback:

- Nicobari birds were preferred for egg production due to their higher yield and early maturity.
- Vanashree birds were chosen for dual-purpose farming because of their higher body weight.
- Mortality was significantly lower in Vanashree birds, making them more resilient.
- Desi birds were least preferred due to low productivity and high mortality.
- Farmers noted that both Nicobari and Vanashree birds adapted well to local conditions and required minimal management efforts.
- Some farmers preferred Nicobari birds over Vanashree for backyard farming due to their appearance, egg size, and market demand.

Matrix Scoring of Technology Parameters (Farmer's Participation Method)

A participatory matrix scoring method was used where farmers rated different poultry breeds (Desi, Nicobari, and Vanashree) based on key performance indicators. Farmers assigned scores from **1 (poor) to 5 (excellent)** for each parameter.

Performance Parameter	Desi Birds	Nicobari	Vanashree	Best Performer
Annual Egg Production	II	IIII	IIII	Nicobari
Body Weight at Maturity	II	III	IIII	Vanashree
Mortality Rate (Low is Better)	I	III	III	Vanashree and Nicobari
Age at First Egg	I	III	IIII	Vanashree
Egg Weight	I	IIII	IIII	Vanashree
Profitability	I	IIII	IIII	Nicobari
Adaptability to Local Conditions	II	IIII	IIII	Vanashree and Nicobari
Farmers Preference	II	IIII	IIII	Nicobari

Interpretation of Scoring:

- Nicobari scored highest in egg production and profitability, making it the best breed for egg-focused backyard farming.
- Vanashree performed best in body weight, egg weight, mortality, and adaptability, making it suitable for both egg and meat production.
- Desi birds scored the lowest across all parameters, indicating they are not suitable for commercial backyard farming.

Overall Conclusion:

- Nicobari is best for high egg production and farmer profitability.
- Vanashree is ideal for dual-purpose farming with better survival rates.
- Desi birds are not suitable for profitable backyard farming due to lower performance.
- Farmers showed strong acceptance of both improved breeds and preferred them over Desi birds.

8. Final recommendations for micro level situation: Based on the assessment of Nicobari and Vanashree purebred native chickens for backyard poultry farming, the following recommendations are made:

1. Nicobari breed is highly recommended for egg production in backyard farming due to its higher egg yield (152 eggs/year), early maturity, and better profitability (Rs. 907 per bird) compared to Desi and Vanashree birds.

2. Vanashree breed is best suited for dual-purpose farming (meat and egg production) due to its higher body weight (2.04 kg), larger egg size, and lower mortality rate (6%).
3. Desi birds are not recommended for commercial backyard farming as they produce fewer eggs (63 per year), have the lowest body weight (1.27 kg), and higher mortality (8%), resulting in poor economic returns.
4. Adoption of Nicobari and Vanashree breeds is strongly encouraged for backyard poultry farmers aiming for higher productivity, better survival rates, and increased income.
5. Further extension efforts should focus on awareness and training programs to promote these improved breeds among rural farmers, ensuring better management practices for feeding, housing, and disease control.

Conclusion: Replacing traditional Desi birds with Nicobari for egg production or Vanashree for dual-purpose farming will significantly enhance egg yield, body weight, profitability, and overall sustainability of backyard poultry farming.

9. Constraints identified and feedback for research:

Constraints

3. Breed availability: Limited access to purebred Nicobari and Vanashree chicks
4. Lack of knowledge about proper feeding strategies
5. Limited awareness of vaccination & deworming schedules

Feedback for research:

1. Breed improvement- Further selection of Nicobari and Vanashree for better disease resistance and adaptability to different climatic conditions.
2. Health & Disease Control- Study on best vaccination, deworming, and biosecurity practices for small-scale backyard poultry.
3. Genetic Studies- Research on crossbreeding Nicobari with high-yielding native breeds for improved performance.
4. Climate Adaptation- Research on housing modifications and management practices to improve breed survival in extreme weather conditions.

10. Process of farmer's participation and their reaction: Farmers are participated through Group discussion, training and demonstration

Process of Farmer's Participation: The evaluation of Nicobari and Vanashree purebred native chickens for backyard poultry farming was conducted through participatory on-farm trials (OFTs), where farmers were actively involved in all stages of the assessment. The participation process included:

Stage	Farmer's Role in Participation
Selection of Farmers	Farmers were selected based on their interest in poultry farming and willingness to adopt new breeds.
Training & Awareness	Farmers were trained on breed characteristics, feeding, housing, and disease management before introducing Nicobari and Vanashree birds.

Implementation of Trials	Farmers reared the birds under their usual backyard farming conditions while following recommended management practices.
Evaluation & Discussion	Field visits and meetings were conducted to compare the performance of Nicobari, Vanashree, and Desi birds. Farmers shared observations and experiences.
Final Feedback & Adoption	Farmers gave feedback on the breeds, and most expressed willingness to continue rearing Nicobari and Vanashree birds due to better productivity and profitability.

2. Farmers' Reactions and Feedback

The farmers' responses were gathered through group discussions, field observations, and individual interviews. Their reactions were categorized based on key performance indicators:

Aspect	Farmers Reaction
Egg Production	Farmers were highly satisfied with Nicobari birds due to higher egg yield (152 eggs/year) compared to Desi birds.
Body Weight & Growth	Vanashree birds were preferred for their larger body weight (2.04 kg), making them ideal for meat production.
Mortality Rate	Farmers appreciated Vanashree and nicobari's low mortality (6%), stating that it is more resilient in backyard conditions.
Age at First Egg	Farmers noted that Nicobari and Vanashree birds matured earlier than Desi birds, leading to quicker returns.
Adaptability	Farmers observed that both Nicobari and Vanashree adapted well to local conditions.
Economic Benefit	Farmers calculated that Nicobari birds provided the highest profit per bird (Rs.907), making them more viable for small-scale backyard farming.
Breed Preference	The majority of farmers preferred Nicobari for egg production and Vanashree for dual-purpose (meat and eggs) over Desi birds.
Future Adoption	Farmers expressed strong interest in continuing with Nicobari and Vanashree breeds and requested further support for breed availability and disease management training.

Conclusion

- Farmers showed active participation in all trial stages, from selection to evaluation.
- Nicobari was most preferred for egg production, while Vanashree was valued for meat and egg production.
- Farmers demanded increased access to these breeds and further training on disease prevention and feeding strategies.
- The study led to increased awareness and acceptance of improved native poultry breeds among backyard farmers.

11. Photographs :



Farmer with birds and eggs



Vanashree birds



Nicobari birds



Farmer with birds



Birds left loose for scavenging



Eggs of Nicobari and Vanashree birds

OFT 16 :

- 1. Title of Technology Assessed:** Assessment of Milk Replacer Supplementation for Economic Meat Production in Goat Kids and Lambs
- 2. Problem Definition:** Under free-range farming conditions, goat kids and lambs often suffer from inadequate milk availability due to multiple births, poor mothering ability, low milk production, and weak offspring. As a result:

- Pre-weaning mortality remains high (around 20%)
- Growth rate is suboptimal
- Market weight is delayed
- Economic returns are reduced

In traditional systems, only natural suckling is practiced without additional nutritional support. Insufficient nutrition during early growth leads to poor weight gain, weak immunity, and higher mortality. Therefore, supplementation with a scientifically formulated milk replacer is necessary to improve growth, survival, and profitability in small ruminants.

3. Details of technologies selected for assessment:

T1 – Farmers’ Practice- Natural suckling to mother only

T2 – Technology Assessed- Natural suckling + Milk replacer supplementation @ 40 g/day for 60 days

- 4. Source of technology:** ICAR-National Institute of Animal Nutrition and Physiology (NIANP), Bengaluru

5. Production System & Thematic Area

Production System:

Free-range goat and sheep farming under extensive management system where animals graze on open fields, bunds, and common grazing lands.

Thematic Area:

Animal Nutrition and Feeding Management – Early Nutritional Intervention for Growth Enhancement in Small Ruminants.

6. Performance of the Technology with Performance Indicators

A. Goat Kids Performance

Performance Indicator	Farmers’ Practice (T1)	Technology Assessed (T2)	% Improvement
Weight at Market Age (kg)	15.0	18.1	20.7% Increase
Pre-weaning Weight Gain (g/day)	81	97	19.7% Increase
Mortality Rate (%)	20%	10%	50% Reduction
Gross Profit (Rs.)	5119	6925	35.3% Increase
Net Profit (Rs.)	2384	3795	59.2% Increase
B:C Ratio	1.87	2.21	Improved

B. Lamb Performance

Performance Indicator	Farmers' Practice (T1)	Technology Assessed (T2)	% Improvement
Weight at Market Age (kg)	16.9	20.7	22.5% Increase
Pre-weaning Weight Gain (g/day)	92	126	36.9% Increase
Mortality Rate (%)	20%	10%	50% Reduction
Gross Profit (Rs.)	5437	7452	37% Increase
Net Profit (Rs.)	2702	4322	59.9% Increase
B:C Ratio	1.98	2.38	Improved

Overall Performance of Milk Replacer Technology

- Significant improvement in growth rate of kids and lambs
- 50% reduction in mortality
- Earlier attainment of market weight
- Improved immunity and body condition
- Substantial increase in gross and net income
- Higher B:C ratio indicating economic viability

Conclusion

Milk replacer supplementation @ 40 g/day for 60 days significantly enhanced growth performance, survival rate, and economic returns in goat kids and lambs under free-range conditions. The technology proved superior to traditional natural suckling alone.

7. Feedback and Matrix Scoring (Participatory Method)

Farmers' Feedback

- Kids and lambs showed faster growth and uniform body size.
- Mortality reduced significantly compared to traditional practice.
- Animals reached market weight earlier.
- Higher profit per animal observed.
- Farmers suggested ensuring timely availability of quality milk replacer in local markets.

Matrix Scoring of Technology Parameters

Scoring Scale: I (Very Poor) to IIII (Excellent)

Parameter	T1 (Natural Suckling)	T2 (Milk Replacer)	Score Difference
Growth Rate	II	IIII	+3
Mortality Reduction	II	IIII	+3
Body Condition	II	IIII	+2
Profitability	II	IIII	+3
Market Readiness	II	IIII	+3

Preference Ranking:

Over 85–90% farmers preferred milk replacer supplementation.

8. Final Recommendations for Micro-Level Situation

- Supplement milk replacer @ 40 g/day for first 60 days.
- Ensure clean feeding bottles and hygienic preparation.
- Combine with timely vaccination and deworming.
- Maintain growth monitoring records.

Economic Justification:

Additional investment on milk replacer leads to nearly Rs. 1400–1600 higher net return per animal, making it a cost-effective nutritional intervention.

9. Constraints Identified and Feedback for Research

Constraints

- Limited awareness about scientific milk replacer feeding
- Initial hesitation due to additional cost
- Availability issues in rural markets

Feedback for Research

- Evaluate different milk replacer formulations under field conditions
- Long-term impact on reproductive performance
- Development of low-cost locally formulated milk replacer

10. Process of Farmers' Participation and Reaction

Process

1. Group discussions on kid mortality and poor growth issues

2. On-farm trial comparing traditional vs supplemented groups
3. Periodic weight recording and mortality monitoring
4. Economic comparison and field-day demonstration

Farmers' Reaction

- Positive acceptance after observing weight gain
- Increased confidence in scientific feeding
- Willingness to adopt milk replacer regularly

11. Photographs:



Giving information on how to prepare milk replacer for feeding



Feeding of milk replacer to kid



Feeding of milk replacer to lamb

3.3. FRONTLINE DEMONSTRATION

A. Follow-up for results of FLDs implemented during previous years

List of technologies demonstrated during previous year and popularized during 2025 and recommended for large scale adoption in the district

S. No	Crop/Enterprise	Thematic Area*	Technology demonstrated	Details of popularization methods suggested to the Extension system	Horizontal spread of technology		
					No. of villages	No. of farmers	Area in ha
1	Rabi Sorghum	Variety Introduction	Introduction of improved Sorghum variety (Phule Suchitra)	Training, Group Discussion, Field day and Demonstration	06	485	195
2	Safflower	Crop Diversification	Introduction of Improved high yielding Safflower Variety (ISF-764)	Training, Group Discussion, Field day and Demonstration	08	863	346
3	Pigeon pea	Variety Introduction	Promotion of Newly released improved variety of Pigeonpea BDN 2013-41 (Godavari)	Training, Group Discussion, Field day and Demonstration	11	1641	658
4	Tomato	Integrated Nutrient Management	Introduction of Arka Vegetable special (micronutrients) in tomato	Training, group discussion, and demonstration	06	72	22
5	Custard apple	Integrated crop management	400:300:600g NPK + Pruning techniques	Training, group discussion, popular article and demonstration	04	15	20
6	Mango	Integrated Nutrient Management	Introduction of Arka Mango special (micronutrients)	Training, group discussion, and demonstration	05	21	25
7	Soybean	Pest Management (Snail Management)	Integrated Snail Management in Kharif Soybean	Method demonstrations on bait preparation and field sanitation, field days during Kharif, WhatsApp advisories on snail management,	8	96	120
8	Chickpea	IPM (Pest & Disease)	Integrated Pest and Disease Management in Chickpea	Rabi field days, seed treatment & IPM demonstrations, farmer trainings on wilt & pod borer management, exposure visits	10	128	160
9	Mulberry Silkworm	Sericulture IPM	Integrated Management of Uzi fly of Mulberry Silkworm	Rearing house demonstrations, sericulture trainings, installation demos of Uzi traps, advisory through sericulture dept.	6	72	75
10	Mulberry Silkworm	Sericulture Productivity	Use of ecdysteroid growth hormone "Sampoorna" for uniform maturity of silkworm	On-farm demonstrations, package-of-practices training for dosage & timing, video demos, leaflet distribution	5	64	68

B. Details of FLDs implemented during 2025 (**Kharif 2025, Rabi 2024-25, Summer 2025**) (Information is to be furnished in the following **three tables** for **each category** i.e. **cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.**)

Sl. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
					Proposed	Actual	SC/ST	Others	Total	
1	Rabi Sorghum	Variety Introduction	Introduction of improved Sorghum variety (Phule Suchitra)	Rabi 2024-25	10	10	0	25	25	-
2	Safflower	Crop Diversification	Introduction of Improved high yielding Safflower Variety (ISF-764)	Rabi 2024-25	10	10	1	24	25	-
3	Pigeonpea	Variety Introduction	Promotion of Newly released improved variety of Pigeonpea BDN 2013-41 (Godavari)	Kharif 2025	10	10	2	23	23	-
4	Tomato	Integrated Nutrient Management	Introduction of arka special vegetable micronutrients to improve yield and quality of tomato	Kharif 2025	2	2	3	7	10	-
5	Custard apple	Integrated crop management	Integrated nutrient management and pruning technique in custard apple	Kharif 2025	5.2	5.2	03	10	13	-
6	Mango	Integrated Nutrient Management	Introduction of arka special mango micronutrients to improve yield and quality of mango	Rabi 2024-25	5.2	5.2	03	10	13	-
7	Soybean	Pest Management	Premixed fungicide + insecticide seed treatment with polymer	Kharif 2025	8.0	8.0	6	14	20	Nil
8	Soybean	Weed & Pest Management	Tank-mix post-emergence herbicide + insecticide	Kharif 2025	8.0	8.0	5	15	20	Nil
9	Mulberry Silkworm	Sericulture	Integrated Management of Uzi fly	Rabi 2024-25	8.0	8.0	9	11	20	Nil
10	Chickpea	IPM	IPDM in chickpea	Rabi 2024-25	8.0	8.0	8	12	20	Two farmers dropped due to moisture stress

Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					
Sorghum	Rabi	Irrigated	Black Soil	Low	Low	High		1-15 November	20-28 February	-	-
Safflower	Rabi	Irrigated	Black Soil	Low	Low	High	Soybean	15-30 November	1-10 March	-	-
Pigeon pea	Kharif	Irrigated	Black Soil	Medium	Low	High	Chickpea	15-30 June	10-20 January	-	-
Tomato	Kharif	Irrigated	Medium	Medium	Low	Medium	Bengal gram	July 2025	November 2025	-	-
Custard apple	Kharif	Irrigated	Medium	Medium	Low	Medium	-	July 2018	December 2025	-	-
Mango	Kharif /Rabi	Irrigated	Medium	Medium	Low	Medium	-	July 2015	May 2025	-	-
Soybean	Kharif	Rainfed	Medium black	Medium	Low	Medium	Sorghum	25 Jun 2025	15 Oct 2025	640	32
Soybean	Kharif	Rainfed	Medium black	Medium	Low	Medium	Cotton	28 Jun 2025	18 Oct 2025	635	31
Mulberry	Summer	Irrigated	Red loam	Medium	Medium	High	Perennial	—	—	95	4
Chickpea	Rabi	Limited irrigation	Medium black	Low	Medium	Medium	Soybean	10 Nov 2024	05 Mar 2025	82	6

Technical Feedback on the demonstrated technologies

S. No	Feed Back
1	Sorghum • The rabi sorghum variety Phule Suchitra demonstrated superior performance under farmers' field conditions compared to local cultivars. The variety exhibited good germination, uniform plant stand and vigorous early growth, which contributed to better crop establishment under limited residual soil moisture conditions. • Phule Suchitra showed higher grain and stover yield potential making it suitable for dual-purpose use. The variety produced bold, lustrous grains with good milling and cooking quality, enhancing its market acceptability. Farmers also observed better tolerance to terminal drought, which is a common constraint in rabi sorghum cultivation in the region.
2	Safflower- • The newly released improved high-yielding safflower variety ISF-764 demonstrated superior performance compared to local varieties under field conditions. The variety exhibited better crop vigor with profuse branching, which contributed to a higher number of capitula per plant and ultimately increased seed yield. • ISF-764 produced bold seeds with a higher oil content (around 30%), which is significantly superior to commonly cultivated local varieties, making it more attractive for both farmers and the oil industry. The variety showed better adaptability to rainfed and moisture-stress conditions, resulting in stable yields even under limited rainfall situations. • Overall, the demonstrated technology highlighted that ISF-764 is a promising variety for safflower cultivation, offering advantages in terms of higher yield, better oil recovery, and improved economic returns, thereby making it suitable for wider adoption in the region.
3	Pigeon pea • The newly released improved pigeon pea variety BDN 2013-41 demonstrated superior performance compared to local varieties under farmers' field conditions. The variety showed better tolerance to major pests and diseases, resulting in healthier crop stand and reduced yield losses. A key advantage observed during the demonstration was its prominent resistance to dieback disease, which is a major constraint in pigeon pea cultivation in the region. • BDN 2013-41 exhibited good plant vigor, uniform growth, and better pod setting, contributing to improved productivity. Farmers also noted reduced dependency on plant protection measures, leading to lower cost of cultivation. In addition, the variety was found to be highly suitable for dal making due to its desirable grain size and quality, enhancing its market acceptability.

