Farmer FIRST

Farmer Centric Interventions for Technology Integration

भाकृअनुप
ICAR

भाकृ अनुप-कृ षि प्रौद्योषिकी अनुप्रयोि अनुसंधानसंस्थान
जोन-VIII, पुणे-411005, महाराष्ट्र

ICAR-Agricultural Technology Application Research Institute
Zone-VIII, Pune-411005, Maharashtra

Citation
ATARI-Pune (2020) Farmer FIRST: Farmer Centric Interventions for Technology Integration. E-Publication by ICAR-ATARI, Pune, pp. 1-40.

Guidance
Dr. A.K. Singh, DDG (Agril Extension), ICAR, New Delhi
Dr. V.P. Chahal, ADG (Agril Extension), ICAR, New Delhi

Published by
Director
ICAR-ATARI, Zone-VIII, Pune

Compiled and Edited by
Dr. Lakhan Singh
Mr. Sunil Kumar

CONTENTS

EXECUTIVE SUMMARY

Division of Agricultural Extension, ICAR has implemented Farmer FIRST project in India. In Zone–VIII, ATARI, Pune has three centres (Mahatma Phule Krishi Vidyapeeth, Rahuri (MPKV) Rahuri, Navsari Agricultural University (NAU), Gujarat and Junagadh Agricultural University (JAU), Gujarat) were identified for implementing the Farmer FIRST project. Under farmer FIRST project, MPKV centre, NAU centre and JAU centre, 750, 1990 and 2346 farmers were covered respectively.

Under MPKV centre, on 351 hectare, under crop based module, different crops like Red gram, Chickpea, Bajra and Rabi Sorghum were demonstrated. A total of 28 training activities were conducted covering 1404 farmers. Under different extension activities, 73 activities were covered and 2147 beneficiaries were benefitted. Under content mobilization different WhatsApp messages (2846), voice calls (5180) were disseminated to 2755 farmers.

Under NAU centre, on 135 hectare, under crop based module, different crops like Rice and Sugarcane were demonstrated. A total of 55 training activities were conducted covering 2429 farmers. Under different extension activities, 76 activities were conducted and 2362 beneficiaries were benefitted with different Extension activities. Under content mobilization different WhatsApp messages (1126), voice calls (5370) were disseminated to 1716 farmers.

Under JAU centre, on 328 hectare, under crop based module, different crops like Groundnut, Cotton, Wheat and Gram were demonstrated. A total of 317 training activities were conducted covering 9953 farmers. Under different extension activities, 4006 activities were conducted and 27781 beneficiaries were benefitted with different Extension activities. Under content mobilization different WhatsApp messages (1285), voice calls (10062) were disseminated to 3980 farmers.

Introduction

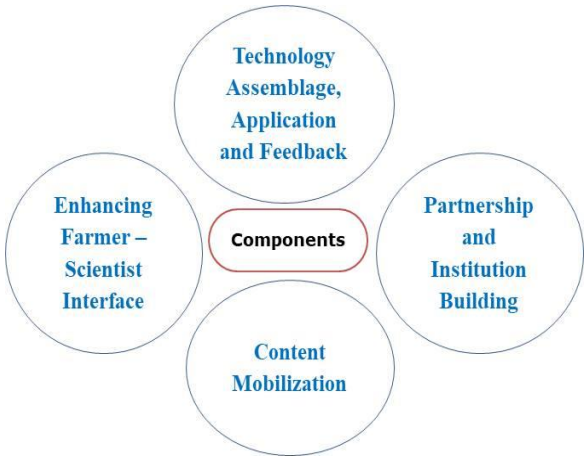
Agriculture remains the mainstay of economy and major source of livelihood of rural households predominantly by small and marginal farmers and securing the food and nutritional security. Small-scale farmers play a fundamental role in food security; it is estimated that more than 50 percent of the food necessary to feed the 9 billion inhabitants of the globe in 2050 will be produced by small-scale farmers. Despite their key role in global food security, small farmers continue to face many complex challenges. As a result, the agriculture sector continues to underperform.