	• Overall, the demonstrated technology proved that BDN 2013-41 is a technically sound and economically viable variety, offering advantages of disease resistance, better yield stability, good processing quality, and higher profitability, making it suitable for wider adoption in the district.
4	Foliar application of Arka Special vegetable micronutrients significantly enhanced yield compared to the check and also improved fruit quality with respect to fruit weight and size of tomato
5	The application of Integrated Nutrient Management (INM) in combination with appropriate pruning techniques significantly increased fruit yield in custard apple. Adoption of this technology resulted in improved productivity of custard apple orchards.
6	Foliar application of Arka Mango Special micronutrients significantly increased yield over the check and also improved fruit quality in terms of fruit weight and size in mango.
7	Premixed fungicide + insecticide seed treatment with polymer provided effective early-season protection against soil-borne diseases and sucking pests in soybean, resulting in better germination, uniform plant stand, and reduced need for early sprays.
8	Tank-mix application of post-emergence herbicide with insecticide ensured timely control of weeds and early insect pests in soybean, reduced number of field operations, saved labor cost, and improved crop vigour during critical growth stages.
9	Integrated management of Uzi fly (exclusion, trapping, sanitation) significantly reduced parasitism in silkworm rearing houses, leading to higher larval survival, improved cocoon recovery, and reduced economic loss to rearers.
10	IPDM in chickpea (resistant variety + seed treatment + biocontrol + need-based sprays) effectively minimized wilt incidence and pod borer damage, resulting in healthier crop stand, higher yield, and improved profitability under farmer conditions.

Farmers' reactions on specific technologies

S. No	Feed Back
1	Sorghum- - Farmers expressed positive response to the performance of the rabi sorghum variety Phule Suchitra. They observed higher grain and stover yield compared to local varieties, which enhanced both food and fodder availability. - Farmers appreciated its better tolerance to terminal drought, resulting in stable performance under moisture stress conditions. The bold and good-quality grains received better market preference, while the superior stover quality was valued for livestock feeding. - Overall, farmers considered Phule Suchitra a profitable and reliable variety and showed willingness to expand its cultivation area in the coming rabi seasons.
2	Safflower- - Farmers expressed high satisfaction with the performance of the safflower variety ISF-764. They appreciated its higher yield potential, profuse branching, and bold seeds, which resulted in better market acceptance. The higher oil content was viewed as a major advantage for improved profitability. - Farmers also reported that ISF-764 performed well under rainfed and moisture-stress conditions, making it suitable for drought-prone areas. Overall, the variety was considered superior to local cultivars, and most farmers showed willingness to continue cultivation and recommend it to others in the village.
3	Pigeonpea - Farmers expressed positive feedback on the performance of the pigeonpea variety BDN 2013-41. They observed lower incidence of dieback and other diseases compared to local varieties, resulting in a healthier crop and more stable yields. Farmers appreciated the reduced need for plant protection measures, which helped in lowering the cost of cultivation. - The variety was also well accepted for its good grain quality and suitability for dal making, ensuring better market preference. Overall, farmers considered BDN 2013-41 to be superior to local varieties and showed keen interest in continuing its cultivation and expanding the area under this variety in the coming seasons.
4	Foliar application of Arka Special vegetable micronutrients improved both yield and fruit quality in tomato. The technology is simple and easy to adopt and also helps in increasing yield and economic returns
5	Pruning in custard apple enables efficient intercultural operations including spraying, harrowing, and harvesting. Combined with proper nutrient management, it improves fruit yield and quality, thereby fetching higher market value in the market
6	Foliar application of Arka Mango Special micronutrients improved both yield and fruit quality in mango. The technology is simple and easy to adopt and contributes to increased productivity and higher economic returns.
7	Farmers expressed satisfaction with seed treatment using premixed fungicide + insecticide as it ensured quick and uniform germination and visibly reduced early pest and disease problems in soybean fields.
8	Farmers appreciated the tank-mix approach as it saved time and labor by controlling weeds and insect pests in a single spray; many reported willingness to adopt this practice in the next season.
9	Silkworm rearers reported noticeable reduction in Uzi maggot infestation and improved cocoon yield after adopting the integrated Uzi fly management practices and showed interest in continuing the method.
10	Chickpea farmers observed clear reduction in wilt and pod borer damage and higher marketable yield with IPDM practices; however, they emphasized the need for timely availability of quality inputs.



FLD on Sorghum Seed Distribution



FLD on Sorghum Phule Suchitra



Scientist Field Visit to FLD Plot



FLD on Pigeonpea Godavari (BDN 2013-41)



Extension and Training activities under FLD

Sl. No.	Activity	No. of activities organized	Date	Number of participants	Remarks
1	Field days	4	Jul–Oct 2025	128	Conducted at soybean & chickpea FLD sites
2	Farmers Training	4	Aug–Nov 2025	156	IPM, spray calibration, pest identification
3	Media coverage	3	Sep–Dec 2025	—	Local newspaper & social media
4	Training for extension functionaries	2	Nov-Dec 2025	100	Line department & NGO staff

C. Performance of Frontline demonstrations

Frontline demonstrations on oilseed crops

Crop	Thematic Area	technology demonstrated	Variety	No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
						Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
						High	Low	Average										
Safflower																		
	Crop Diversification	Introduction of Improved high yielding Safflower Variety (ISF-764)	ISF-764	25	10	24.37	14.62	18.78	14.60	28.63	37500	108924	71424	2.90	37500	84680	47180	2.25
Soybean																		
	Variety Introduction	Cultivation of Newly Released Improved variety of Soybean	KDS-753,992, MAUS-612	750	300	41.40	11.20	26.31	20.19	30.31	64875	140180	75305	2.16	71375	107572	36197	2.16
	Integrated Pest and Disease Management	Use of premixed fungicides and Insecticide for management of disease and pest in soybean	KDS-753	20	8	19.8	21.4	20.6	16.8	22.62	31800	82400	50600	2.59	29900	67200	37300	2.25
	Integrated Pest and Disease Management	Use of compatible tank-mix combinations of post emergence herbicide and insecticides to manage the weeds and insect-pests in soybean	KDS-753	20	8	21.0	21.4	21.2	16.9	25.44	33,200	84,800	51600	2.55	30,100	67,600	37500	2.24



CFLD on Soybean Seed Distribution



Scientist Field Visit



CFLD on Soybean Inputs Distribution



Use of compatible tank-mix combinations of post emergence herbicide and insecticides to manage the weeds and insect-pests in soybean



FLD on Use of premixed fungicides and Insecticide for management of disease and pest in soybean



FLD on Integrated Pest and Disease Management in Chickpea

Frontline demonstration on pulse crops

Crop	Thematic Area	technology demonstrated	Variety	No. of Farmers	Area (ha)	Yield (q/ha)				% Increase in yield	Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
						Demo			Check		Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
						High	Low	Average										
Pigeon pea																		
	Variety Introduction	Promotion of Newly released improved varieties	BDN 2013-41	25	10	28.00	14.00	20.9	17.21	21.44	39000	157795	118795	4.04	39000	129935	90935	3.33
	Variety Introduction	Varietal with INM	BDN 2013-41	300	120	19.25	12.25	15.75	11.70	34.62	39000	118912	79912	3.04	39000	88335	49335	1.79
Black gram																		
	Variety Introduction	Varietal with INM	AKU 10-1	125	50	17.25	11.40	14.32	10.94	30.90	41000	111696	70696	2.72	38000	85332	47332	2.24
Chick pea																		
	Integrated Pest and Disease Management	Integrated Pest and Disease Management in Chickpea	Jacky-9218	20	8	18.2	19.6	76.1	64.5	17.98	14,800	38,050	23250	2.57	12,900	32,250	19350	2.5



FLD on Pigeonpea BDN 2013-41



Farmer Demonstration plot Visit



Scientist Field Visit



CFLD on Blackgram Inputs Distribution



CFLD on Blackgram Plot



Scientist Field Visit



CFLD on Pigeon pea



Scientist Field Visit



Field day on Pigeonpea

FLD on Other crops

Category & Crop	Thematic Area	Name of the technology	No. of Farmers	Area (ha)	Yield (q/ha)				% Change in Yield	Other Parameters		Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
					Demo			Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
					High	Low	Average												
Jowar										Plant Height (cm)	Plant Height (cm)								
	Variety Introduction	Introduction of Improved Variety	25	10	34.00	18.00	24.08	19.40	24.12	230	280	41375	76574	35199	1.85	41375	61692	20317	1.49
Sponge gourd																			
Tomato	Integrated Nutrient Management	Introduction of Arka special vegetables (micronutrients) In tomato	10	1	717.38	420.97	583.39	495.27	17.79	Wt. of fruit-70.25	Wt. of fruit-63.00	115521	355125	239604	3.07	115521	295751	180230	2.56
										No. of fruit/plant- 69.21	No. of fruit/plant-64.04								
Fruit crops																			
Mango																			
	Integrated Nutrient Management	Introduction of Arka mango special (micronutrients) In mango	13	5.2	129.05	42.81	80.82	60.74	33.06	Weight of fruit (gm) – 190.51	Weight of fruit (gm) – 164.51	212575	451595	239020	2.12	212575	321445	108870	1.51
										No of fruit/plant- 105.10	No of fruit/plant- 91.99								
Custard apple	Integrated Crop Management	Use of INM (400:300:600)g NPK+pruning techniques	13	5.2	107.02	45.38	63.39	48.14	31.68	Weight of fruit (gm) – 361.62	Weight of fruit (gm) – 311.68	65325	145771	80446	2.23	55130	98715	43585	1.79
										No of fruit/plant- 44.06	No of fruit/plant- 38.45								

Category & Crop	Thematic Area	Name of the technology	No. of Farmers	Area (ha)	Yield (q/ha)			% Change in Yield	Other Parameters		Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)				
					Demo				Check	Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
					High	Low	Average												
Commercial crop																			
Mulberry																			
	Integrated Pest Management	Integrated Management of Uzi fly of Mulberry Silkworm	20	8	83.2	69	76.1	64.5	17.98	2.9	10.8	14,800	38,050	23250	2.57	12,900	32,250	19350	2.5



Front Line Demonstration (FLD) on Tomato



Front Line Demonstration (FLD) on Custard apple



Front Line Demonstration (FLD) on Mango



Integrated Management of Uzi fly of Mulberry Silkworm

FLD on Livestock

Category	Thematic area	Name of the technology demonstrated	No. of Farmer	No. of Units (Animal/ Poultry/ Birds, etc)	Major parameters		% change in major parameter	Other parameter		Economics of demonstration (Rs.)				Economics of check (Rs.)			
					Demo	Check		Demo	Check	Gross Cost	Gross Return	Net Return	BCR (R/C)	Gross Cost	Gross Return	Net Return	BCR (R/C)
Cattle																	
	Disease Management	Integrated control of ticks on animal body	10	30	Milk yield L/anim./day- 12.85	Milk yield L/anim./day- 11.87	8.26	1. Drug Efficacy, % - 87.5 2. Fat % - 3.8	1. Drug efficacy, % - 41 2. Fat %- 3.6	97820	144460	46640	1.47	97090	129890	32800	1.33

Poultry																	
	Poultry management	Rearing of Shrinidhi improved poultry birds for backyard poultry farming	10	200	No. of eggs /bird/year-Results Awaited	No. of eggs /bird/year-Results Awaited	Results Awaited	1. Mortality-% 2. Age at First eggs- 3. Weight of birds at maturity- 4. Egg weight-	1. Mortality-% 2. Age at First eggs- 3. Weight of birds at maturity- 4. Egg weight-	-	-	-	-	-	-	-	-
Sheep & Goat																	
	Nutrient management	Demonstration of mineral lick bricks	10	100	Weight of kids, kg/animal- 19.67	Weight of kids, kg/animal- 16.3	20.67	1. Birth weight of kids, Kg – 2.21 2. Twinning %-68 3. kids mortality %-10.71 4. Post kidding problems %-4	1. Birth weight of kids, Kg - 2.03 2. Twinning %-43 3. Kids mortality %-20.97 4. Post kidding problems %-15	5193	18804	13611	3.62	4024	11674	7650	2.90



Distribution of Inputs under FLD to the farmers



Giving information on how to spray the Metarhizium anisopliae in the shed



Spraying of Metarhizium anisopliae in the shed



Burning of ticks and their eggs



Spraying of Neem oil and Karanj Oil on animal body

FLD on Integrated control of ticks on animal body



FLD on Demonstration of mineral lick bricks



FLD on Women Empowerment

Category	Name of technology	No. of demonstrations	Name of observations	Demonstration	Check
Nutri cereals	Demonstration of Instant Jowar Upama Mix	10	Production of Jowar Upama Mix Kg/ctl	680	600
			Selling Cost Rs/ kg	160	60
Drudgery Reduction	Demonstration of Drumstick Harvester for Harvesting	10	Labour Required Labour Days/year	15	25
			Cost of labour wage Rs/Year /acre	3000	7500

	Drumstick pods		Damage Percentage (%)	2	5
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FLD on Farm Implements and Machinery

Name of the implement	Crop	Technology demonstrated	No. of Farmer	Area (ha)	Major parameters	Filed observation (output/man hour)		% change in major parameter	Labor reduction (man days)				Cost reduction (Rs./ha or Rs./Unit etc.)			
						Demo	Check		Land preparation	Sowing	Weeding	Total	Land preparation	Labour	Irrigation	Total
BBF Planter	Soybean	BBF Planter	20	8.0	Yield. q/ha	26.25	15.2	72.70	-	-	-	-	-	-	-	-
Sorghum Uprooter	Sorghum	Sorghum Uprooter	10	4.0	1. Avg. uprooting time/plant	3.94	4.08	5.88	-	-	-	-	-	-	-	-
					2. Actual Field Capacity, M2-h-1	127	120	5.83	-	-	-	-	-	-	-	-
Drumstick Harvester	Moringa	Drudgery reducing technology	10	10	-	-	-	-	-	-	-	-	-	-	-	-



Frontline Demonstration (FLD) on BBF Planter



Frontline Demonstration (FLD) on Sorghum Uprooter



Drumstick Harvester

FLD on Other enterprises

Category	Name of technology	No. of demonstrations	Name of observations	Demonstration	Check
Processing Technologies	Spiral Grader-Cleaner	20	Capacity, q/h	3.12	0.27
			Labour requirement, man-h/q	0.71	04
			Impurities removed, kg/q	3.40	4.57
			Cost of operation, Rs. /q	43.50	87
			Net benefit at market, Rs. /q	156	64



Frontline Demonstration (FLD) on Spiral Grader-Cleaner

FLD on Other Enterprise: Kitchen Gardening

Nutrition garden components	Thematic area	Area (sq mt)	No. of Farmer	No. of Units	Yield (Kg)- supply of vegetables, fruits, etc from KG in the year		% change in yield	Household size (number)		Economics of demonstration (Rs./ha)				Economics of check (Rs./ha)			
					Demonstration	Check*		Demo	Check	Gross Cost	Gross Return/ Savings *	Net Return	BCR (R/C)	Gross Cost	Gross Return/ Savings *	Net Return	BCR (R/C)
Nutritional garden	Nutritional Security	Establishment of Nutritional Gardens for Enhancing Nutritional Security	50	50	589.70	160	72.86	4	4	15,700	35,340	19,640	2.25	4,300	9600	5,300	1.23
Nutritional farming	Nutritional food security	Demonstration on Farming System for Nutrition	50	50	1059	750	29.17	4	4	25,400	59,240	43,840	2.72	29,345	56,000	26,655	1.90



Kitchen Gardening

3.4. Training Programmes (Online programmes if any should be included under On Campus category)

Farmers' Training including sponsored training programmes (on campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management	1	51	0	51	0	0	0	51	0	51
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification	1	32	0	32	3	0	3	35	0	35
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										
Integrated Crop Management	1	55	0	55	0	0	0	55	0	55
Soil & water conservation	1	21	2	23	1	0	1	22	2	24
Integrated nutrient management										
Production of organic inputs	1	0	83	83	0	19	19	0	102	102
Others (pl. specify)										
Total	5	159	85	244	4	19	23	163	104	267
II Horticulture										
a) Vegetable Crops										
Production of low value and high value crops	1	11	0	11	0	0	0	11	0	11
Off-season vegetables										
Nursery raising	2	11	34	45	0	11	11	11	45	56
Exotic vegetables										
Export potential vegetables										
Grading and standardization										
Protective cultivation										
Others (pl specify)										
Total (a)	3	22	34	56	0	11	11	22	45	67
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit	1	29	4	33	0	0	0	29	4	33
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)	1	29	4	33	0	0	0	29	4	33
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)										
Total (c)										
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Production and management technology										
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
Grand Total (a to g)	4	51	38	89	0	11	11	51	49	100
III Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing										
Others (pl specify)										
Total										
IV Livestock Production and Management										
Dairy Management										
Poultry Management	03	0	90	90	0	8	8	0	98	98
Piggery Management										
Rabbit Management										
Animal Nutrition Management										
Disease Management										
Feed & fodder technology	1	51	101	152	7	13	20	58	114	172
Production of quality animal products										
Others (Sheep and goat rearing)	02	0	53	53	0	4	4	0	57	57
Total	6	51	244	295	7	25	32	58	269	327
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet	1	0	23	23	0	6	6	0	29	29
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking										
Gender mainstreaming through SHGs										
Storage loss minimization techniques	6	13	118	131	5	20	25	18	138	156
Value addition	1	0	17	17	0	4	4	0	21	21
Women empowerment	1	0	28	28	0	4	4	0	32	32
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)	9	13	186	199	5	34	39	18	220	238
Total										
VI Agril. Engineering										
Farm Machinery and its maintenance	01	32	00	32	04	00	04	36	00	36
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements	02	73	00	73	05	00	05	78	00	78
Small scale processing and value addition										
Post Harvest Technology										
Others (pl specify)										
Total	3	105	0	105	9	0	9	114	0	114
VII Plant Protection										
Integrated Pest Management	1	20	2	22	0	0	0	20	2	22
Integrated Disease Management	1	15	5	20	0	0	0	15	5	20
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Others (Natural Farming)	10	123	303	426	0	63	63	123	366	489

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total	12	158	310	468	0	63	63	158	373	531
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production										
Apiculture										
Others (pl specify)										
Total										
X CapacityBuilding and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (pl specify)										
Total										
GRAND TOTAL	39	537	863	1400	25	152	177	562	1015	1577