'Farmer FIRST' programme aims at enhancing farmer-scientist interface for technology development and application. It will be achieved with focus on innovations, technology, feedback, multiple stakeholder's participation, multiple realities, multi method approaches, vulnerability and livelihood interventions. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). Two terms 'enriching knowledge' and 'integrating technology' qualify the meaning of Farmer FIRST in Indian context. The specific objectives are:

- To enhance farmer-scientist interface, enrich knowledge and facilitate continued feedback.
- To identify and integrate economically viable and socially compatible technological options as adoptable models for different agro-ecological situations.
- To develop modules for farm women to address drudgery reduction, income enhancement and livelihood security.
- To study performance of technologies and perception of the farmers about agriculture as a profession in the rural settings.
- To build network of linkages of organizations around the farm households for improving access to information, technology, input and market.
- To institutionalize Farmer FIRST process.

Components:

The project is conceptualized to deal with focus on:



i. Enhancing Farmer –Scientist Interface

Enabling involvement of researchers for continuous interaction with farm conditions, problem orientation, exchange of knowledge between farmers and other stakeholders, prioritization of problems and setting up of research agenda

ii. Technology Assemblage, Application and Feedback

Integrating components of technology for application in different agro-ecosystems with focus on innovations and feedback

iii. Partnership and Institution Building

Building partnerships involving different stakeholders, development of rural based institutions, agro-ecosystem and stakeholders analysis and impact studies

iv. Content Mobilization

Using the platform of the project having institutions as partners to develop specific contents for e-enabled knowledge sharing

Under this project, ICAR-ATARI, Pune has 03 centres as following

1. Mahatma Phule Krishi Vidyapeeth, Rahuri,
2. Navsari Agricultural University, Gujarat
3. Junagadh Agricultural University, Gujarat

Farmer FIRST project has been implemented in these centres since 2016-17. Different technological demonstrations have been conducted under various modules and an effort has been taken to empower the farmers technically.

MPKV, Rahuri

Table 1. Household under different categories of farmers

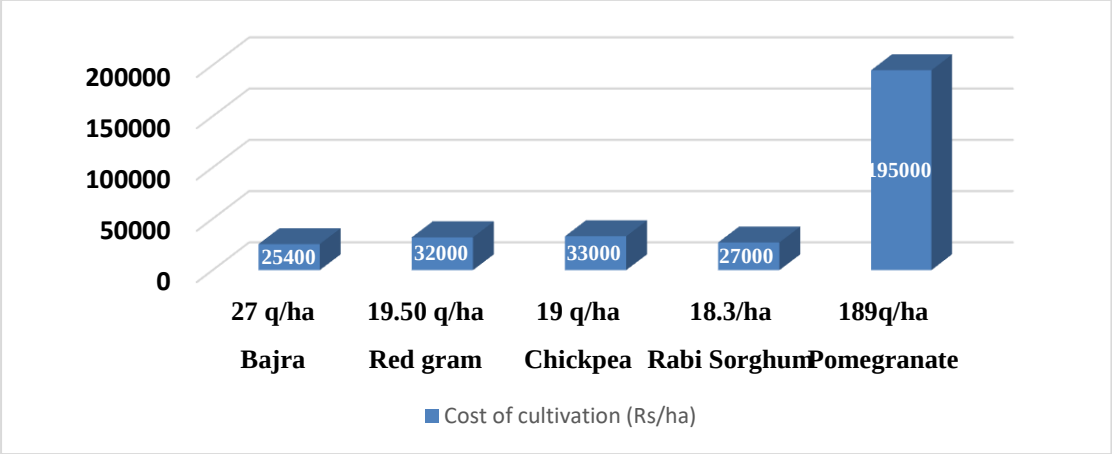
Category	No. of farmers	Name of village (% of farmers)	Name of village (% of farmers)	Total (%)
		Chinchvihire	Kangar	
Landless	190	88.42	11.58	100
Marginal (<1 ha)	351	68.66	31.34	100
Small (1-2 ha)	145	69.65	30.35	100
Medium(2-5 ha)	49	67.35	32.65	100
Large (>10 ha)	15	46.67	53.33	100

Under farmer FIRST project, MPKV centre, Chinchvihire and Kangar was selected. In this maximum farmers were under marginal section (<1 ha). In Chinchvihire village 69.65% farmers were under small farmer category (1-2 ha), whereas in Kangar maximum farmers were under large farmers category (>10 ha). A total of 750 farmers were covered under farmer FIRST project.

Table 2. Existing productivity and cost of cultivation of major crops in selected villages (2019-20)

Crops	Yield q /ha)	Cost of cultivation (Rs/ha)
Bajra	27 q/ha	25400
Red gram	19.50 q/ha	32000
Chickpea	19 q/ha	33000
Rabi Sorghum	18.3/ha	27000
Pomegranate	189q/ha	195000

The existing productivity and cost of cultivation was observed for different crops. For Bajra crop, the yield was 27 q/ha and cost of cultivation was Rs.25400/ha. In case of Red gram the yield was 19.50 q/ha and cost of cultivation was found to be Rs. 32000/ha. For chick pea and Rabi sorghum the yield was 19q/ha and 18.3q/ha respectively. In case of fruit crop, Pomegranate the yield was 189q/ha and cost of cultivation was Rs. 195000/ha.



Coverage of different technological interventions in FFP villages

Table 3. Crop Based module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	Red gram	Vipula	Chinchvihire	4	80	10
	Chickpea	Digvijay	Chinchvihire	27	580	67
	Rabi Sorghum	Phule Suchitra, Phule Anuradha, Phule Revati	Chinchvihire	80	1464	200
2018-19	Bajra	Dhanshakti and Adishakti	Chinchvihire and Kangar	40	1210	100
	Red gram	BDN- 711	Chinchvihire and Kangar	20	380	50
	Rabi Sorghum	Phule Revati and Phule Vasudha	Chinchvihire and Kangar	40	732	100
	Chickpea	Digvijay and Vishal	Chinchvihire and Kangar	20	430	50
2019-20	Bajra	Dhanshakti and Adishakti	Chinchvihire and Kangar	40	1080	100
	Red gram	Phule Rajeshwari	Chinchvihire and Kangar	20	390	50
	Rabi Sorghum	Phule Revati, Phule Vasudha, Phule Suchitra, Phule Anuradha	Chinchvihire and Kangar	40	778	100
	Chickpea	Phule Vikram	Chinchvihire and Kangar	20	380	50

Under crop based module, different crops like Red gram, Chickpea, Bajra and Rabi Sorghum were demonstrated. In 2017-18, Red gram (Vipula variety) was demonstrated in Chinchvihire village on 04 hectare for 10 farmers yielded 80 q/ha. Chickpea (Digvijay variety) was demonstrated for 67 farmers on 27 hectare. Similarly the demonstration on Rabi Sorghum (Phule Suchitra, Phule Anuradha, Phule Revati variety) was conducted on 80 hectare for 200 farmers and yielded 1464 q/ha.

During 2018-19, Bajra (Dhanshakti and Adishakti variety) was demonstrated on 40 hectare for 100 farrmers. Under Red gram (BDN- 711 variety) was demonstrated for 50 farmers. Rabi Sorghum (Phule Revati and Phule Vasudha variety) was demonstrated in Chinchvihire and Kangar villages on 40 hectare for 100 farmers. Chick pea (Digvijay and Vishal variety) was demonstrated for 50 farmers.

In 2019-20, Red gram, Chickpea, Bajra and Rabi Sorghum were demonstrated. Under Bajra (Dhanshakti and Adishakti variety) was demonstrated on 40 hectare for 100 farmers. Red gram (Phule Rajeshwari variety) was demonstrated successfully for 50 farmers. Similarly the demonstration on Rabi Sorghum (Phule Suchitra, Phule Anuradha, Phule Revati

variety) was conducted on 40 hectare for 100 farmers and yielded 778 q/ha. Chick pea (Phule Vikram variety) was demonstrated for 50 farmers.

Table 4. Horticulture Based Module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	Pomegranate Production technology	Bhagwa	Chinchvihire and Kangar	20 ha.	3805 q.	50
2018-19	Pomegranate Production technology	Bhagwa	Chinchvihire and Kangar	20 ha	3911 q.	50
2019-20	Pomegranate Production technology	Bhagwa	Chinchvihire and Kangar	20 ha	3790 q.	50

Under horticulture module, Pomegranate Production technology was demonstrated in Chinchvihire and Kangar village for Bhagwa variety. From 2017-18 to 2019-20 Bhagwa variety was demonstrated on 20 hectare for 50 farmers. On an average it yielded 3805 q/ha.