Farmers' Training including sponsored training programmes (off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification	1	0	0	0	26	11	37	26	11	37
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										
Integrated Crop Management										
Soil & water conservation										
Integrated nutrient management	1	0	35	35	0	6	6	0	41	41
Production of organic inputs										
Others- Organic farming	1	0	12	12	0	3	3	0	15	15
Others - Crop production technology	8	1394	833	2227	38	35	73	1432	868	2300
Total	11	1394	880	2274	64	55	119	1458	935	2393
II Horticulture										
a) Vegetable Crops										
Production of low value and high value crops	1	11	0	11	0	0	0	11	0	11
Off-season vegetables										
Nursery raising										
Exotic vegetables										
Export potential vegetables	1	15	0	15	0	0	0	15	0	15
Grading and standardization										
Protective cultivation										
Others (pl specify)	1	29	0	29	0	0	0	29	0	29
Total (a)	3	55	0	55	0	0	0	55	0	55
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit										
Management of young plants/orchards	1	13	0	13	0	0	0	13	0	13
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)	1	13	0	13	0	0	0	13	0	13
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)	1	14	0	14	0	0	0	14	0	14
Total (c)	1	14	0	14	0	0	0	14	0	14
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
Grand Total (a to g)	5	82	0	82	0	0	0	82	0	82
III Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing	1	35	0	35	5	0	5	40	0	40
Others (pl specify)										
Total	1	35	0	35	5	0	5	40	0	40
IV Livestock Production and Management										
Dairy Management										
Poultry Management										
Piggery Management										
Rabbit Management										
Animal Nutrition Management	2	11	0	11	36	0	36	47	0	47
Disease Management	1	2	0	2	38	0	38	40	0	40
Feed & fodder technology	1	0	0	0	7	36	43	7	36	43
Production of quality animal products										
Others (pl specify)										
Total	4	13	0	13	81	36	117	94	36	130
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	3	0	102	102	0	24	24	0	126	126
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	2	0	49	49	0	8	8	0	57	57
Women empowerment										
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)										
Total	5	0	151	151	0	32	32	0	183	183
VI Agril. Engineering										
Farm Machinery and its maintenance	1	29	0	29	0	0	0	29	0	29
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
Others (pl specify)										
Total	1	29	0	29	0	0	0	29	0	29
VII Plant Protection										
Integrated Pest Management	1	22	3	25	0	0	0	22	3	25
Integrated Disease Management	1	2	0	20	0	0	0	20	0	20
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Others (pl specify)										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total	2	24	3	45	0	0	0	42	3	45
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production										
Apiculture										
Others (pl specify)										
Total										
X Capacity Building and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (pl specify)										
Total										
GRAND TOTAL	29	1577	1034	2629	150	123	273	1745	1157	2902

Farmers' Training including sponsored training programmes – CONSOLIDATED (On + Off campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
I Crop Production										
Weed Management	1	51	0	51	0	0	0	51	0	51
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification	2	32	0	32	29	11	40	61	11	72
Integrated Farming										
Micro Irrigation/irrigation										
Seed production										
Nursery management										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated Crop Management	1	55	0	55	0	0	0	55	0	55
Soil & water conservation	1	21	2	23	1	0	1	22	2	24
Integrated nutrient management	1	0	35	35	0	6	6	0	41	41
Production of organic inputs	1	0	83	83	0	19	19	0	102	102
Others – Organic Farming	1	0	12	12	0	3	3	0	15	15
Others - Crop production technology	8	1394	833	2227	38	35	73	1432	868	2300
Total	16	1553	965	2518	68	74	142	1621	1039	2660
II Horticulture										
a) Vegetable Crops										
Production of low value and high value crops	2	22	0	22	0	0	0	22	0	22
Off-season vegetables										
Nursery raising	2	11	34	45	0	11	11	11	45	56
Exotic vegetables										
Export potential vegetables	1	15	0	15	0	0	0	15	0	15
Grading and standardization										
Protective cultivation										
Others (pl specify)	1	29	0	29	0	0	0	29	0	29
Total (a)	6	77	34	111	0	11	11	77	45	122
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit	1	29	4	33	0	0	0	29	4	33
Management of young plants/orchards	1	13	0	13	0	0	0	13	0	13
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
Others (pl specify)										
Total (b)	2	42	4	46	0	0	0	42	4	46
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
Others (pl specify)	1	14	0	14	0	0	0	14	0	14
Total (c)	1	14	0	14	0	0	0	14	0	14
d) Plantation crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (d)										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (e)										
f) Spices										
Production and Management technology										
Processing and value addition										
Others (pl specify)										
Total (f)										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
Others (pl specify)										
Total (g)										
Grand Total (a to g)	9	133	38	171	0	11	11	133	49	182
III Soil Health and Fertility Management										
Soil fertility management										
Integrated water management										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nutrient Use Efficiency										
Balance use of fertilizers										
Soil and Water Testing	1	35	0	35	5	0	5	40	0	40
Others (pl specify)										
Total	1	35	0	35	5	0	5	40	0	40
IV Livestock Production and Management										
Dairy Management										
Poultry Management	3	0	90	90	0	8	8	0	98	98
Piggery Management										
Rabbit Management										
Animal Nutrition Management	2	11	0	11	36	0	36	47	0	47
Disease Management	1	2	0	2	38	0	38	40	0	40
Feed & fodder technology	2	51	101	152	14	49	63	65	150	215
Production of quality animal products										
Others (pl specify)	2	0	53	53	0	4	4	0	57	57
Total	10	64	244	308	88	61	149	152	305	457
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	3	0	102	102	0	24	24	0	126	126
Design and development of low/minimum cost diet	1	0	23	23	0	6	6	0	29	29
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Processing and cooking										
Gender mainstreaming through SHGs										
Storage loss minimization techniques	6	13	118	131	5	20	25	18	138	156
Value addition	3	0	66	66	0	12	12	0	78	78
Women empowerment	1	0	28	28	0	4	4	0	32	32
Location specific drudgery reduction technologies										
Rural Crafts										
Women and child care										
Others (pl specify)										
Total	14	13	337	350	5	66	71	18	403	421
VI Agril. Engineering										
Farm Machinery and its maintenance	2	61	0	61	4	0	4	65	0	65
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements	2	73	0	73	5	0	5	78	0	78
Small scale processing and value addition										
Post Harvest Technology										
Others (pl specify)										
Total	4	134	0	134	9	0	9	143	0	143
VII Plant Protection										
Integrated Pest Management	2	42	5	47	0	0	0	42	5	47
Integrated Disease Management	2	35	5	40	0	0	0	35	5	40
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
Others (Natural Farming)	10	123	303	426	0	63	63	123	366	489
Total	14	200	313	513	0	63	63	200	376	576
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
Others (pl specify)										
Total										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
Mushroom Production										
Apiculture										
Others (pl specify)										
Total										
X Capacity Building and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
Others (pl specify)										
Total										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
Others (pl specify)										
Total										
GRAND TOTAL	68	2132	1897	4029	175	275	450	2307	2172	4479

Training for Rural Youths including sponsored training programmes (On campus)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping	1	10	0	10	15	0	15	25	0	25
Sericulture										
Repair and maintenance of farm machinery and implements	3	120	0	120	24	0	24	144	0	144
Value addition										
Small scale processing										
Post Harvest Technology										

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing	1	30	0	30	0	0	0	30	0	30
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (pl. specify)										
TOTAL	5	160	0	160	39	0	39	199	0	199

Training for Rural Youths including sponsored training programmes (Off campus)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping										
Sericulture										
Repair and maintenance of farm machinery and implements										
Value addition										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Fry and fingerling rearing										
Any other (pl. specify)										
TOTAL										

Training for Rural Youths including sponsored training programmes – CONSOLIDATED (On + Off campus)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Protected cultivation of vegetable crops										
Commercial fruit production										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Mushroom Production										
Bee-keeping	1	10	0	10	15	0	15	25	0	25
Sericulture										
Repair and maintenance of farm machinery and implements	3	120	0	120	24	0	24	144	0	144
Value addition										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
Production of quality animal products										
Dairying										
Sheep and goat rearing	1	30	0	30	0	0	0	30	0	30
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Any other (pl. specify)										
TOTAL	5	160	0	160	39	0	39	199	0	199

Training programmes for Extension Personnel including sponsored training (on campus)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Productivity enhancement in field crops	1	33	17	50	3	3	6	36	20	56
Integrated Pest Management	1	35	7	40	5	0	5	40	7	47
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs	1	0	16	16	0	12	12	0	28	28
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										

Area of training	No. of Course s	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Mal e	Femal e	Tota l	Mal e	Femal e	Tota l	Mal e	Femal e	Tota l
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Management in farm animals	2	31	114	145	2	22	24	33	136	169
Livestock feed and fodder production										
Household food security	1	15	29	44	6	7	13	21	36	57
Any other – Capacity building	19	326	244	570	43	42	85	369	286	655
nursery management and planting material production	1	15	29	44	6	7	13	21	36	57
Natural Farming	1	0	40	40	0	11	11	0	51	51
Drudgery reducing technologies for women farmers	1	0	22	22	0	2	2	0	24	24
TOTAL	28	455	518	971	65	106	171	520	624	1144

Training programmes for Extension Personnel including sponsored training (off campus)

Area of training	No. of Course s	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Mal e	Femal e	Tota l	Mal e	Femal e	Tota l	Mal e	Femal e	Tota l
Productivity enhancement in field crops										
Integrated Pest Management										
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs										
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Management in farm animals										
Livestock feed and fodder production										
Household food security										
Any other (pl.specify)										
TOTAL										

Training programmes for Extension Personnel including sponsored training – CONSOLIDATED (On + Off campus)

Area of training	No. of Course s	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Mal e	Femal e	Tota l	Mal e	Femal e	Tota l	Mal e	Femal e	Tota l
Productivity enhancement in field crops	1	33	17	50	3	3	6	36	20	56
Integrated Pest Management	1	35	7	40	5	0	5	40	7	47
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
Production and use of organic inputs	1	0	16	16	0	12	12	0	28	28
Care and maintenance of farm machinery and implements										
Gender mainstreaming through SHGs										
Formation and Management of SHGs										
Women and Child care										
Low cost and nutrient efficient diet designing										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Management in farm animals	2	31	114	145	2	22	24	33	136	169
Livestock feed and fodder production										
Household food security	1	15	29	44	6	7	13	21	36	57
Any other – Capacity building	19	326	244	570	43	42	85	369	286	655
nursery management and planting material production	1	15	29	44	6	7	13	21	36	57
Natural Farming	1	0	40	40	0	11	11	0	51	51
Drudgery reducing technologies for women farmers	1	0	22	22	0	2	2	0	24	24
TOTAL	28	455	518	971	65	106	171	520	624	1144

Sponsored training programmes

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Increasing production and productivity of crops	1	33	17	50	3	3	6	36	20	56
Commercial production of vegetables										
Production and value addition										
Fruit Plants	1	29	4	33	0	0	0	29	4	33
Ornamental plants										
Spices crops										
Soil health and fertility management										
Production of Inputs at site										
Methods of protective cultivation										
Others (Natural Farming)	9	98	298	396	0	63	63	98	361	459
Total	11	160	319	479	3	66	69	163	385	548
Post harvest technology and value addition										
Processing and value addition										
Others (pl. specify)										
Total										
Farm machinery										
Farm machinery, tools and implements										
Others (pl. specify)										
Total										
Livestock and fisheries										
Livestock production and management										
Animal Nutrition Management	2	51	101	152	14	49	63	65	150	215
Animal Disease Management										
Fisheries Nutrition										
Fisheries Management										
Others (pl. specify)										
Total	2	51	101	152	14	49	63	65	150	215
Home Science										
Household nutritional security										
Economic empowerment of women										
Drudgery reduction of women										
Others										
Capacity building	19	326	244	570	43	42	85	369	286	655
Crop production technology	8	1394	833	2227	38	35	73	1432	868	2300
Total	27	1720	1077	2797	81	77	158	1801	1154	2955
Agricultural Extension										
Capacity Building and Group Dynamics										
Others (pl. specify)										
Total										
GRAND TOTAL	40	1931	1497	3428	98	192	290	2029	1689	3718

Details of vocational training programmes carried out by KVKs for rural youth (4 or more than 4 days)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial floriculture										
Commercial fruit production										
Commercial vegetable production										
Integrated crop management										
Organic farming										
Others (pl. specify)										
Total										
Post harvest technology and value addition										
Value addition	1	0	21	21	0	2	2	0	23	23
Others (pl. specify)										
Total	1	0	21	21	0	2	2	0	23	23
Livestock and fisheries										
Dairy farming										
Composite fish culture										
Sheep and goat rearing	1	30	0	30	0	0	0	30	0	30
Piggery										
Poultry farming										
Others (pl. specify)										
Total	1	30	0	30	0	0	0	30	0	30
Income generation activities										
Vermicomposting										
Production of bio-agents, bio-pesticides, bio-fertilizers etc.										
Repair and maintenance of farm machinery and implements	1	33	0	33	07	0	07	40	0	40
Rural Crafts										
Seed production										
Sericulture										
Mushroom cultivation										
Nursery, grafting etc.										
Tailoring, stitching, embroidery, dying etc.										
Agril. para-workers, para-vet training										
Others (pl. specify)										
Total	1	33	0	33	07	0	07	40	0	40
Agricultural Extension										
Capacity building and group dynamics										
Others (pl. specify)										
Total										
Grand Total	3	63	21	84	7	2	9	70	23	93

Photographs of training programmes





Details of vocational training programmes carried out by KVKs for rural youth (4 or more than 4 days)

Area of training	No. of Courses	No. of Participants								
		General/ Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management										
Commercial floriculture										
Commercial fruit production										
Commercial vegetable production										
Integrated crop management										
Organic farming										
Others (pl. specify)										
Total										
Post harvest technology and value addition										
Value addition	1	0	21	21	0	2	2	0	23	23
Others (pl. specify)										
Total	1	0	21	21	0	2	2	0	23	23
Livestock and fisheries										
Dairy farming										
Composite fish culture										
Sheep and goat rearing	1	30	0	30	0	0	0	30	0	30
Piggery										
Poultry farming										
Others (pl. specify)										
Total	1	30	0	30	0	0	0	30	0	30
Income generation activities										
Vermicomposting										
Production of bio-agents, bio-pesticides, bio-fertilizers etc.										
Repair and maintenance of farm machinery and implements	1	33	0	33	07	0	07	40	0	40
Rural Crafts										
Seed production										
Sericulture										
Mushroom cultivation										
Nursery, grafting etc.										
Tailoring, stitching, embroidery, dying etc.										
Agril. para-workers, para-vet training										
Others (pl. specify)										
Total	1	33	0	33	07	0	07	40	0	40
Agricultural Extension										
Capacity building and group dynamics										
Others (pl. specify)										
Total										
Grand Total	3	63	21	84	7	2	9	70	23	93

Photograph of Vocational Training Programmes

s



Scientific Goat Farming



Advanced Agricultural Machinery and implements

3.5. Extension Programmes

Activities	No. of programmes	No. of farmers	No. of Extension Personnel	TOTAL
Advisory Services (Other than KMAS)	2	24771	63	24834
Diagnostic visits	21	249	6	255
Field Day	1	60	2	62
Group discussions	3	127	0	127
Film Show	3	138	7	145
Exhibition	1	351	35	386
Scientists' visit to farmers field	39	268	5	273
Farmers' seminar/workshop	1	0	56	56
Method Demonstrations	6	300	2	302
Celebration of important days	2	166	18	184
Special day celebration	3	209	13	222
Exposure visits	12	422	24	446
Others				
Lectured delivered	37	3406	532	3938
Viksit Krishi Sankalp Abhiyan 2025	90	19909	97	20006
Farmers Scientist Interaction	1	92	0	92
PM Kisan Sanman Nidhi Yojana	2	270	8	278
PM Dhan Dhanya Krishi Yojana	1	217	9	226
Vande Mataram programme	1	30	2	32
Total	226	50985	879	51864

Photographs of Extension Programme





Details of other extension programmes:

Particulars	Number
Electronic Media (CD./DVD)	0
Extension Literature	0
Newspaper coverage	15
Popular articles	0
Radio Talks	6
TV Talks	1
Animal health camps (Number of animals treated)	0
Social media (No. of platforms Used)	4
Others	0
Act as a resource person/ Lecture delivered)	10
Training manual	01
Farmers visit to kvk nursery	4
Lectured delivered	1
Total	42

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3.6 Online activities during year 2025

S. No.	Activity Type	Mode of implementation (Video conferencing / Audio Conferencing / Facebook Live / YouTube Live/ Zoom/ Google meet/ Webex etc.)	Title of Program	No. of Programmes	No. of Participants/ Views
A	Farmers training				
1	Online Lecture	Zoom meeting	Integrated Weed Management in Kharif Crops	01	72
2	Online Lecture	Zoom meeting	Soybean and Pigeon pea Crop Management	01	69
3	Online Lecture	Zoom meeting	Chickpea Crop management Practices	01	48
	Total			03	189
B	Farmers scientist's interaction programme	-	-	-	-
	Total	-	-	-	-
C	Farmers seminars	-	-	-	-
	Total	-	-	-	-
D	Expert lectures	-	-	-	-
	Total	-	-	-	-
E	Any other (Pl. specify)	-	-	-	-
	Total	-	-	-	-
	Grand Total (A+B+C+D+E)	-	-	03	189

Delivered online Lecture

Radio Talk on Crop Diversification

3.7. PRODUCTION OF SEED/PLANTING MATERIAL AND BIO-PRODUCTS

Production of seeds by the KVKs

Crop	Name of the crop	Name of the variety	Name of the hybrid	Quantity of seed (q)	Value (Rs)	Number of farmers
Oilseeds						
	Soybean	DS-228,KDS-726,KDS-753,KDS-992,MAUS-158,MAUS-162,MAUS-612,MAUS-725	-	429.52	4919292	1152
Total				429.52	4919292	1152



Soybean Seed Production and Inputs Distribution Programme

Production of planting materials by the KVK

Crop	Name of the crop	Name of the variety	Name of the hybrid	Number	Value (Rs.)	Number of farmers
Fruits	Mango	Kesher		4730	425700	68
Fodder crop saplings	Fodder crop	Super Napier	Hybrid Napier	2100	1050	03
Others						
	Azolla	Azolla Pinnata	-	36	7200	34
Total				6866	433950	105