Table 5. Livestock Based Module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	Artificial Insemination	Phule Triveni	Chinchvihire and Kangar	100 familes	-	100
2018-19	Artificial Insemination	HF	Chinchvihire and Kangar	100 families	-	100
	Fodder seats	Phule Gunvant	Chinchvihire and Kangar	3 ha.	36000 q.	50
2019-20	Goat rearing	Sangamneri	Chinchvihire and Kangar	50 families	Rs.48000/ family	50
	Fodder seats	Phule Gunvant	Chinchvihire and Kangar	3 ha.	37000 q.	50
	Silage preparation	-	Chinchvihire and Kangar	65 bags	650 q.	65

Under Livestock Based Module, in 2017-18 Phule Triveni cow breed was demonstrated for Artificial Insemination in Chinchvihire and Kangar village for 100 animals. In 2018-19, Artificial Insemination programme was conducted for HF cows and a fodder crop demonstration was conducted for Phule Gunvant variety on 03 hectare for 50 farmers. During 2019-20, under goat rearing, Sangamneri breed was demonstrated for 50 farmers and Phule Gunvant variety along with Silage preparation were also demonstrated.

Table 6. Entrepreneurship Module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	-	-	-	-	-	-
2018-19	Dal Mill	PKV mini dal mill	Chinchvihire and Kangar	Two Women Self Help Group	4 q.	15
2019-20	Dal Mill	PKV mini dal mill	Chinchvihire and Kangar	Two Women Self Help Group	9.2 q.	15

Under Entrepreneurship Module, in 2018-19 PKV mini dal mill was demonstrated in Chinchvihire and Kangar village for two women Self Help Group covering 15 farmers. Same demonstration was conducted in 2019-20 also.

Table 7. NRM Based module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	-	-	-	-	-	-
2018-19	--	-	-	-	-	-
2019-20	In situ soil moisture conservation	Rabi Sorghum	Chinchvihire and Kangar	40 ha	915 q.	100
	Vermicomposting	Eisenia fetida	Chinchvihire and Kangar	15 farmers	8.2 q	15

Under NRM Based module, in 2018-19 In situ soil moisture conservation technique on Rabi Sorghum was demonstrated in Chinchvihire and Kangar village for 100 farmers on 40 hectare. During 2019-20, Vermicomposting technology was demonstrated for 15 farmers.

Table 8. Integrated Farming System based module technological interventions

Year	Crop/ Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	Backyard poultry	Grampriya	Chinchvihire	20 families	Eggs – 108000 Male birds selling – 480 nos	20
	Farm pond fishery	Rohu and Cypernus	Chnchvihire and Kangar	40 farm ponds	20000 Kg	40
2018-19	Back yard poultry	Grampriya	Chnchvihire and Kangar	100 families	Eggs- 510900 Male birds selling – 2300 nos	100
2019-20	Backyard poultry	Grampriya	Chnchvihire and Kangar	100 families	Eggs- 520000 Male birds selling – 2380 nos	100

Under Integrated Farming System Based Module, in 2017-18 Grampriya breed of Backyard poultry was demonstrated in Chinchvihire village for 20 farmers and it yielded 108000 eggs. Under Farm pond fishery, Rohu and Cypernus was demonstrated in Chnchvihire and Kangar village on 40 farm ponds. In 2018-19 and 2019-20, Grampriya breed of Backyard poultry was demonstrated in Chnchvihire and Kangar village for 100 farmers and it yielded 510900 eggs.

Table 9. Dairy/Poultry/Goatery/Any other animal farming

S.No.	Components	Village/ Animals	Area Covered (ha)	No. of farmers covered
1.	Dairy			
	Name of fodder variety	Phule Jayvant and Phule Gunvant	06 ha.	100
		Silage preparation	-	65
2.	Feeding/Mineral Mixture	-	-	-
3.	Animal health camp			
	Deworming	-	-	-
	Vaccination - Poultry	Chinchvihire and Kangar	220 farm famiies	220
	Check up camp			
	Others (Pl. mention) Artificial Insemination	Chinchvihire and Kangar	-	200

Under Dairy/Poultry/Goatery/Any other animal farming, Phule Jayvant and Phule Gunvant fodder variety was demonstrated on 06 hectare for 100 farmers. Silage preparation method was also demonstrated for 65 farmers. Vaccination programme for Poultry was demonstarated for 220 farmers and Artificial Insemination programme was conducted in Chinchvihire and Kangar for 200 farmers.