Production of Bio-Products

Bio Products	Name of the bio-product	Quantity	Value (Rs.)	No. of Farmers
		Kg/Lit		
Bio Fertilizers				
	Rhizobium	582.25	2,32,900	241
	Phosphate Solubilizing Bacteria	572.25	2,28,900	241
Bio-pesticide				
	Trichoderma	225	45,000	98
Others				
	Vermicompost	143 qtl	2,15,550	21
	Vermiculture	35.50	17,760	20
	Dal	165 qtl	1,49,283	34
Total			889393	655

Production of livestock materials

Particulars of Live stock	Name of the animal / bird / aquatics	Name of the breed	Type of Produce	unit (no./ lit/kg)	Quantity	Value (Rs.)	No. of Farmers
Poultry							
Duals (broiler and layer)	Improved poultry birds	Vanaraja	4 Week birds	No.	1789	218520	30
		Vanashree	4 Week birds	No.	50	6000	5
		Nicobari	4 Week birds	No.	50	6000	5
		Kadakhnath	4 Week birds	No.	57	8550	3
Others (Pl. specify)	Goat	Osmanabadi	Kids	No.	10	71530	10
Total					1956	310600	53

4. Literature Developed/Published (with full title, author & reference)

A. KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.):

B. Literature developed/published

Item	Citation/ Title	Authors name	Number
Research papers (Give Citation)	-	-	-
Technical reports	-	-	-
News letters	-	-	-
Technical bulletins	-	-	-
Popular articles	-	-	-
Extension literature	-	-	-
Others (Abstracts)	Optimizing Soybean (Glycine max L.) Yield through Precision Rotary Dibbler Sowing under Rainfed Conditions	S. P. Shinde, Tushar Athare, P. D. Matai, S. S. Digrase and S. A. Vagare	1
	Production performance of improved poultry breeds under backyard farming	Dr. Salunke S B., Digrase S.S., Matai P. D.	1
	High yielding Soybean varieties for draught prone and assured rainfall area: lessons from NICRA trials	P. D. Matai, Tushar Athare, S. S. Digrase, S.P. Shinde and S. A. Vagare	1
	Yellow leaf disease of sugarcane: Emerging threat under changing climate and its management strategies in Latur region	Sandip B Deshmukh	1
TOTAL			4

C. Details of Electronic Media Produced

S. No.	Type of media (CD / VCD / DVD/ Audio-Cassette)	Title of the programme	Number

D. Details of Social Media Platforms Created / Used

S. No.	Type of social media platform	No of events (uploaded video/post/story etc.	Title of social media	Number of Followers/ Subscribers
1	YouTube Channel (no of video uploaded)	6	Krishi Vigyan Kendra Latur	947/53
2	Facebook page/ Account (no of Post)	32	Krishi Vigyan Kendra Latur I	2300
3	Mobile Apps	-	-	-
4	WhatsApp groups	23	KVK, Latur groups	2450
5	Twitter Account	-	-	-
6	Any other (Pl. Specify)	-	-	-

Success Story-1

Enhancing Pigeonpea Productivity through Improved Variety BDN 2013-41

1. Situation Analysis / Problem Statement

Pigeonpea (Tur) is one of the major pulse crops cultivated during the kharif season in Latur District of Maharashtra, mainly under rainfed conditions. The crop plays an important role in ensuring food security, improving soil fertility through biological nitrogen fixation, and providing additional income to farmers. Despite its importance, the productivity of pigeonpea in the district remains comparatively low due to several agronomic and management constraints.

Most farmers in the district traditionally cultivate old or local pigeonpea varieties which are highly susceptible to pests and diseases such as wilt and pod borer. Limited awareness about improved high-yielding varieties and scientific crop management practices is another major constraint. Farmers often do not follow recommended practices such as seed treatment with biofertilizers and fungicides, balanced application of fertilizers, and timely plant protection measures.

In addition, pigeonpea cultivation in Latur district is largely dependent on erratic monsoon rainfall, which leads to moisture stress during critical crop growth stages. Improper spacing, inadequate intercultural operations, and lack of integrated pest management practices further reduce crop productivity. Due to these factors, the average yield of pigeonpea in the district remains around **7–8 q/ha**, which is significantly lower than the potential yield of improved varieties.

Therefore, there is a strong need to promote improved pigeonpea varieties along with recommended production technologies through demonstrations, trainings, and extension activities to enhance productivity and profitability of farmers in the district.

2. Plan, Implement and Support

Considering the low productivity of pigeonpea in Latur District of Maharashtra, Krishi Vigyan Kendra planned a systematic intervention to improve the productivity and profitability of pigeonpea cultivation. The major objective was to introduce improved high-yielding and disease tolerant varieties along with recommended scientific crop management practices.

The plan focused on the following activities:

- **Identification of progressive farmers and suitable villages** where pigeonpea is widely cultivated under rainfed conditions.
- **Selection of improved variety BDN 2013-41 (Godavari)** for demonstration due to its higher yield potential and tolerance to wilt disease.

- **Organizing training programmes and awareness campaigns** to educate farmers about improved production technologies of pigeonpea.
- **Conducting Front Line Demonstrations (FLDs) / On-Farm Trials (OFTs)** to compare improved practices with farmers' traditional practices.
- **Preparation of extension literature** such as leaflets and technical guidelines for easy understanding by farmers.

The main aim of the plan was to increase awareness, demonstrate the advantages of improved varieties, and promote adoption of recommended practices among farmers.

Implement

The planned activities were implemented in selected villages through demonstrations on farmers' fields during the kharif season. Quality seed of improved pigeonpea variety **BDN 2013-41** was provided to the selected farmers along with technical guidance from KVK scientists.

The following improved technologies were demonstrated:

- Use of improved variety BDN 2013-41 with higher yield potential.
- Seed treatment with fungicide and biofertilizers such as Rhizobium and PSB to improve germination and nutrient availability.
- Recommended sowing time and spacing to ensure optimum plant population.
- Balanced application of fertilizers based on recommended doses.
- Integrated weed and pest management practices to reduce crop losses.
- Timely intercultural operations for better crop growth and development.

Field demonstrations were conducted in farmers' fields so that neighboring farmers could directly observe the performance of improved technology.

Support

Continuous technical support was provided to farmers throughout the crop season to ensure proper implementation of recommended practices. The support included:

- Regular field visits and monitoring by KVK scientists to observe crop growth and provide advisory services.
- On-field guidance for pest and disease management, fertilizer application, and intercultural operations.
- Farmer training programmes and group discussions to strengthen farmers' knowledge about improved pigeonpea cultivation.
- Field days and exposure visits organized during the crop season to demonstrate the performance of the improved variety to other farmers.

- Distribution of technical information through leaflets and personal advisories to ensure better adoption of the technology.

3. Output

S.N.	Technology	Demonstration Plot					Check Plot				
		Yield (q/ha)	Gross Cost (Rs.)	Gross Return 9Rs.)	Net Returns (Rs)	B:C Ratio	Yield (q/ha)	Gross Cost (Rs.)	Gross Return 9Rs.)	Net Returns (Rs)	B:C Ratio
1	FLD	20.9	39000	157795	118795	4.04	17.21	39000	129935	90935	3.33
2	CFLD	15.75	39000	118912	79912	3.04	11.70	39000	88335	49335	2.26

Under the FLD demonstrations of pigeonpea variety BDN 2013-41 were conducted on 25 farmers' fields covering 10 ha area. The yield recorded under improved technology ranged from 14.00 to 28.00 q/ha, with an average yield of 20.90 q/ha, whereas the farmers' practice recorded an average yield of 17.21 q/ha. This resulted in a 21.44% increase in yield over the farmers' practice. The economic analysis showed that the demonstration generated a gross return of Rs. 1,57,795/ha and net return of Rs. 1,18,795/ha with a benefit–cost ratio of 4.04, compared to the farmers' practice which recorded a gross return of Rs. 1,29,935/ha, net return of Rs. 90,935/ha and BCR of 3.33.

Similarly, under varietal demonstration with Integrated Nutrient Management (INM), the improved pigeonpea variety BDN 2013-41 was demonstrated on 300 farmers' fields covering 120 ha area. The demonstration recorded yields ranging from 12.25 to 19.25 q/ha, with an average yield of 15.75 q/ha, whereas the farmers' practice recorded 11.70 q/ha. This resulted in a 34.62% increase in yield over the local practice. The economic evaluation indicated a gross return of Rs. 1,18,912/ha and net return of Rs. 79,912/ha with a BCR of 3.04, whereas farmers' practice recorded gross return of Rs. 88,335/ha, net return of Rs. 49,335/ha and BCR of 1.79.

The results clearly indicated that the introduction of improved pigeonpea variety BDN 2013-41 along with recommended nutrient management practices significantly enhanced crop productivity and profitability, encouraging farmers to adopt the improved technology in the region.

3. Outcome

The demonstrations on pigeonpea variety **BDN 2013-41** along with improved crop management practices in Latur District of Maharashtra resulted in significant positive outcomes in terms of productivity, profitability and technology adoption among farmers.

The introduction of the improved variety BDN 2013-41 under variety demonstration and varietal demonstration with Integrated Nutrient Management (INM) helped farmers realize the potential of improved

seed and scientific crop management practices. Farmers observed better crop growth, increased branching, higher number of pods per plant and better grain filling compared to the traditional varieties cultivated earlier.

The demonstrations resulted in a **yield advantage of 21.44% under FLD and 34.62% under CFLD on Pulses** over the farmers' practice. This clearly indicated the effectiveness of the improved technology package. The higher yield obtained from the demonstrations helped farmers understand the importance of using improved varieties, seed treatment and balanced nutrient management.

Economic analysis also showed a substantial increase in farmers' income. The demonstrations recorded higher **gross returns, net returns and benefit–cost ratios** compared to the farmers' traditional practices. This improvement in economic returns motivated farmers to adopt the improved variety and recommended practices in the subsequent seasons.

The success of these demonstrations also increased awareness among neighboring farmers. Many farmers visited the demonstration fields and interacted with the beneficiary farmers to learn about the benefits of the improved variety and management practices. As a result, the demand for quality seeds of pigeonpea variety BDN 2013-41 increased in the villages.

Overall, the intervention strengthened farmers' confidence in improved pulse production technologies, enhanced knowledge about integrated nutrient management and encouraged wider adoption of improved pigeonpea cultivation practices in the district.

5.Impact

The large-scale demonstrations of pigeonpea variety **BDN 2013-41** along with improved crop management practices created a significant impact on pulse production and farmers' livelihood in Latur District of Maharashtra. The introduction of the improved variety and scientific production technologies helped farmers realize the benefits of adopting modern agricultural practices over traditional cultivation methods.

Due to the higher yield potential and better performance of variety **BDN 2013-41**, farmers experienced a substantial increase in crop productivity and profitability. The demonstrations recorded higher yields and better economic returns compared to farmers' practices, which improved farmers' confidence in using improved varieties and recommended nutrient management practices. The higher benefit–cost ratio obtained under demonstrations clearly showed that adoption of improved technology can significantly enhance farm income.

The successful results encouraged many neighboring farmers to adopt the improved pigeonpea variety and recommended cultivation practices in their own fields. As a result, the area under improved pigeonpea varieties gradually increased in the demonstration villages and surrounding areas. The demonstrations also helped in strengthening farmers' knowledge about improved seed use, integrated nutrient management and scientific crop management practices.

In the long term, the intervention contributed to increasing pigeonpea productivity, improving farmers' income and strengthening pulse production systems in the district. The wider adoption of improved pigeonpea technologies also supports soil health improvement through pulse cultivation and contributes to

nutritional security by increasing the availability of pulses in the region. Overall, the initiative played an important role in promoting sustainable and profitable pigeonpea cultivation in the district.



Prekharif Training Programme

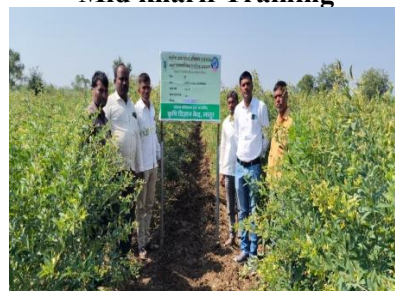
Group Discussion



Seed Distribution Programme

News paper Coverage

Mid kharif Training



Field Visit to demonstration Plot



Field Day Programme At-Tattapur Ta.Renapur

News Paper Coverage

Success Story -2

Scientific Migratory Beekeeping to State Level Pollination Enterprise: A Success Story of Young Beekeeper from Drought-Prone Marathwada

1. Background

Shri Dnyaneshwar Malile, a young and progressive beekeeper from Latur district in the drought-prone Marathwada region of Maharashtra, comes from a farming family exposed to chronic challenges of climatic uncertainty, water scarcity, high cost of cultivation, and unstable horticultural incomes. Observing the persistent problems of low fruit set, high flower and fruit drop, uneven fruit development, and reduced marketable yield in crops such as pomegranate, guava, watermelon, muskmelon, onion seed, and sunflower, he identified poor pollination as a major hidden constraint limiting crop productivity, despite farmers' investments in inputs and management practices.



Initially engaged in small-scale honey production, Shri Dnyaneshwar Malile gradually reoriented his enterprise towards a pollination-centered agribusiness model after recognizing scientific evidence on the role of managed honeybee pollination in improving fruit set, seed formation, and yields. He developed a scientific migratory pollination plan by aligning bee colony movement with flowering calendars of major horticultural crops across different agro-climatic zones of Maharashtra, enabling year-round utilization of colonies and targeted pollination services during peak flowering periods.

Through structured partnerships with orchardists, FPOs, and seed producers, his apiary expanded into a key source of organized pollination support for major fruit and seed crops in the region. The pollination-driven approach improved crop productivity, produce quality, and yield stability for farmers while transforming beekeeping into a year-round, diversified income enterprise. This model not only enhanced farm profitability but also promoted pollinator conservation and adoption of pollinator-friendly practices, demonstrating how apiculture can evolve from honey production into a climate-resilient, productivity-enhancing support service for high-value horticulture in drought-prone regions.

2. Situation Analysis / Problem Statement

In Latur district of Maharashtra, agriculture-based livelihoods are increasingly under stress due to recurrent droughts, erratic monsoon behaviour, declining groundwater levels, and limited irrigation availability, making nearly 70 percent of orchards and vegetable farms vulnerable to moisture stress. Despite rapid expansion of high-value horticultural crops such as pomegranate, guava, watermelon, muskmelon and onion seed across Maharashtra, farmers continue to experience low and unstable yields, poor fruit set, inferior fruit quality, and high proportions of unmarketable produce (20–35%), even after adopting improved varieties and micro-irrigation systems.

A major underlying constraint has been the decline in pollination services, caused by loss of wild pollinators (40–60% decline), excessive use of broad-spectrum pesticides, monocropping, and degradation of natural habitats. Reduced honeybee activity during flowering has resulted in lower fruit set, higher flower and fruit drop (18–25%), poor seed development, and yield gaps of 25–30 percent compared to attainable potential. Although the benefits of managed honeybee pollination are well established, organized pollination services and scientific migratory beekeeping systems were largely absent, with only 10–15 percent of orchard growers having access to professional pollination support.

Simultaneously, rural youth faced limited livelihood options, with traditional farming and wage labor providing seasonal and uncertain incomes. Beekeeping, despite being a low-land, low-water, climate-resilient enterprise, remained underdeveloped due to lack of technical skills, organized market linkages, and scalable business models. The fragmented availability of floral resources and water for bees, especially during summer lean periods, further constrained colony survival and enterprise expansion.

Together, these factors created a dual challenge: declining orchard productivity due to pollination deficits and limited income-generating opportunities for rural youth. This underscored the urgent need for scientific migratory beekeeping and organized pollination services as integrated solutions to enhance horticultural productivity and create sustainable, climate-resilient livelihoods in drought-prone Marathwada.

3. Plan, Implement and Support

To address the problems of poor natural pollination, declining wild pollinators, and sub-optimal productivity of horticultural crops in Latur district, KVK, Latur adopted a systematic strategy to promote scientific migratory beekeeping and organized pollination services as a viable solution. The intervention focused on strengthening the technical capacity of Shri Dnyaneshwar Malile as a lead pollination entrepreneur, creating demand for managed pollination among orchard growers, and establishing institutional and technical support mechanisms for sustainable expansion of apiculture-based enterprises.

At the planning stage, KVK scientists conducted baseline diagnostic surveys in selected pomegranate and guava orchards across Chakur, Ausa, Nilanga and Latur blocks, covering about 12 orchards (25 ha) over two flowering seasons. The surveys documented low fruit set (45–55%), high flower and fruit drop (18–25%), and inadequate presence of natural pollinators. Based on these findings, a location-specific pollination enhancement plan integrating scientific migratory beekeeping was developed, and Shri Dnyaneshwar Malile was identified as a lead pollination service provider.

KVK facilitated capacity building of Shri Dnyaneshwar Malile through advanced trainings on commercial beekeeping and pollination management, along with on-farm trainings for farmers and rural youth. Technical guidance was provided on colony multiplication, queen management, migratory planning, apiary disease management, and pollination protocols, supported by distribution of Marathi technical literature.

As facilitation support, KVK guided procurement of standardized hive boxes, nucleus frames, pollen traps, protective gear, honey extractors and migratory accessories, enabling expansion of the apiary from 120 to 350 colonies within two seasons, and further to over 1,000 colonies within four years. Continuous on-site consultancy on seasonal colony management, nutrition during lean periods, water provisioning and pest–disease management helped reduce colony mortality from 18–20% to below 6–8%.

To demonstrate benefits, demonstrations and extension programmes were conducted in pomegranate, guava, watermelon and onion seed crops. Managed pollination resulted in 28–35% higher fruit set and 22–30% higher marketable yield in fruits, and 35–45% higher seed set in onion seed plots. These results were shared through farmer field days and farmer–scientist interactions, creating strong demand for pollination services.

KVK also facilitated farmer–beekeeper interfaces and market linkages, standardizing pollination service norms and rental charges. Structured service agreements were initiated for 1,200–1,500 colonies per season, covering about 900–1,100 ha of orchards, helping formalize pollination as a recognized farm input. Regular advisories on timing and density of hive placement, pollinator-safe pesticide practices, and creation of pollinator-friendly habitats ensured effective service delivery.

Additionally, extension strategies such as exposure visits to the apiary unit, celebration of World Bee Day, and dissemination of success stories through local media were undertaken, sensitizing farmers and rural youth to the economic and ecological value of pollinators.

Overall, the integrated approach of KVK, Latur—combining diagnostic assessment, capacity building, demonstrations, facilitation of inputs, continuous technical backstopping and stakeholder linkages—successfully transformed Shri Dnyaneshwar Malile’s beekeeping activity into a structured, pollination-centered agribusiness enterprise, establishing a scalable and replicable model for promoting scientific migratory beekeeping as a sustainable livelihood option in drought-prone regions.

4. Output

Under the technical guidance of KVK, Latur, and with Shri Dnyaneshwar Malile functioning as a leading pollination service provider in Latur district and across Maharashtra, the interventions generated clear and measurable outputs in farmer capacity, crop productivity and quality, input use efficiency, and enterprise growth.

At the capacity-building level, more than 320 orchard growers and seed producers across Latur, Osmanabad (Dharashiv), Beed, Solapur, Ahilyanagar, Nashik, Pune, Sambhajinagar and Jalna were trained and sensitized on managed honeybee pollination and pollinator-friendly practices.

At the field output level, in year 2024 he conducted pollination services in 96 orchards covering ~420 ha of pomegranate, guava, watermelon, muskmelon and onion seed recorded 26–38% higher fruit set and 24–34% increase in marketable yield in pollinated plots compared to non-pollinated controls. Produce quality improved with better fruit size, uniformity, colour, and TSS; onion seed plots showed 30–45% higher seed set and improved germination.

At the plant protection and input-use level, adoption of pollinator-friendly practices resulted in a 15–20% reduction in chemical spray frequency, lowering crop stress and secondary disorders (fruit drop, malformation) and improving orchard vigor.

At the economic output level, participating farmers realized ₹35,000–₹85,000/ha/season additional net returns due to higher yields and 8–15% price premium for improved grades in pomegranate and better market acceptance in cucurbits; onion seed growers reported 20–30% higher seed yield and improved contract rates.

At the enterprise output level, Shri Malile's apiculture production scaled significantly: honey output increased from ~1-2t/year to >8 t/year, with standardized quality; value-added outputs reached ~500 kgs/year of bee pollen, strengthening income diversification.

A key institutional output was the establishment of Maharashtra's first organized Nucleolus Queen Production Unit, producing ~1000 quality queens/year, supplying beekeepers across Latur, Pune, Nashik, Satara, Solapur and Ahmednagar, resulting in 18–25% improvement in colony performance and honey yield among secondary beneficiaries.

Overall, the integrated KVK-led approach, anchored by Shri Dnyaneshwar Malile, delivered measurable gains in farmer skills, yield and quality, reduced chemical use, higher farm profitability, and strengthened apiculture capacity, contributing to a robust pollination service ecosystem in Maharashtra.



Shri Dnyaneshwar Malile Pollination Service in Pomegranate Crop



Pollination Service in Sunflower Crop

5. Outcome

The sustained interventions facilitated by KVK, Latur, with Shri Dnyaneshwar Malile as a lead pollination service provider and nucleolus queen producer, led to the horizontal spread of managed honeybee pollination and scientific migratory beekeeping across multiple districts of Maharashtra. Over four cropping seasons, adoption expanded from <20 ha (Year-1) to ~1000 ha (Year-4) across Latur, Osmanabad (Dharashiv), Beed, Solapur, Ahilyanagar, Nashik, Pune, Sambhajinagar and Jalna, benefitting ~600 orchardists, seed producers and vegetable growers. Diffusion was strongest in pomegranate, guava, watermelon, muskmelon and onion seed belts, where visible yield and quality gains accelerated adoption.

Secondary beneficiaries realized average additional net income of ₹ 32,000–₹ 78,000/ha/season due to improved fruit set and marketable yield. At the landscape scale, the annual incremental farm-level benefit is conservatively estimated at ₹ 40 lakhs across the nine districts, reinforcing managed pollination as a cost-effective productivity input and driving repeat contracts.

Adoption of pollinator-friendly practices resulted in 18–25% fewer insecticide sprays, lowering cultivation costs by ₹ 3,000–₹ 6,500/ha and reducing collateral damage to beneficial insects. In select clusters, 10–12% fertilizer savings were reported due to better crop load management.

Produce quality improved markedly—uniform size, better colour, higher fruit weight, and improved seed fill—leading to 8–15% higher prices in wholesale markets. Higher A/B grade recovery in pomegranate and guava and reduced deformities in melons improved market acceptance; onion seed quality (TSW, germination) strengthened farmer bargaining power with seed firms.

At the household level, ~62% of beneficiary families reported improved income stability; average household income rose by ₹ 1.2–₹ 1.5 lakh/year after two seasons, enabling investments in drip irrigation, orchard rejuvenation, housing, education, and small machinery.

The model catalyzed local apiculture ecosystems: 08 new youth-led units (30–150 colonies each) added ~1000 colonies regionally. Supply of quality nucleolus queens from Shri Malile's unit underpinned rapid scaling and colony performance among secondary beekeepers.

Overall estimated annual monetary outcome: ₹ 40 lakh across nine districts (incremental crop income + input savings + quality premium), confirming pollination-centered apiculture as a scalable, climate-resilient solution for horticultural productivity and rural livelihoods in drought-prone Maharashtra.

6. Impact

The promotion of scientific migratory beekeeping and managed honeybee pollination in Latur district, led by Shri Dnyaneshwar Malile with technical facilitation from KVK, Latur, generated measurable district- and state-level impacts over 4–5 years, influencing production systems, farm incomes, social well-being, environmental resilience, and institutional development across major horticulture belts of Maharashtra.

At the technological and production system level, organized pollination services contributed to an expansion of 12–18% in the area under pomegranate and guava in selected talukas of Latur, Dharashiv (Osmanabad), Jalna and Beed, as improved fruit set reduced production risk and encouraged orchard establishment. The area under onion seed and hybrid vegetable seed production increased by 9–14% in pockets of Nashik, Pune and Solapur, supported by reliable pollination services. Adoption of modern orchard practices (drip irrigation, mulching, canopy management) increased by 20–30%, alongside higher uptake of farm tools (power sprayers, mulchers, pruning tools), reflecting technological upgrading of horticulture systems.

From a production and productivity perspective, managed pollination resulted in 8–12% district-level productivity gains in major fruit crops. Across nine districts, incremental production attributable to improved pollination, improving supply stability and reducing seasonal market volatility.

The economic impact was substantial. Additional crop value generated through pollination services was conservatively estimated at ₹2-3 crore/year across Marathwada and Western Maharashtra. Commercial apiculture enterprises, strengthening the rural agribusiness economy and stimulating allied activities (transport, packaging, marketing, processing).

The social impact included improved household well-being and human capital investment. In beneficiary villages, the proportion of households investing in children's higher education increased. 42–47% of participating families reported housing upgrades and asset creation, while youth engagement in apiculture-led agripreneurship increased, contributing to reduced distress migration.

Environmental benefits were realized through pollinator conservation and ecosystem resilience. Pollinator-friendly practices and rationalized pesticide use led to a 15–25% reduction in hazardous sprays during flowering, aiding recovery of beneficial insect populations. Managed pollination improved fruit set stability under heat waves and dry spells, while flowering cover crops and boundary plantations enhanced on-farm biodiversity and microclimate buffering.

At the institutional and infrastructural level, the model catalyzed establishment of honey processing and storage units in Latur, with aggregation centers in Solapur and Nashik, and the emergence of regional queen breeding/nucleus colony hubs. Formal linkages with FPOs, seed companies, horticulture departments and private buyers helped institutionalize pollination services within horticultural value chains.

Overall, the intervention demonstrates that pollination-centered apiculture integrated with scientific migratory beekeeping is a transformative, scalable technology delivering multi-dimensional benefits—productivity, income, social mobility, environmental resilience, and institutional strengthening—and acts as a strategic enabler for horticultural growth and climate-resilient rural development in drought-prone Maharashtra.



Migration of Honey bee colonies up to Himachal during pollen dearth period

Success Story-3

Empowering Rural Women through Drone Technology

Name of the Enterprise / Crop: Farm mechanization

Name of the Farmer: Mrs. Rohini Pankaj Shinde

(First “Drone Didi” of Latur District)

Address: At Post. Gangapur, Tq. & Dist. Latur, Maharashtra- 413 531



1. Situation Analysis / Problem Statement

Gangapur village of Latur district is located in a drought-prone region of Marathwada characterized by erratic rainfall, frequent dry spells, and limited irrigation resources. The major crops grown in the area include soybean, chickpea, pigeon pea, sorghum, safflower, maize, sugarcane (in irrigated pockets), vegetables, flowers, and mango orchards. Crop productivity in the region largely depends on timely plant protection measures.

However, farmers in the village were facing serious constraints in plant protection management. Acute labour scarcity during peak spraying periods resulted in delayed pesticide application. Traditional knapsack sprayers were labour-intensive and required large volumes of water (200–250 liters per hectare). Spray coverage was often uneven, especially in tall crops such as sugarcane and pigeon pea. Farmers were directly exposed to harmful chemicals, causing health concerns. Due to improper and delayed spraying, pest and disease incidence in soybean and chickpea led to yield losses of 10–25 percent in several cases.

Women in agriculture were mainly engaged in manual farm operations and had limited access to advanced agricultural machinery. There were very few income diversification opportunities for rural women, and no structured drone-based custom hiring services were available in Latur district at that time.

Despite these constraints, the district had strong institutional support and progressive farmers willing to adopt innovative technologies. Recognizing the need for precision agriculture and women empowerment, KVK, Latur initiated efforts to introduce drone-based pesticide spraying technology in the region.

2. Plan, Implementation and Support

To address the identified problems, Krishi Vigyan Kendra, Latur initiated On-Farm Trials (OFTs) on drone spraying technology in soybean and chickpea crops. The objective was to evaluate its efficiency, spray uniformity, reduction in chemical consumption, and economic feasibility under local conditions.

The trials demonstrated that drone spraying required only 20–25 liters of spray solution per hectare and achieved uniform droplet distribution with high field efficiency (1.5–2.0 hectares per hour). The technology significantly reduced operator exposure to pesticides and ensured timely plant protection.

Mrs. Rohini Pankaj Shinde from Gangapur actively participated in these demonstrations and training programmes. She underwent structured skill training conducted by KVK, which included drone operation, calibration, safety protocols, battery management, pesticide handling, minor troubleshooting and business planning for custom hiring services. Farmer–scientist interactions, field demonstrations and exposure visits further enhanced her confidence and technical competence.

With technical guidance from KVK, she applied under the Government of India’s Drone Didi Scheme and successfully procured an agricultural spraying drone. KVK provided continuous advisory services and field-level

support during the initial phase of operation. With this initiative, she became the first “Drone Didi” of Latur district, marking a significant milestone in women-led agricultural mechanization in the region.

3. Output

After procuring the drone, Mrs. Rohini Shinde started providing custom hiring services for pesticide spraying across various crops in Gangapur and neighboring villages. During the operational year, she covered a total spraying area of 810 acres.

She sprayed 185 acres of sugarcane at a rate of ₹700 per acre, generating ₹1,29,500. In soybean, she covered 150 acres at ₹500 per acre, earning ₹75,000. Chickpea spraying was conducted on 175 acres, generating ₹87,500. Safflower was sprayed on 127 acres with an income of ₹63,500. Additional crops included sorghum (5 acres), green gram, black gram and pigeon pea (50 acres), maize (20 acres), flowers (15 acres), tomato (65 acres), and mango orchards (18 acres at ₹1000 per acre). Through these operations, she generated a total income of ₹4,51,000 from 810 acres of spraying services.

The introduction of drone technology resulted in several immediate outputs. Farmers experienced 25–30 percent reduction in chemical usage due to low-volume precision spraying. Labour requirements were reduced by nearly 40–50 percent. Timely spraying improved pest and disease management, leading to better crop protection. Mrs. Rohini significantly enhanced her technical skills, entrepreneurial capacity, and digital agriculture knowledge.

Sr. No.	Crop	Spraying Area, Acre	Spraying Rate per Acre	Total Income
1.	Sugarcane	185	700/-	129500/-
2.	Soybean	150	500/-	75000/-
3.	Chickpea	175	500/-	87500/-
4.	Safflower	127	500/-	63500/-
5.	Sorghum	05	500/-	2500/-
6.	Green gram, Black gram and Pigeon Pea	50	500/-	25000/-
7.	Maize	20	500/-	10000/-
8.	Flowers	15	500/-	7500/-
9.	Tomato	65	500/-	32500/-
10.	Mango	18	1000/-	18000/-
Total		810	--	451000/-

4. Outcome

The success of drone spraying services created a positive ripple effect in the surrounding villages. Farmers from neighboring villages began availing her services, leading to horizontal spread of the technology. More than 550 farmers benefitted directly from drone spraying services in a single year.

Farmers reported improved crop health and yield stability due to timely and uniform spraying. On average, yield improvement and cost savings together provided an estimated additional benefit of approximately ₹1,500 per acre. For 810 acres, this translated into an indirect economic benefit of nearly ₹12,15,000 to the farming community.

The technology also reduced excessive pesticide application, thereby minimizing environmental contamination and improving soil and water quality. Reduced human exposure to chemicals improved occupational safety.

From a women empowerment perspective, Mrs. Rohini Shinde emerged as a role model for rural women and Self-Help Groups. Her increased income improved the financial stability of her family and strengthened her decision-making role within the household and community.

5. Impact

At the district level, the initiative contributed to the promotion of precision agriculture and digital farming practices in Latur. Drone spraying gained visibility as a viable alternative to conventional plant protection methods. The custom hiring model demonstrated by Mrs. Rohini created a sustainable rural service enterprise.

Economically, her enterprise generated ₹4.51 lakh annual income and stimulated the rural service economy. Indirect benefits to farmers strengthened the agricultural economy of the area. Socially, her recognition as the first Drone Didi of Latur district enhanced the status of women in mechanized agriculture. Her success improved household living standards and educational opportunities for her children.

Institutionally, KVK, Latur strengthened its role as a technology incubation and extension center by successfully promoting drone-based precision agriculture. The model demonstrated effective convergence of government schemes, institutional support, and grassroots entrepreneurship.

Environmentally, the technology promoted climate-smart agriculture by ensuring timely spraying during narrow weather windows, reducing chemical load, and improving resource-use efficiency in drought-prone conditions.

Conclusion

The journey of Mrs. Rohini Pankaj Shinde from a rural woman farmer to the first Drone Didi of Latur district reflects the transformative potential of agricultural mechanization combined with institutional support. Through strategic intervention by Krishi Vigyan Kendra, Latur, she adopted advanced drone technology, generated substantial income, provided precision spraying services across 810 acres, and delivered measurable economic and environmental benefits to the farming community.

Photographs



Active participation of Mrs. Rohini Shinde in skill development training on precision agriculture technologies.



Practical session on drone calibration and safe pesticide handling during training programme.



Certificate distribution ceremony after successful completion of Training at KVK, Latur.



Drone Didi Scheme beneficiary Mrs. Rohini Shinde with her agricultural spraying drone unit.



Mrs. Rohini Pankaj Shinde operating agricultural drone for spraying



Mrs. Rohini Pankaj Shinde operating agricultural drone for spraying in sugarcane and soybean field.

E. Give details of innovative methodology or innovative technology of Transfer of Technology developed and used during the year

F. Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK

5.1. Indicate the specific training need analysis tools/methodology followed for

A. Practicing Farmers

- a) Group discussion
- b) Field level observations

B. Rural Youth

- a) Group discussion
- b) Field level observations

C. In-service personnel

- a) As per demand

5.2. Indicate the methodology for identifying OFTs/FLDs

For OFT:

- i) PRA
- ii) Problem identified from Matrix
- iii) Field level observations
- iv) Farmer group discussions

For FLD:

- i) New variety/technology
- ii) Poor yield at farmer's level
- iii) Existing cropping system

5.3. Field activities

- i. Name of villages identified/adopted with block name (from which year) – Gangapur, Shirala, Borgaon (N.)
- ii. No. of farm families selected per village: 80
- iii. No. of survey/PRA conducted: 01
- iv. No. of technologies taken to the adopted villages: 50
- v. Name of the technologies found suitable by the farmers of the adopted villages: FSN, Improved poultry birds, Climate resilient technology
- vi. Impact (production, income, employment, area/technological– horizontal/vertical)
- vii. Constraints if any in the continued application of these improved technologies

6. LINKAGES

A. Functional linkage with different organizations

Sl.No.	Name of organization	Nature of Linkage
1.	Maharashtra Cooperative Development Cooperation,Pune	Trainings on farmers organizations.
2	State Department of Agriculture, Latur	Conducting training programs, Joint field visit, Diagnostic team visit, Training Programs, Monthly district workshop, Field Visit.
3	VNMKV, Parbhani, College of Agri., Latur.	Joint diagnostic team visit, Supply of seed material
4	Dept. of Animal husbandry, Latur	Joint Implementation of vaccination camp, Conducting training programs and source for data regarding animals
5	MPKV, Rahuri	Source for seeds and new varieties seed materials
6	Mahabeej	Supply of seed material
7	CRIDA, Hyderabad	Source of improved technology in farm implements and machinery's & NICRA project
8	Oilseeds Research Station, Latur	Weather data collection, Seed source
9	BAIF, Pune	Source of fodder seeds
10	PD,ATMA,Latur	Conducting researchable activities, demonstrations, Participation in extension programs
11	PCI, Pune	As a source of pest monitoring devices
12	Project Directorate on poultry, Hyderabad	As a source of poultry breeds
13	YCMOU, Nashik	Agri. Study Center
14	MANAGE, Hyderabad	AC&ABC,AND Daesi course Nodal training institute
15	DOGR, Rajgurunagar, Pune	Demonstrations on newly released onion seeds
16	District Industrial Centre (DIC)	Technical advisor
17	Sericulture Development Officer, Latur	For conducting training programs
18	National Centre for Organic Farming, Gaziabad	Waste decomposing culture
19	SSP, Latur	Conduct trainings and extension activities
20	District Central Cooperative Bank, Latur	Scheme for entrepreneurial development and meetings
21	NHRDF, Nasik	As a source of onion seeds
22	DR PDKV, Akola	Source of mini dal mill
23	NIPHM, Hyderabad	Source of biofertilizer mother culture
24	DFR, Pune	Source of seeds
25	CIAE, Bhopal	Source of improved implements
26	District Innovative Council,Latur	Source of Agril. Technology Park
27	MCAER	Source of FSN programme
28	Dept. of Animal husbandry, Latur	Joint Implementation of vaccination camp, Conducting training programs and source for data regarding animals
29	Project Directorate on poultry , Hyderabad	As a source of poultry breeds
30	Tamil Nadu Veterinary and Animal Sciences University, chennai	Supply of Mastiguard kit
31	BAIF, Uralikanchan	Source of Fodder seed & planting material
32	MPKV, Rahuri	Source of fodder seed and planting material
33	Garuda Aerospace Pvt Ltd Chennai	Drone application in agriculture
34	District Innovative Council Latur	Agriculture Technology Park
35	New Holland Pvt Ltd	Training programmes and demonstrations
36	Shaktiman Pvt Ltd	Training programmes and demonstrations

37	YASHDA Pune	Training programmes
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B. List special programmes undertaken by the KVK and operational now, which have been financed by State Govt./Other Agencies

Name of the scheme	Date/ Month of initiation	Funding agency(State Govt./Other Agencies)	Amount (Rs.)
Maharashtra Agri-Business Network (MAGNET), Pune	Feb 2024	Asian Development Bank	18,32,000/-
PMFME	January to December 2025	State Agriculture Dept	2,69,569/-
Cluster Based Business Organization (CBBO)	March 2023	NDDB, Anand	2,50,000/-

C. Details of linkage with ATMA

a) Is ATMA implemented in your district Yes

If yes, role of KVK in preparation of SREP of the district?