Table 10. Production (q) and area (ha): Before and after data on new variety of different crops

S.No.	Name of crops	2016-17		2017-18		2018-19		2019-20	
		Before	After	Before	After	Before	After	Before	After
1.	Bajra	100 (05)	-	-	-	995 q. (40 ha)	1210 q. (40 ha)	965 q. (40 ha)	1080 q. (40 ha)
2.	Red gram	-	-	56 q. (4 ha)	80 q. (4 ha)	240 q. (20 ha)	380 q. (20 ha)	290 q. (20 ha)	390 q. (20 ha)
3.	Chickpea	-	-	378 q. (27 ha)	580 q. (27 ha)	267.6 q. (20 ha)	430 q. (20 ha)	267 q. (20 ha)	380 q. (20 ha)
4.	Sorghum	-	-	990 q. (80 ha)	1464 q. (80 ha)	478 q. (40 ha)	732 q. (40 ha)	497 q. (40 ha)	778 q. (40 ha)

Before and after effect of different crops were assessed and found that for Bajra crop in 2018-19 a positive difference of 215 q/ha was observed, whereas in 2019-20 it was 115 q/ha. In case of Red gram, in 2017-18 a significant difference of 24 q/ha was observed. During 2018-19 and 2019-20 it was 140 q/ha and 100 q/ha respectively. Chickpea was grown during 2017-18 to 2019-20 and found a significant difference of 202 q/ha to 113 q/ha. In case of Sorghum

a positive difference of 474 q/ha was observed on 80 hectare in 2017-18, whereas in 2019-2020 it was 281q/ha.

Table 11. Average yield and income of different crops demonstrations in farmers' field

S.No.	Name of crops	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
		Before	After	Before	After	Before	After
2017-18							
1.	Red gram	14.2	20	63900	90000	34700	61000
2.	Chickpea	14.50	21.12	65250	95040	38050	67040
3.	Sorghum	Grain-12 Fodder-37.6	Grain-18.6 Fodder-45	45250	62000	20150	35200
4.	Pomegranate	135	187.5	755000	1062500	587500	887500
2018-19							
1.	Bajra	24	30.5	57888	73200	31888	47200
2.	Red gram	13	19	58500	85500	25500	53500
3.	Chickpea	14.38	21.50	64710	96750	31710	63750
4.	Sorghum	Grain-12.52 Fodder-37	Grain-18 Fodder-44	46040	61000	19040	34000
5.	Pomegranate	136.25	190	651307	1002002	500115	853877
2019-20							
1	Bajra	24.12	27	61200	64800	35100	39400
2	Red gram	14.50	19.50	65250	87750	32850	55750
3	Chickpea	14.20	19	67100	85500	33100	52500
4	Sorghum	Grain-12.28 Fodder-38.6	Grain-18.3 Fodder -45.9	45790	61600	17790	34600
5	Pomegranate	133	189.5	798000	1137000	603000	942000

The Average yield and income of different crops demonstrations in farmers' field was observed during 2017-18 to 2019-20. During 2017-18, Red gram, Chick pea, Sorghum and Pomegranate was demonstrated and a net income of Rs. 61000, 67040, 35200 and 887500 was observed respectively. During 2019-20, Bajra, Red gram, Chick pea, Sorghum and Pomegranate was demonstrated and a net income of Rs. 39400, 55750, 52500, 34600 and 942000 was obtained per hectare.

Table 12. Capacity building programmes

S.No.	Thematic Area	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Capacity building and group dynamics	-	4			95	14	109
2.	Crop production	-	2	4	4	338	184	522
3.	Entrepreneurship Development	-						
4.	Farm Implements	-						
5.	Livestock Production and Management	-	4	2	1	430	81	511
6.	Natural Resource Management	-			1	60	-	60
7.	Nutrition Security	-						
8.	Plant Protection	-		1		74	9	83
9.	Processing and Value Addition	-	1	1	1	12	20	32
10.	Production of Inputs at site	-						
11.	Soil Health and Fertility Management	-	1		1	73	14	87
12.	Women Empowerment	-						
	Total		**12**	**8**	**8**	**1082**	**322**	**1404**

Different Capacity building programmes were conducted for farmers and farm women. During 2017-18, 12 programmes were conducted whereas in 2018-19 and 2019-20 it was 08 and 08 respectively. A total of 1404 beneficiaries were benefitted with different capacity building programmes.