Coordination activities between KVK and ATMA

S. No.	Programme	Particulars	No. of programmes attended by KVK staff	No. of programmes Organized by KVK	No of Farmers attending
01	Meetings	2	1	1	92
02	Research projects				
03	Training programmes				
04	Demonstrations				
05	Extension Programmes				
	KisanMela				
	Technology Week				
	Exposure visit				
	Exhibition				
	Soil health camps				
	Animal Health Campaigns				
	Others (Pl. specify)				
06	Publications				
	Video Films				
	Books				
	Book chapter				
	Extension Literature				
	Pamphlets				
	Others (Pl. specify)				
07	Other Activities (Pl.specify)				
	Watershed approach				
	Integrated Farm Development				
	Agri-preneurs development				

D. Give details of programmes implemented under National Horticultural Mission

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Constraints if any

E. Nature of linkage with National Fisheries Development Board

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

F. Details of linkage with RKVY (Skill development/RPL)

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

G. Details of linkage with PKVY (Paramparagat Krishi Vikas Yojana)

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

H. Details of linkage with NFSM

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

I. Details of linkage with SMAF (Sub-mission on Agroforestry)

S. No.	Programme	Nature of linkage	Funds received if any Rs.	Expenditure during the reporting period in Rs.	Remarks

7. Convergence with other agencies and departments:

Sr.No.	Particulars	Convergence with department
1.	Seed Testing Laboratory	DPDC and Dept. of Agriculture, Latur
2.	Seed Processing Unit- 4 TPH	DPDC and Dept. of Agriculture, Latur

8. Innovative Farmers Meet

Sl.No.	Particulars	Details
	Have you conducted Farm Innovators meet in your district?	Yes/ No
	Brief report in this regard	

9. Farmers Field School (FFS)

S. No	Thematic area	Title of the FFS	Budget proposed in Rs.	Expenditure	Brief report

10.1. Technical Feedback of the farmers about the technologies demonstrated and assessed:

Agronomy

OFT: Assessment on Productivity of Chickpea through Improved Varieties

- Higher Yield: Improved varieties produced higher grain yield due to better pod setting, bold seeds, and uniform maturity.
- Disease Resistance: Lower incidence of wilt and dry root rot reduced the need for fungicide sprays.
- Drought Tolerance: Performed better under moisture stress, ensuring stable yield in rainfed conditions.
- Better Growth: More plant height, branches, and pods per plant with uniform crop stand.
- Reduced Cost: Lower plant protection expenses resulted in higher net returns.
- Market Demand: Bold and attractive grains fetched better market price.
- Adoption: Farmers expressed willingness to continue and expand cultivation of improved varieties.

OFT on assessment of different varieties of soybean (MAUS-725 and MAUS-612)

- Higher Yield Performance: Farmers observed that MAUS 725 produced comparatively higher yield due to better pod formation and bold seed size than MAUS 612.
- Early Maturity: MAUS 725 matured earlier, which helped farmers take timely rabi crops and improved crop rotation planning.
- Disease Tolerance: Farmers reported moderate resistance of MAUS 725 against major diseases like rust, yellow mosaic virus, and bacterial blight, reducing plant protection cost.
- Adaptability: Both varieties performed well under local agro-climatic conditions with good plant vigour and uniform growth.
- Seed Availability: Farmers appreciated the availability and spread of quality seed, which encouraged wider adoption in the village.

OFT on Assessment of Pre & Post emergence of Herbicide for Effective Weed Management in Sole Soybean

- Reduction in Cost and Time: Farmers reported that application of herbicides significantly reduced labour requirement and time spent on manual weeding, lowering overall cost of weed management.
- Improved Crop Growth: Use of pre-emergence herbicide resulted in effective early weed control, leading to better vegetative growth and uniform crop stand.
- Higher Yield and Returns: Integrated weed management practices contributed to reduced crop-weed competition, resulting in increased yield and improved economic returns.
- Solution to Labour Shortage: Adoption of herbicide technology helped farmers manage fields efficiently during peak labour scarcity periods.

Agronomy FLD

FLD on Introduction of Improved high yielding Variety Safflower ISF-764

1. Unawareness about the variety and availability of seed
2. ISF-764 variety suitable for both rainfed and irrigated situation as well Highest oil content i.e.31% as compared to local varieties.

FLD on Promotion of newly released improved variety of Pigeonpea BDN 2013-41 (Godavari)

1. Frontline Demonstration on newly released improved varieties helps to aware farmers to adopt new Cultivars.
2. Technology of demonstration teaches comparison between old and new varieties.
3. Unavailability of large quantity of seed for multiplication of seed from variety released institute.

Horticulture

OFT on assessment of marigold varieties- Arka Bhanu and Arka Abhi

- Created awareness about new varieties due to assessed varieties.

- Arka Abhi having good keeping quality
- Both are high yielding varieties with strong compact yellow colour flowers

OFT on assessment of tomato varieties- Arka Vishesh and Arka Abhed

- Higher fruit yield with improved fruit quality
- Both varieties are suitable for kharif and rabi season
- Arka Abhed is high yielding hybrid having multiple diseases resistance.

OFT on assessment of onion varieties- Bhima raj and Bhima shakti

- Due to assessment awareness created about improved varieties of onion
- Increase in yield and economic returns by adoption bhima shakti an improved variety of onion.
- Well, adopted in late Kharif season

Horticulture- FLD

FLD on use of arka special vegetable micronutrients in tomato

- The foliar application of arka special vegetable micronutrients not only increase yield but also improve quality of fruit resulting get more price in market as compared to check

FLD on effect of INM and pruning techniques in custard apple

- Application of INM with pruning techniques help to improve yield and quality of fruit in custard apple and also help to minimize to pest and disease. Maintain canopy of plant resulting easy to carry out intercultural operations (spraying, harvesting, ploughing harrowing etc.)

FLD on introduction of arka mango special micronutrients in mango

- The foliar application of Arka Mango Special micronutrients improved current season growth (new branches), yield, and fruit quality of mango

Plant Protection

1) IDM Module for Stem Blight in Pigeon pea (Rainfed)

- Farmers observed visible reduction in stem blight incidence and better plant survival during mid-late crop stages.
- Improved pod setting and grain filling were reported due to healthier crop stand under IDM practices.
- Farmers appreciated the preventive approach (seed treatment + biocontrol + need-based sprays) as it reduced crop loss under rainfed stress.
- Demand was expressed for timely availability of Trichoderma and compatible fungicides at village level.
- Some farmers suggested simplified spray schedules and dose charts for easy adoption.

2) Nanogel Technology for Fruit Fly Management in Custard Apple (Rainfed & Semi- Irrigated)

- Farmers reported substantial reduction in fruit fly damage and improvement in marketable fruit quality.
- Reduced frequency of insecticidal sprays saved labor and input costs, especially during peak fruiting.
- Orchard owners appreciated the ease of application and longer residual activity of Nanogel.
- Farmers observed better price realization due to improved fruit appearance and lower infestation.
- Concern was raised about initial cost and local availability of Nanogel material.

3) Pollen Collection Tray during Pigeon pea Flowering (Dec–Jan) for Extra Income & Yield Enhancement

- Beekeepers reported additional income from pollen collection during dearth period (Dec–Jan).
- Farmers noticed better pod setting and yield in pigeon pea due to improved pollination activity.
- Pollen trays were found useful for maintaining colony strength during lean forage periods.

- Beekeepers appreciated the simple design and easy installation of pollen traps.
- Some participants suggested training on optimal duration of tray use to avoid stress on colonies.

FLDs - Plant Protection

1) Premixed fungicides + insecticide seed treatment with polymer in Soybean

- Farmers observed uniform germination and vigorous early crop stand.
- Early-season pest and disease pressure was visibly reduced, lowering the need for initial sprays.
- The single premix formulation was perceived as convenient and time-saving.
- Farmers reported better crop establishment even under delayed sowing conditions.
- Availability of premix products at village level was highlighted as a constraint.

2) Tank-mix post-emergence herbicide + insecticide in Soybean

- Farmers appreciated weed and insect control in a single spray operation.
- Reduced labor requirement and timely weed control improved crop vigour and yield.
- Tank-mix practice was considered cost-effective due to fewer field operations.
- Some farmers requested practical guidance on spray calibration and compatibility.
- Adoption intent was high for the next season due to visible yield benefits.

3) Integrated Management of Uzi fly of Mulberry Silkworm

- Silkworm rearers reported marked reduction in Uzi maggot infestation.
- Improved cocoon recovery and quality led to better returns from sericulture.
- Farmers found Uzi traps and sanitation measures practical under rearing house conditions.
- The technology increased confidence of rearers in disease and pest management.
- Regular monitoring and proper placement of traps were identified as critical for success.

4) IPDM in Chickpea

- Farmers observed reduced wilt incidence and pod borer damage in demo plots.
- Healthier crop stand and higher marketable yield were reported under IPDM.
- Reduced need for repeated pesticide sprays was appreciated from a cost and safety perspective.
- Farmers showed interest in adopting resistant varieties along with IPDM practices.
- Timely access to quality biocontrol inputs and pheromone traps was requested.

Agricultural Engineering

OFT on Assessment of Kisan Drone for spraying crops

- **Adaptability to Varied Field Conditions:** The Kisan Drone demonstrated its effectiveness in diverse environmental conditions, including rainy and waterlogged fields, ensuring uninterrupted agricultural operations.
- **Enhanced Operational Efficiency:** The drone-based spraying technology significantly reduced application time, addressing the challenge of labour shortages and improving overall farm productivity.
- **Occupational Health and Safety Benefits:** By minimizing direct exposure to agrochemicals, drone spraying mitigates the risk of pesticide-related health hazards among farmers and labourers.
- **Precision and Uniformity in Application:** The drone facilitated highly precise and uniform spraying, ensuring optimal pesticide distribution with minimal wastage, thereby improving pest and disease control while reducing input costs.

OFT on Assessment of Manual Operated Precision Rotary Dibbler (Token Yantra)

- **Enhanced Crop Yield:** The adoption of the Precision Rotary Dibbler (Token Yantra) resulted in a 20–25% increase in crop yield compared to traditional bullock-drawn tiffan. This improvement is attributed to uniform seed placement, optimal plant population, and reduced intra-row competition, leading to better crop establishment and productivity.

- **Optimized Seed Utilization and Cost Efficiency:** The precision sowing mechanism of the rotary dibbler reduced the seed rate by 40–45%, significantly lowering seed wastage. This reduction directly contributed to cost savings in seed procurement, making the technology economically viable for farmers while maintaining or enhancing yield potential.

OFT on Assessment of Mole plough to enhance crop yield in waterlogged soils

- **Improved Drainage and Aeration:** Mole ploughing created subsurface channels, enhancing water drainage, soil aeration, and root development.
- **Increased Crop Yield:** Yield improved by 15–25% due to reduced waterlogging, better root penetration, and enhanced nutrient uptake.
- **Cost-Effective Solution:** A low-cost, long-term method for managing waterlogged fields, reducing soil compaction, and improving field accessibility.
- **Higher Farm Efficiency:** Enabled earlier sowing, minimized crop losses, and improved land utilization, ensuring better returns.

FLD on BBF Planter

- **High Operational Efficiency:** The tractor-drawn Broad Bed Furrow (BBF) planter demonstrated a field capacity of 3.7 ha/day with an overall field efficiency of 74.1%, ensuring timely and efficient sowing operations.
- **Optimized Resource Utilization:** The precision seeding mechanism reduced seed consumption by 15–20%, minimizing input costs while maintaining optimal plant population and uniform crop establishment.
- **Enhanced Crop Yield and Productivity:** The BBF planter improved soil moisture retention and drainage, resulting in a 15–20% increase in crop yield compared to conventional sowing methods using tractor-drawn seed drills or bullock-drawn tians.

FLD on Spiral Grader-Cleaner

- **Superior Efficiency and Performance:** The spiral grain separator outperformed conventional cleaning methods, achieving an average cleaning capacity of 3.12 quintals per hour using only two labourers, without requiring electricity.
- **Cost-Effective and Labor-Saving Technology:** This manual grader significantly reduces labour requirements, operational costs, and drudgery, enabling farmers to allocate time to other essential farm activities while ensuring efficient grain cleaning.

Veterinary

OFT on Assessment of use of Pro-biotic (EM Solution) in feed for milk yield improvement in C B cows

- **Increased Milk Yield:** Farmers noticed a consistent increase in daily milk production (by 13.2 %), making dairy farming more profitable.
- **Improved Milk Quality:** A slight increase in fat percentage (from 3.5% to 3.7%) was observed, leading to better milk pricing, better Digestion & General Health: Cows showed improved appetite, reduced bloating, and better overall health, reducing veterinary costs.
- **Reduced Shed Odor & Improved Dung Quality:** Farmers reported a significant reduction in bad Odor in cow sheds and improved dung texture, making manure handling easier.
- **Economic Benefits:** Despite a marginal increase in feeding costs (Rs.8 more per day per cow), farmers earned Rs.102 more per cow per day, making probiotic use highly cost-effective.

OFT on Assessment of milk replacer supplementation for economic meat production in lambs and kids

- The use of milk replacer in kids and lambs significantly improved growth performance, survival rate, and overall profitability under field conditions.
- In kids, milk replacer feeding resulted in a body weight of 18.1 kg at six months compared to 15.0 kg under farmers' traditional practice. Pre-weaning average daily gain improved markedly from 77 g/day to 106 g/day.

- After adopting milk replacer feeding, mortality in kids decreased significantly. The kids showed better weight gain and were ready for market earlier, increasing our income.

OFT on Assessment of Improved Poultry breeds Nicobari and Vanashree for backyard poultry farming

- Nicobari birds were preferred for egg production due to their higher yield and early maturity.
- Vanashree birds were chosen for dual-purpose farming because of their higher body weight and better survival rate.
- Mortality was significantly lower in Vanashree birds, making them more resilient.
- Desi birds were least preferred due to low productivity and high mortality.
- Farmers noted that both Nicobari and Vanashree birds adapted well to local conditions and required minimal management efforts.
- Some farmers preferred Nicobari birds over Vanashree for backyard farming due to their appearance, egg size, and market demand.

FLD on Integrated Tick Control Demonstration

- Higher Milk Yield: Treated animals showed increase in milk yield
- Improved Animal Health: The combination of shed cleaning, burning, neem and karanj oil application, and *Metarhizium anisopliae* fungus spray effectively controlled ticks.
- Higher Fat Content: Milk fat percentage increased, indicating improved milk quality.
- Farmers appreciated the chemical-free, eco-friendly approach and noted that regular shed cleaning and oil application helped keep animals healthy. Many showed interest in adopting these practices permanently.

FLD on Rearing of Shrinidhi Improved Poultry Birds

- Higher Egg Production: Each bird laid higher egg than the desi birds
- Lower Mortality Rate: The mortality in Shrinidhi birds was low than the desi birds, indicating better disease resistance and adaptability.
- Earlier Egg Laying: Shrinidhi birds started early laying eggs, providing an earlier income for farmers.
- Shrinidhi birds performed well in respect to the body weight, egg weight than the desi birds
- Pecking Issues: Farmers observed vent pecking problems during growth stage, likely due to nutritional imbalances in backyard feeding.
- Predator Risk: Birds were easily caught by predators, requiring better housing or protective measures.
- Farmers appreciated the higher productivity, better survival rate, and early maturity of Shrinidhi birds. Many expressed interests in expanding their poultry units with this breed for better income and nutritional security.

FLD on use of lick bricks in goat

- Goats liked the taste of it and frequently licking
- Increased birth weight of kids
- Reduced mortality in kids
- Reduced post kidding problems in goat
- Increased daily weight gain in kids

10.2. Technical Feedback from the KVK Scientists (Subject wise) to the research institutions/universities:

Agronomy:

- Strengthen Seed Supply System: Ensure timely and bulk availability of certified, breeder, and foundation seeds to KVKs for large-scale multiplication and faster dissemination of newly released varieties.
- Region-Specific Recommendations: Develop and provide crop- and region-specific agronomic recommendations considering climate variability and local agro-ecological conditions.
- Short-Duration Climate-Resilient Varieties: Prioritize breeding and release of early maturing, drought- and stress-tolerant varieties suitable for different sowing windows under changing climate scenarios.
- Capacity Building Support: Organize regular technical trainings, refresher courses, and updated package of practices for KVK scientists and extension personnel on climate-smart agriculture and precision technologies.
- Strengthen Institutional Linkages: Enhance coordination among Indian Council of Agricultural Research, State Agricultural Universities (SAUs), and KVKs for rapid transfer of technologies from lab to land.
- Promote Community Seed Systems: Encourage development of seed hubs, village seed banks, and farmer-led seed production programs to ensure seed security in climate-vulnerable areas.

Horticulture:

- There is a need to release short-duration varieties with longer seed viability for flower and vegetable crops.
- More efforts are required to create awareness about newly released varieties, especially in vegetable crops, among farmers and extension workers.
- It is necessary to recommend and promote dwarf varieties suitable for High Density Planting (HDP) in fruit crops to enhance productivity and ease of management.
- There is a strong need to develop and release improved varieties of custard apple specifically suited to the agro-climatic conditions of Maharashtra

Plant Protection:

IDM Module for Stem Blight in Pigeon pea

- Need for development of location-specific IDM schedules for rainfed ecologies with varying disease pressure.
- Further validation of resistant/tolerant varieties against stem blight under Marathwada-like conditions is required.
- Compatibility studies of biocontrol agents with commonly used fungicides should be strengthened.
- Research on low-cost, farmer-friendly formulations of Trichoderma for large-scale adoption is suggested.

Nanogel Technology for Fruit Fly Management in Custard Apple

- Long-term multi-season validation of Nanogel under different agro-climatic conditions is recommended.
- Optimization of dose, placement density, and timing for orchard crops should be standardized.
- Comparative studies with other attract-and-kill formulations may strengthen recommendations.
- Local production and cost reduction strategies for Nanogel would improve scalability.

Pollen Collection Tray during Pigeon pea Flowering

- Research is suggested on optimal duration and frequency of pollen harvesting to avoid colony stress.
- Standard operating procedures (SOPs) for pollen tray use during dearth periods should be refined.
- Studies on impact of pollen trapping on long-term colony health and honey yield are needed.
- Development of low-cost, durable pollen trap designs suited for Indian beekeepers is recommended.

FLDs –Plant Protection:

1) Premixed fungicide + insecticide seed treatment with polymer (Soybean)

- Further studies on crop-specific polymer formulations to improve adhesion and bio-efficacy are suggested.
- Evaluation of premix formulations against emerging pest–disease complexes under climate variability is needed.

- Long-term impact on soil microflora and seedling rhizosphere ecology should be assessed.

2) Tank-mix post-emergence herbicide + insecticide (Soybean)

- Compatibility and phytotoxicity studies for different tank-mix combinations across soil types are recommended.
- Development of decision-support tools for weed-pest co-management would improve precision application.
- Research on resistance management strategies under repeated tank-mix usage is required

3) Integrated Management of Uzi fly of Mulberry Silkworm

- Refinement of trap density and placement protocols for different rearing house designs is suggested.
- Need for improved, low-cost Uzi traps with higher trapping efficiency.
- Further studies on seasonal dynamics of Uzi fly to optimize intervention timing.

4) IPDM in Chickpea

- Breeding programs should prioritize dual resistance to wilt and pod borer under rainfed conditions.
- Integration of biopesticides with need-based chemical control needs further field validation.
- Development of simple farmer-friendly IPDM calendars for major chickpea-growing zones is recommended.

Agricultural Engineering:

- Precision Seeding with Dibbler: The manual dibbler is highly effective for precision placement of bold seeds (e.g., soybean, chickpea) and scarce or high-value seeds in small areas. It is also beneficial for gap filling in row crops, reducing seed wastage. Additionally, it eliminates the need for bending posture, minimizing drudgery and improving labour ergonomics.
- Cost Optimization in Crop Protection: The adoption of drone-based spraying technology has significantly reduced the cost of pesticide application while ensuring uniform coverage, reduced chemical wastage, and enhanced efficiency in large-scale farming.
- Mole Plough for Waterlogged Soils: The mole plough has proven effective in improving subsurface drainage, particularly in waterlogged soils. By creating subsurface channels, it enhances soil aeration, root development, and water infiltration, leading to 15–25% higher crop yields and improved field accessibility for timely farm operations.
- BBF Planter for Soybean Cultivation: The Broad Bed Furrow (BBF) planter has proven to be highly effective for soybean sowing, improving soil moisture conservation, drainage, and plant stand, thereby contributing to increased crop productivity.
- Improved Seed Quality with Spiral Grader: The spiral grain separator significantly enhances seed quality, leading to better germination rates and higher market demand for premium-grade produce, contributing to improved farm profitability.

Veterinary:

Use of Probiotics (Em Solution) in animal feed

- Study different doses (10ml, 20ml, 30ml) and frequencies (once or twice daily) to determine the most cost-effective and productive dosage.

Improved Poultry breeds Nicobari and Vanashree for backyard poultry farming

- Breed improvement- Further selection of Nicobari and Vanashree for better disease resistance and adaptability to different climatic conditions.
- Health & Disease Control- Study on best vaccination, deworming, and biosecurity practices for small-scale backyard poultry.
- Genetic Studies- Research on crossbreeding Nicobari with high-yielding native breeds for improved performance.

- Nutritional Deficiencies & Pecking Behavior: Imbalanced backyard feeding might have led to pecking problems. Future demonstrations should include nutritional supplementation strategies to address this issue.
- Climate Adaptation- Research on housing modifications and management practices to improve breed survival in extreme weather conditions

Integrated Tick Control method

- Long-term effects of repeated neem and karanj oil applications on skin health and tick resistance.
- Comparison with chemical acaricides to assess cost-benefit differences and environmental safety.
- Field trials in different agro-climatic regions to check adaptability.
- Effect on reproduction and overall health parameters in dairy animals.

Shrinidhi Improved Poultry Birds

- Nutritional trials to determine the best feeding practices for backyard Shrinidhi birds.
- Design and testing of cost-effective predator-proof housing structures.
- Behavioural studies on pecking issues to identify preventive measures.
- Long-term economic studies comparing Shrinidhi with other improved breeds.

11. Technology Week celebration during 2025: No

Period of observing Technology Week: From to

Online / Offline:

Total number of farmers visited :

Total number of agencies involved :

Number of demonstrations visited by the farmers within KVK campus:

Other Details

Types of Activities	No. of Activities	Number of Farmers	Related crop/livestock technology
Gosthies			
Lectures organized			
Exhibition			
Film show			
Fair			
Farm Visit			
Diagnostic Practical's			
Supply of Literature (No.)			
Supply of Seed (q)			
Supply of Planting materials (No.)			
Bio Product supply (Kg)			
Bio Fertilizers (q)			
Supply of fingerlings			
Supply of Livestock specimen (No.)			
Total number of farmers visited the technology week			

12. Interventions on drought mitigation (if the KVK included in this special programme)

A. Introduction of alternate crops/varieties

State	Crops/cultivars	Area (ha)	Number of beneficiaries

B. Major area coverage under alternate crops/varieties

Crops	Area (ha)	Number of beneficiaries
Oilseeds		
Pulses		
Cereals		
Vegetable crops		
Tuber crops		
Total		

C. Farmers-scientists interaction on livestock management

State	Livestock components	Number of interactions	No. of participants
Total			

D. Animal health camps organized

State	Number of camps	No. of animals	No. of farmers
Total			

E. Seed distribution in drought hit states (Seed distribution/sold by KVK)

State	Crops	Quantity (qtl)	Coverage of area (ha)	Number of farmers
Total				

F. Large scale adoption of resource conservation technologies

State	Crops/cultivars and gist of resource conservation technologies introduced	Area (ha)	Number of farmers
Total			

G. Awareness campaign

State	Meetings		Gosthies		Field days		Farmers fair		Exhibition		Film show	
	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers	No.	No. of farmers
Total												

13. IMPACT

A. Impact of KVK activities (Not to be restricted for reporting period).

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)

NB: Should be based on actual study, questionnaire/group discussion etc. with ex-participants.

B. Cases of large scale adoption

Empowerment of Rural families through backyard poultry farming

1. Situation analysis/Problem statement:

Backyard poultry is a means of livelihood for a fairly large number of small and marginal farmers and requires less capital. It is a potential tool for up-liftment of the marginal and deprived section of the society. It provides cheap, readily available protein rich eggs and meat for family consumption at relatively low cost and sale of surplus for additional income. It also provides income and employment opportunities, for rural people, women and unemployed youths.

Backyard poultry farming in Latur district is a secondary income generation activity for the rural families. They are rearing deshi poultry birds having low egg and meat production potential (60-70 eggs/year and adult bird weight 1.5 kg). They maintain these birds traditionally without any scientific approach, causes high mortality (20-100 %) due to incidence of diseases like Ranikhet and Fowl pox. Due to these reasons backyard poultry farming with deshi poultry birds reduces the farmers' income. Also they were not able to chase the increasing demand of eggs and meat in rural as well as urban area.

Latur district is receiving Avg. 730 mm of rain with 25 rainy days in a year. Rests of the days in a year are having plenty of sunshine and dry weather. Due to this, climatic conditions in district supporting free range system of rearing. Also backyards are full of natural feed resources like fallen grains, insects, earthworms, green grass, kitchen waste, left over and damaged grains and vegetables grown in farm unfit for human consumption. Due to availability of these natural resources, backyard poultry farming with improved birds will becomes highly economical.

2. Plan, Implement and Support:

To overcome the problems in backyard poultry farming with deshi birds KVK, Latur identified the improved poultry birds (Vanaraja, Grampriya, Kaweri, Vanashree, Nicobari and Shrinidhi) suitable for backyard farming in rural areas developed by the Different institutes. These are multi-colored dual-purpose birds with attractive plumage, having better immunity against common poultry diseases (Ranikhet, Gumboro and Fowl pox) and better adaptability to free range rearing system.

KVK has assessed these birds and demonstrated on farmer's field. Selected farmers were trained for how to manage these birds in backyard. After receiving birds from KVK, Farmers housed these birds in cages or house made from local material at low cost during night time. During day time the birds were made loose in the surrounding area for scavenging. The birds utilize the natural feed resources like fallen grains, insects, earthworms, green grass, kitchen waste, etc. At the time of night housing, farmers offer cheap and available grains (Maize, Bajra, and Sorghum,

Wheat etc) and kitchen waste & vegetable grown on their field which is unfit for human consumption to these birds to match up the energy deficiency. Plenty of clean and fresh water was made available at farm site. Farmers are advised to deworm the birds once in every three-month period and give Ranikhet disease vaccine (R2B strain) and Fowl pox vaccine at the age of 9th wks. and after 6 month. Technological backstopping is provided by KVK at every step. KVK has maintained regular contact with farmers and required suggestions and advisory were given to solve location specific problems by field visits, mobile advisory.

Intervention	OFT		FLD		Demonstration conducted in convergence with ATMA		Demonstration conducted in convergence with DBT		Training		Total no. of farmers covered	
Year	No.	Farmers	No.	Farmers	No.	Farmers	No.	Farmers	No.	Farmers	Activity no.	Farmers
2013-14	01	05	-	-	-	-	02	48	04	76	07	129
2014-15	01	05	-	-	-	-	03	75	03	54	07	134
2015-16	-	-	01	10	-	-	-	-	03	60	04	70
2016-17	-	-	01	12	-	-	-	-	03	100	04	112
2017-18	-	-	01	12	-	-	-	-	01	18	02	30
2018-19	01	10	01	10	01	50	-	-	03	101	06	171
2019-20	01	10	-	-	01	25	-	-	01	15	03	50
2020	1	10	-	-	01	25	-	-	02	30	04	65
2021	01	10	-	-	-	-	-	-	01	15	02	25
2022	-	-	-	-	-	-	-	-	01	30	01	30
2023	01	10	01	10	-	-	-	-	03	66	03	86
2024	01	10	01	10	-	-	-	-	02	42	03	62
2025	01	10	01	10	-	-	-	-	03	98	03	118
Total	09	80	07	74	03	100	05	123	30	405	49	1081

Table no. 1: Major activity conducted by KVK for dissemination of technology

Output:

Productivity & Reduction in Problem:

Backyard poultry farming with improved poultry breeds increased egg production by 155.17 %, net income by 78.26 % and reduced mortality by 72 % than the deshi birds. (Table No. 2) along with increase in volume of production (Egg production 1332 Vs 522). Also improved poultry birds are having better adaptability to the rural backyard conditions and shown better immunity; hence the good survival rate than the deshi birds.

Gain in Knowledge and skill: Participated farmers acquired skill of rearing these birds (Feed management, Shelter management, Medication & vaccination, Debeaking etc) and also acquired skill of marketing of produce. Some of the farmers started incubating these eggs under deshi birds to produce chicks. Produced chicks reared for next batch or sold to needy farmers.

Table 2. Performance of improved poultry birds under backyard poultry farming

Sr.No	Performance parameters	Data on parameters		% increase	Remarks
		Improved poultry birds	Deshi birds		
1	Weight at 30 day, gms	375	150	-	By Rearing of improved poultry birds in backyard farming egg production increased by 155 % and net income by 78 %.
3	Weight at maturity, kg	2.3	1.4	64.28	
4	Egg laying started at, days	162	206	-	
5	Mortality in brooding period	3 %	4 %	-	
6	Mortality in growing/laying period, %	8	15	-	
7	Total egg production/year (9 hen x 148 eggs - improved) and (9 hen x 58 eggs in desi)	1332	522	155.17	
8	Sale of cock chicken	9	8		
9	Income by sale of eggs, Rs.	15984	6264		
10	Income by sale of male birds, Rs.	6750	4200.		
11	Income by sale of birds after production, Rs.	4000	2640		
12	Gross income/family/Year (20 birds), Rs.	26,734	13104		
13	Gross expenditure Rs.	11200	8500		
14	Net income Rs.	15534	8714	78.26	
15	B:C ratio	2.38	1.54		

*** Improved poultry birds- Vanaraja, Grampriya, Shrinidhi, Vanashree, Kaweri and Nicobari. Data given is average of all these birds**

4. Outcome:

Production and Economic gain:

After attaining desirable market weight (4-5 months) farmers sold extra male birds for meat purpose and the hens were kept for egg purpose. Egg laying started at the age of 155 to 170 days of rearing. After egg laying period (72 wks) the hens were sold for meat purpose. The performance of these poultry birds along with other component compare with deshi birds is shown in table 2. The annual egg production of demonstrated improved poultry birds is

148 eggs/hen compared to 58 eggs / hen in the local check (deshi birds). This resulted in net return (selling eggs and birds for chicken) of Rs. 15534 from 20 birds unit of improved poultry birds, which is Rs. 6820 more than local check (Rs.8714/20 birds unit).

Horizontal spread:

The intervention fetched good income to the farmers through sale of eggs and birds for chicken. Consumers happily buy the eggs and chicken with better price from farmer as, it tastes like deshi birds. Apart from these fertile eggs are also available to keep under deshi birds to hatch chicks. Some participant's farmers started hatching eggs under desi hen and producing chicks at their home. Produced chicks either they rear for themselves or sold to the other farmers, thus making a horizontal dissemination of the technology. By observing the performance of these birds at participant's field, demand from other farmers, rural youth, women farmers and SHGs in the district increased for the one month old birds. KVK has supplied total 38431 one month birds to 1017 families in the district, covering all the blocks in Latur district (Table No.3). more than 250 farmers started rearing of one day chicks of improved birds by purchasing it from PDP, Hyderabad and private hatchery with technical support from KVK.

Economic Benefit occurred to secondary level participants:

Depending upon the bird's unit size (20-100 birds) participants farmers getting additional net income of Rs. 15500 to 77600 (Rs. 1290 to 6460 per month) by selling eggs and birds for chicken. Farmers started with chicks rearing in shed getting net income of Rs. 75000 to 375000 per year depending upon the birds placed in shed (100-500 birds)

Table No. 3 Year wise birds supplied to the farmers from KVK

Sr. No.	Year	No. of villages covered	No. of birds supplied by KVK	No. of farmers
1	2013-14	14	2032	48
2	2014-15	15	4566	88
3	2015-16	20	1194	26
4	2016-17	42	3751	73
5	2017-18	30	1890	44
6	2018-19	76	4375	193
7	2019-20	22	3049	124
8	2020-21	41	4090	82
9	2021-22	26	2671	54
10	2022	08	2885	54
11	2023	21	1975	56
12	2024	18	3237	122
13	2025	27	2716	53
	Total		38431	1017

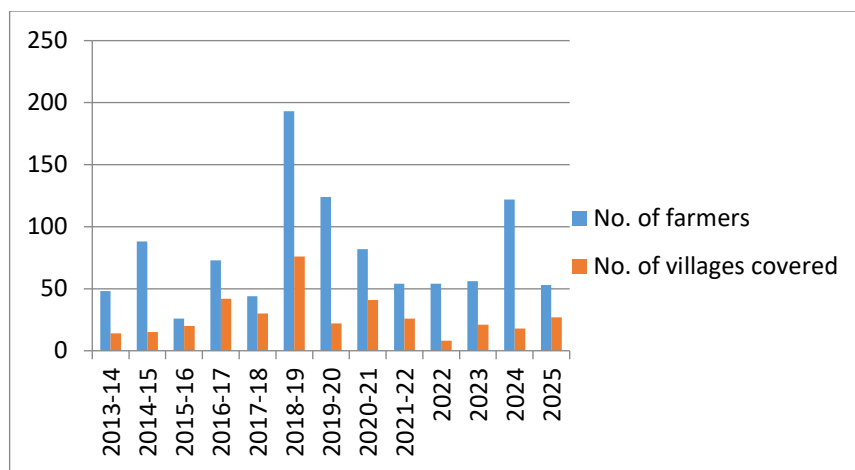
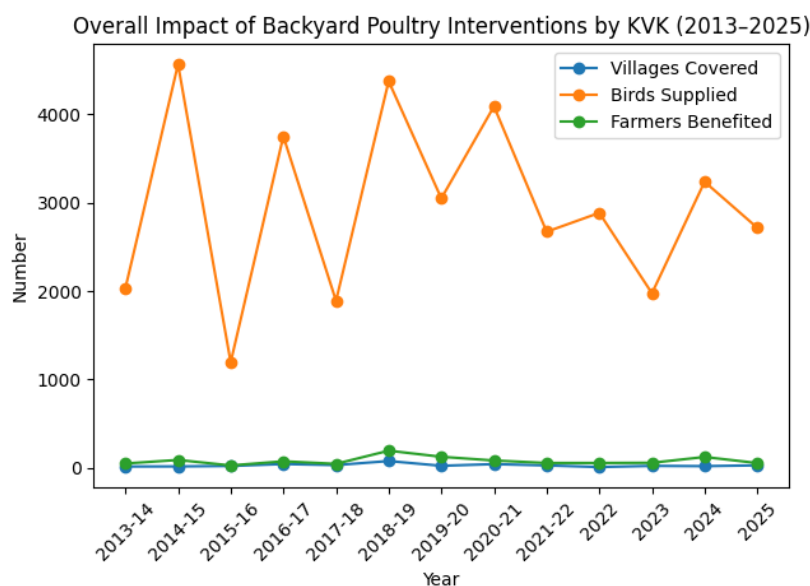


Chart 1: Year wise birds provided to farmers from KVK and no. of villages covered



5. Impact

Technological benefits:

Egg production of improved poultry birds is considerably higher (about 148 eggs/bird/year) compared to deshi birds (58 eggs/bird/year). The adoption of improved backyard poultry breeds has contributed to increased egg availability in the state. The per capita availability of eggs in Maharashtra increased from 41 eggs per annum in 2012–13 to 62 eggs per annum in 2023–24 as reported under the Integrated Sample Survey Scheme, Department of Animal Husbandry, Government of Maharashtra. Farmers who earlier reared traditional deshi poultry birds are now gradually shifting towards improved poultry breeds in the district due to their higher productivity and better economic returns.

Economic Benefits:

KVK contact farmers doing backyard poultry farming with improved poultry birds generated approximately Rs.225 lakh as net income through backyard poultry farming.