Table 13. Extension activities

S.No.	Programmes	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Advisory Services	-	1	1	1	155	45	200
2.	Celebration of important days	-						
3.	Diagnostic visits	-	4	5	5	152	88	240
4.	Exhibition	-	3	4	4	175	115	290
5.	Exposure visits	-	3	2	1	211	65	276
6.	Ex-trainees Sammelan	-						
7.	Farm Science Club	-						
8.	Farmers' seminar/workshop	-	2	-	3	81	29	110
9.	Field Day	-						
10.	Film Show	-						
11.	Group discussions	-	6	6	5	267	38	305
12.	KisanGhosthi	-	3	3	2	226	120	346
13.	KisanMela	-						
14.	Method Demonstrations	-						
15.	Plant/animal health camps	-	3	3	3	245	135	380
	Total	**-**	**25**	**24**	**24**	**1512**	**635**	**2147**

Different Extension activities (Advisory Services, Diagnostic visits, Exhibition, Group discussions, Plant/animal health camps etc.) were conducted for farmers and farm women. During 2017-18, 25 programmes were conducted whereas in 2018-19 and 2019-20 it was 24 and 24 respectively. A total of 2147 beneficiaries were benefitted with different Extension activities programmes.

Table 14. Content Mobilization

Module	WhatsApp			No. of voice calls		No. of Text message	No. of villages covered	No. of Farmers covered
	No. of chats	No. of videos	No. of clips	Outgoing	Incoming			
Crop based modules								
2017-18	**75**	**4**		**450**	**250**	**-**	**2**	**300**
2018-19	**90**	**7**		**500**	**300**	**-**	**2**	**350**
2019-20	**150**	**7**		**600**	**300**	**-**	**2**	**300**
Horticulture based modules								
2017-18	**350**	**3**		**100**	**50**	**-**	**2**	**50**
2018-19	**330**	**5**		**120**	**40**	**-**	**2**	**50**
2019-20	**340**	**5**		**100**	**50**	**-**	**2**	**50**
Enterprise based modules								
2017-18	**45**	**2**		**35**	**20**	**-**	**2**	**20**
2018-19	**40**	**3**		**40**	**30**	**-**	**2**	**15**
2019-20	**60**	**2**		**50**	**35**	**-**	**2**	**20**
Livestock based modules								
2017-18	**330**	**5**		**400**	**200**	**-**	**2**	**300**
2018-19	**360**	**7**		**450**	**150**	**-**	**2**	**300**
2019-20	**360**	**7**		**400**	**150**	**-**	**2**	**300**
NRM based modules								
2017-18	-	-	-	-	-	-	-	-
2018-19	-	-	-	-	-	-	-	-
2019-20	**50**	**2**				**-**	**2**	**100**
Integrated farming System								
2017-18	**50**	**5**		**80**	**30**	**-**	**2**	**200**
2018-19	**70**	**4**		**90**	**40**	**-**	**2**	**200**
2019-20	**70**	**5**		**80**	**40**	**-**	**2**	**200**

Under content mobilization different WhatsApp messages, voice calls and Text messages were disseminated. Under crop based module since 2017-18 to 2019-20 a total of 334 WhatsApp messages were sent and more than 2400 voice calls were made covering 950 farmers. Under Horticulture based modules, since 2017-18 to 2019-20 a total of 1033 WhatsApp messages were sent and more than 460 voice calls were made covering 150 farmers. Under Enterprise based modules, since 2017-18 to 2019-20 a total of 152 WhatsApp messages were sent and more than 210 voice calls were made covering 55 farmers. Under Livestock based modules, since 2017-18 to 2019-20 a total of 1071 WhatsApp messages were sent and more than 1750 voice calls were made covering 900 farmers. in case of Integrated farming System module, 204 WhatsApp messages were sent and 360 voice calls were made covering 600 farmers.

Table 15. Household under different categories of farmers

Sr. No.	Village	Category	% of farmers	No. of farmers	Total
1.	Hansapore	Landless	10	84	865
		Marginal (<1 ha)	15	129	
		Small (1-2 ha)	48	416	
		Semi medium(2-4 ha)	22	191	
		Medium(4-10 ha)	2	18	
		Large (>10 ha)	3	27	
2.	Pathari	Landless	5	27	530
		Marginal (<1 ha)	20	106	
		Small (1-2 ha)	33	174	
		Semi medium(2-4 ha)	27	144	
		Medium(4-10 ha)	9	47	
		Large (>10 ha)	6	32	
3.	Chijgam	Landless	2	12	595
		Marginal (<1 ha)	32	190	
		Small (1-2 ha)	28	166	
		Semi medium(2-4 ha)	22	131	
		Medium(4-10 ha)	9	54	
		Large (>10 ha)	7	42	
Total				**1990**	**1990**

Under farmer FIRST project, NAU Navsari centre, Hansapore, Pathari and Chijgam villages were selected. In this maximum farmers were under Small farmer (1-2 ha) category. In Hansapore,village 416 farmers were under small farmer category (1-2 ha), whereas in Pathari maximum farmers were under Small farmer (1-2 ha) category. In Chijgam village, maximum farmers were under Marginal (<1 ha) category. A total of 1990 farmers were covered under farmer FIRST project.