Social benefit:

Daily needs of the farmers are fulfilled because of daily supply of money by selling eggs and birds for Chicken. Other farmers from neighboring villages are visiting to the farm to see the birds, management and to purchase the eggs and birds. Due to this farmer's status in the society increased.

Health benefits:

Protein rich eggs and meat is made available for the family consumption that helped to provide balanced diet to the families and alleviate protein hunger among the growing children and pregnant women.

Employment generation:

This activity created additional source of income and employment opportunity to the farmer, youth and farm women in the rural areas of the Latur district.

Environmental Benefits:

As Latur district continuously facing drought like condition in such circumstances backyard poultry farming helped farmer by daily cash flow to family by selling eggs and chicken.

Thus, the backyard poultry farming technology disseminated by KVK, Latur with active participation of all farmers is economically viable, easy to operate, feasible, having potential to create employment opportunity and additional source of income.

Photographs

Brooding of day old chicks at KVK farm



1 month birds ready to supply for backyard poultry



Training on backyard poultry farming



Close view of Grampriya birds



Close view of Vanaraja birds



Womens training on backyard poultry farming



Backyard poultry unit





Different backyard poultry units under demonstration



Eggs of improved poultry birds

C. Details of impact analysis of KVK activities carried out during the reporting period

14. Kisan Mobile Advisory Services

Month	No. of SMS sent	No. of farmers to which SMS was sent	No. of feedback / query on SMS sent
Jan 2025	-	-	-
Feb 2025	-	-	-
March 2025	-	-	-
April 2025	-	-	-
May 2025	-	-	-
Jun 2025	-	-	-
Jul 2025	-	-	-
Aug 2025	-	-	-
Sept 2025	2	14335	-
Oct 2025	-	-	-
Nov. 2025	2	15496	-
Dec. 2025	-	-	-

Name of KVK	Message Type	Type of Messages						
		Crop	Livestock	Weather	Marke-ting	Aware-ness	Other enterprise	Total
	Text only	-	04	-	-	-	-	04
	farmers Benefited	-	29831	-	-	-	-	29831
	Voice only	-	-	-	-	-	-	-
	farmers Benefited	-	-	-	-	-	-	-
	Voice & Text both	-	-	-	-	-	-	-
	farmers Benefited	-	-	-	-	-	-	-
	Total Messages	-	04	-	-	-	-	04
	Grant total of farmers Benefited	-	29831	-	-	-	-	29831

15. PERFORMANCE OF INFRASTRUCTURE IN KVK

A. Performance of demonstration units (other than instructional farm)

Sl. No.	Demo Unit	Year of establishment	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Produce	Qty.	Cost of inputs	Gross income	
1	Sericulture	2022	0.3	V-1	Cacoon	44.5 kg	8500	24575	-

B. Performance of instructional farm (Crops) including seed production

Name of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
Cereals									
jowar	07.11.2024	18.03.2025	0.40	Parbhani shakti	Bulk	2.00 q	1900	4000	Used as fodder
Pulses									
Bengal gram	07.11.2024	24.02.2025	1.00	Vikram	Bulk	6.25 q	11500	26250	-
Black gram	17.07.2024	15.09.2024	0.80	AKU-10-1	Bulk	6.00 q	10450	25200	
Oilseed									
Soyabean	25.07.2025	05.11.2025	2.5	MAUS-725, KDS-726, KDS-753	Seed/ Bulk	10.00 q	45000	52000	-
Safflower	05.11.2024	03.03.2025	1.5	IFS-764	Bulk	4.68 q	11000	31824	-
Fibers	-	-	-	-	-	-	-	-	-
Spices & Plantation crops									
Coconut	15.07.2024	Awaited	0.20	Yellow Dwarf	-	-	-	-	-
Floriculture									
Marigold	01.07.2025	25.10.25	0.05	Ashtagandha	Bulk	0.30 q	2000	-	Use for office
Fruits									
Mango	25.08.2010	25.04.25	0.20	Keshar	Bulk/ Seed	4.00 q	8200	32000	-
Mango	30.09.2022	Awaited	0.80	Keshar	Bulk/ Seed	-	7850	-	-
Vegetables	-								
Others (specify)									
Sugarcane (Suru)	05.12.2023	15.02.2026	2.20	CO-VSI-18121, CO-VSI-86032	Bulk/ Seed	93.00 Tons	110000	292000	-
Sugarcane (Ratton)	26.02.2023	19.02.2026	0.40	COC-671, CO-86032,18121, MS-10001, VSI-434,8005, CO-265	Bulk/ Seed	14.00 Tons	12000	44100	-
Fodder cafeteria	02.02.2022	-	0.25	Dashrath, subabhul	Bulk/ Seed	30.00 tons	3500	-	Use for goat unit
	02.02.2024	-	0.65	African tall, hy. Napier, phule chitra	Bulk/ Seed	19.00 tons	4500	-	Use for goat unit

Photographs of instructional farm of KVK



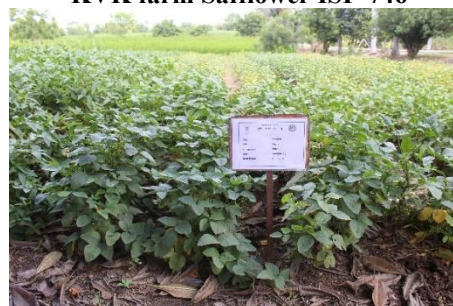
Soybean crop cafeteria



KVK farm Safflower ISF-746



Mulberry -V1



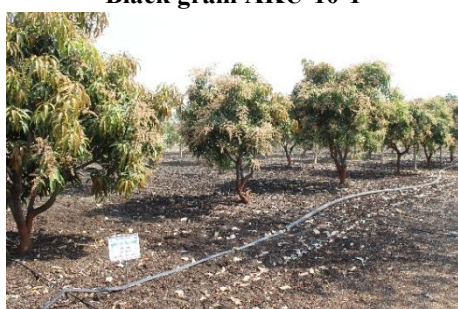
Soybean MAUS 612



Black gram AKU-10-1



Sugarcane plot



Mango mother block



Fodder crop



Jawar Parbhani Shakti



Coconut plot

C. Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.)

Sl. No.	Bio Products	Name of the Product	Qty (kg/lit)	Amount (Rs.)		Remarks
				Cost of inputs	Gross income	
1.	Bio-Fertilizers	Rhizobium	582.25	75,000	2,32,900	Supplied to 241
2.	Bio-Fungicides	PSB	572.25	75,000	2,28,900	Supplied to 241
3.	Bio-pesticides	Trichoderma	225	20,00	45,000	Supplied to 98
4.	Bio-Agents	-	-	-	-	-

D. Performance of instructional farm (livestock and fisheries production)

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed	Type of Produce	Qty.	Cost of inputs	Gross income	
1	Improved poultry birds	Vanaraja Vanashree Nicobari and Kadaknath	4 wks birds	1956	171905	239070	-
2	Goat	Osmanabadi	Kids and Goats	10	109539	71530	10 kids sold and 15 kids are available on farm for sale

E. Utilization of hostel facilities

Accommodation available (No. of beds) : 30

Months	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
January 2025	428	14	-
February 2025	456	14	-
March 2025	263	10	-
April 2025	423	5	-
May 2025	-	-	-
June 2025	-	-	-
July 2025	-	-	-
August 2025	-	-	-
September 2025	-	-	-
October 2025	-	-	-
November 2025	45	5	-
December 2025	47	5	-

F. Database management

S. No	Period of Database	Database target	Database created

G. Details on Rain Water Harvesting Structure and micro-irrigation system

Amount sanction (Rs.)	Expenditure (Rs.)	Details of infrastructure created / micro irrigation system etc.	Activities conducted					Quantity of water harvested in '000 litres	Area irrigated / utilization pattern
			No. of Training programmes	No. of Demonstration s	No. of plant materials produced	Visit by farmers (No.)	Visit by officials (No.)		

H. Performance of Nutritional Garden at KVK farm

If Nutritional Garden developed at KVK farm/Village Level? Yes

If yes,

Nutritional Garden developed at KVK farm

Area under nutritional garden (ha)	Component of Nutritional Garden	No. of species / plants in nutritional garden	No. of farmers visited
2 R	Vegetable crops	17	435
	Fruit crops	04	
	Others if any		

Nutritional Garden developed at Village Level (Area under nutritional garden)

No. of Villages covered	Component of Nutritional Garden	No. of species / plants in nutritional garden	No. of farmers covered
	Vegetable crops	17	50
	Fruit crops	04	
	Others if any		

H. Details of Skill Development Trainings/RPL organized

S.No.	Name of KVKs/SAUs/ICAR Institutes	Name of QP/Job role	Duration (hrs)	No. of participants					
				SCs/STs		Others		Total	
				Male	Female	Male	Female	Male	Female

17. FINANCIAL PERFORMANCE

A. Details of KVK Bank accounts

Bank account	Name of the bank	Location	Branch code	Account Name	Account Number	MICR Number	IFSC Number
With Host Institute	LDCC Bank	Latur	1002	Manjara Charitable Trust, Latur	509000151186	413801052	IBKL0497LDC
With KVK	SBI Bank	Latur	6303	Manjara Krishi Vigyan Kendra, Latur	30029035891	413002972	SBIN0006303

B. Utilization of KVK funds during the year 2025-26 (Rs. in lakh) (Till February, 2026)

S. No.	Particulars	Sanctioned	Released	Expenditure
A. Recurring Contingencies				
1	Pay & Allowances	183.57	183.57	183.48
2	Traveling allowances	-	-	0.57
3	Contingencies			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	8.89	8.89	2.00
B	POL, repair of vehicles, tractor and Equipments			2.58
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)			0.80
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)			0.23
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)			1.51
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)			1.20
G	Training of extension functionaries			-
H	Maintenance of buildings			-
I	Establishment of Soil, Plant & Water Testing Laboratory			-
J	Library			-
TOTAL (A)		192.46	192.46	192.37
B. Non-Recurring Contingencies				
1	Works	-	-	-
2	Equipments including SWTL & Furniture	-	-	-
3	Vehicle (Four wheeler/Two wheeler, please specify)	-	-	-
4	Library (Purchase of assets like books & journals)	-	-	-
TOTAL (B)		-	-	-
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		192.46	192.46	192.37

C. Status of revolving fund (Rs. in lakh) for the Five years

Year	Opening balance as on 1st April	Income during the year	Expenditure during the year	Net balance in hand as on 1st April of each year
April 2020 to March 2021	25.51	23.33	29.20	19.64
April 2021 to March 2022	19.64	78.66	69.45	28.85
April 2022 to March 2023	28.85	73.59	53.92	48.52
April 2023 to March 2024	48.52	125.34	138.66	35.20
April 2024 to March 2025	35.20	151.50	177.89	8.81
April 2025 to March 2026	8.81	166.65	160.10	15.36

17. Details of HRD activities attended by KVK staff during year

Name of the staff	Designation	Title of the training programme	Institute where attended	Mode (Online/Offline)	Dates
Matai P.D.	SMS,Agronomy	International Conference on "Rainfed Agriculture: Building Pathways for Resilience & Sustainable Livelihoods"	CRIDA,Hyderabad	Offline	29-31 January 2025
Matai P.D.	SMS,Agronomy	Launch of PM Dhan Dhanya Yojna	IARI,New Delhi	Offline	11 October 2025
Matai P.D.	SMS,Agronomy	Five Year Annual Review Workshop NICRA	CRIDA,Hyderabad	Offline	30October -1 November 2025
Bedre S.B.	SMS (Agril Extension)	Impact assessment of agricultural technologies	NAARM Hyderabad	Offline	4 to 8 August 2025
Dr. P.H. Ulemale	SMS (Hort)	Agri phule exhibition2025	MPKV, Rahuri	Offline	9.3.2025
Dr. P.H. Ulemale	SMS (Hort)	Impact assessment of agriculture technologies	ICAR-NAARM	Offline	4 to 8. 8.2025
Dr. P.H. Ulemale	SMS (Horti)	Training on nursery management in fruit crops	ICAR-IIHR, Bengluru	Offline	16 to 18 .12.2025
Dr. S. P. Shinde	SMS (Agril.Engg.)	Rainfed Agriculture: Building Pathways for Resilience & Sustainable Livelihoods"	ICAR-CRIDA, Hyderabad during 29-31 January 2025	Offline	29-31 January 2025
Anjali A Gunjal	SMS (Home Science)	Capacity building programme on " Research Methodology for NARI Project Experts	International Food Policy Research Institute, New Delhi	Offline	22 to 25 April 2025

Dr. Salunke S. B	Programme Assistant (Veterinary)	International Conference on Rainfed Agriculture: Building Pathways for Resilience and Sustainable Livelihood (RAINBURS-2025)	CRIDA, Hyderabad	Offline	29- 31/01/2025
Dr. Salunke S. B	Programme Assistant (Veterinary)	National Workshop on Technology Demonstration Component (TDC)- National Innovations in Climate Resilient Agriculture (NICRA)	CRIDA, Hyderabad	Offline	30 October to 01 November 2025



Attended to HRD activities and conference during the year

18. Details of progress in Doubling Farmers Income (DFI) villages adopted by KVKs

Name of the village	Total No. of families surveyed	Key interventions implemented	No. of farmers covered in each intervention	Change in income (Rs/unit)	
				Before (base year)	After (current year)
Akarwai Ta. Dist. Latur	40	Soyabean Seed production, IPM, FSN, Backyard poultry farming with improved birds, Mini dal processing enterprise, CFLD.	20	85541	172308
Bhoisamudraga Ta. Dist. Latur	40	IPM, FSN, Backyard poultry farming with improved birds, Mini dal processing enterprise, CFLD.	20	92361	185452

19. Details of activities planned under NARI /PKVY / TSP/ KKA, ec.

S. No.	Name of the programme	No. of villages adopted	Key activities performed	No. of activities carried out	No. of families covered
1	Training on crop production technology	1	Soybean production technology	1	37
2	Input distribution programme	7	Distribution of soybean seed- variety KDS-753	1	148
3	FLD on Nutritional Garden	1	Training, Demonstration & field visits	4	21
4	FLD on Farming System for Nutrition	3	Training, Demonstration & field visits	4	100
5	FLD on Instant upma mix	2	Training, Demonstration	4	10
6	Trainings	2	Value Addition	2	56
7	Exposure visit to KVK	1	Visit to KVK	1	29

20. Details of Progress of ARYA Project

Name of Enterprise	No of Training Conducted	No of Beneficiaries	No of Extension Activities	No of Beneficiaries	No of Unit established	Change in income		No. Of Groups Formed
						Before	After	
NA	NA	NA	NA	NA	NA	NA	NA	NA

21. Details of Swachhta Action Plan (SAP)

S. No.	Types of major Activity conducted- Swachhta Pakhwada, Cleaning, Awareness Workshop, Microbial based Agricultural Waste Management by Vermicomposting etc.	No. of Programmes conducted	No. of Participants
1	Microbial based Agricultural Waste Management by Vermicomposting	4	88

Sr. No	Name of KVK	Date	Activity	No of VIPs	No of Farmers	Others	Total
1	KVK Latur	18.9.2025	Lecture delivered on farm waste management	-	33	-	33
2	KVK Latur	17.9.2025	Office cleaning	-	-	11	11
3	KVK Latur	20.9.2025	Animal Shed cleaning	-	29	-	29
4	KVK Latur	22.9.2025	Lecture delivered on vermicomposting	-	15	-	15

22. Books published 2025-26

Title of the Book	Authors	ISBN No	Publisher	Pages No	Description/review of the book (one paragraph)

23. Footfall in KVKs

State	Name of KVK	No. of Footfalls			
		Farmers	Officials	VIPs	Total
Maharashtra	Latur	1032	155	3	1190

APR SUMMARY

1. Training Programmes

Clientele	No. of Courses	Male	Female	Total participants
Farmers & farm women	68	2307	2172	4479
Rural youths	05	199	0	199
Extension functionaries	28	520	624	1144
Sponsored Training	40	2029	1689	3718
Vocational Training	03	70	23	93
Total	101	3026	2796	5822

2. Frontline demonstrations

Crops/Enterprise	No. of Farmers	Area(ha)	Units/Animals
Oilseeds	815	326	-
Pulses	470	188	-
Cereals	25	10	-
Vegetables	10	01	-
Other crops	56	19.4	-
Total	1376	544.4	-
Livestock & Fisheries	30	-	330
Other enterprises	180	08	154
Total	210	08	484
Grand Total	1586	552.4	484

3. Technology Assessment & Refinement

Category	No. of Technology Assessed & Refined	No. of Trials	No. of Farmers
Technology Assessed			
Crops	11	110	110
Livestock	03	30	30
Various enterprises	02	15	15
Total	16	155	155
Technology Refined			
Crops	-	-	-
Livestock	-	-	-
Various enterprises	-	-	-
Total	-	-	-
Grand Total	16	155	155

4. Extension Programmes

Category	No. of Programmes	Total Participants
Extension activities	226	51864
Other extension activities	33	-
Total	259	51864

5. Mobile Advisory Services

Name of KVK	Message Type	Type of Messages						
		Crop	Livestock	Weather	Marketing	Awareness	Other enterprise	Total
Latur	Text only	-	04	-	-	-	-	04
	Voice only	-	-	-	-	-	-	-
	Voice & Text both	-	-	-	-	-	-	-
	Total Messages	-	04	-	-	-	-	04
	Total farmers Benefitted	-	29831	-	-	-	-	29831

6. Seed & Planting Material Production

	Quintal/Number	Value (Rs.)
Seed (q)	429.52	4919292
Planting material (No.)	6866	433950
Bio-Products (kg)	1379.5	506800
Livestock Production (No.)	1956	310600
Fishery production (No.)	-	-

7. Soil, water & plant Analysis

Samples	No. of Beneficiaries	Value (Rs.)
Soil	1896	445560
Water	-	-
Plant	-	-
Total	1896	445560

8. HRD and Publications

Sr. No.	Category	Number
1	Abstract	4
2	Workshops	2
3	Conferences	2
4	Meetings	-
5	Trainings for KVK officials	3
6	Visits of KVK officials	39
7	Book published	-
8	Training Manual	01
9	Book chapters	-
10	Booklet	-
11	Leaflets/ Folder/ Pamphlet	-
12	Research papers	-
13	Technical Bulletin	-
14	Popular article	-
15	Lead papers	-
16	Seminar papers	-
17	Extension folder	-
18	Proceedings	01
19	Award & recognition	02
20	On-going research projects	-
21	Other (Radio Talk, TV Talk etc.)	22