Table 16. Existing productivity and cost of cultivation of major crops in selected villages

Crops	Yield (q / ha)	Cost of cultivation (Rs/ha)
Rice	32.74	52,518/-
Sugarcane	910.83	1,12,000/-
Mango	126.78	49,146/-
Sapota	169.82	77,705/-

The existing productivity and cost of cultivation was observed for different crops. For Rice crop, the yield was 32.74 q/ha and cost of cultivation was Rs. 52,518/ha. In case of Sugarcane the yield was 910.83 q/ha and cost of cultivation was found to be Rs. 1,12,000/ha. For Mango and Sapota the yield was 126.78 q/ha and 169.82 q/ha respectively.

Coverage of different technological interventions in FFP villages

Table 17. Crop Based module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari	-	-	-
2017-18	**Rice**	GNR-3		40	44	100
	Sugarcane	13073		5	-	20
2018-19	**Rice**	GNR-3		40	47.68	100
	Sugarcane	13073		5	787	20
2019-20	**Rice**	GNR-3		40	32.74	100
	Sugarcane	13073		5	910.83	12

Under crop based module, different crops like Rice and Sugarcane were demonstrated. In 2017-18, Rice (GNR-3 variety) was demonstrated in Hansapore, Pathari and Chijgam villages on 40 hectare for 100 farmers yielded 44 q/ha. Sugarcane (13073 variety) was demonstrated for 20 farmers on 05 hectare.

During 2018-19, Rice (GNR-3 variety) was demonstrated in Hansapore, Pathari and Chijgam villages on 40 hectare for 100 farmers yielded 47.68 q/ha. Sugarcane (13073 variety) was demonstrated for 20 farmers on 05 hectare yielded 787 q/ha..

In 2019-20, Rice (GNR-3 variety) was demonstrated in Hansapore, Pathari and Chijgam villages on 40 hectare for 100 farmers yielded 32.74 q/ha. Sugarcane (13073 variety) was demonstrated for 12 farmers on 05 hectare yielded 910.83 q/ha.

Table 18. Horticulture Based Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari	-	-	-
2017-18	**Mango**	Application of micronutrients, PGR and fruit fly traps		20	139	54
	Sapota			20	174	32
2018-19	**Mango**			75	105.50	152
	Sapota			-	-	-
2019-20	**Mango**			40	126.78	100
	Sapota			20	169.82	50

Under horticulture module, Application of micronutrients, PGR and control of fruit fly using traps was demonstrated in Hansapore, Pathari and Chijgam villages. From 2017-18 on Mango plant it was demonstrated on 20 hectare covering 54 farmers and Sapota fruit on 20 hectare covering 32 farmers. During 2019-20, for Mango it demonstrated on 40 hecatre for 100 farmers and for Sapota on 20 hectare for 50 farmers.

Table 19. Livestock Based Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari	-	-	-
2017-18	Balanced feeding, awareness of livestock health management deworming & preventive measures for common diseases	Provision of mineral mixtures, deworming and Preventive vaccination		160 animals	-	90
2018-19	Application of Rubber Mat, supplementation of Mineral Mixture and Deworming	Provision of rubber mate, Mustideep, Mineral mixture and Fenbendazole		60 crossbreed cows	-	60
2019-20	Scientific Calf Rearing Practices- Application of Calf Statar feeding , First Aid Kit and Deworming	Provision of calf starter, First aid kit and Deworming		70 crossbreed calf	-	70

Under Livestock Based Module, in 2017-18 balanced feeding, awareness of livestock health management deworming & preventive measures for common diseases was demonstrated for 160 animals for 90 farmers. In 2018-19, Application of Rubber Mat, supplementation of Mineral Mixture and Deworming along with Provision of rubber mate, Mustideep, Mineral mixture and Fenbendazole was conducted for 60 crossbreed cows covering 60 farmers was conducted. During 2019-20, under goat rearing, Sangamneri breed was demonstrated for 50 farmers and Phule Gunvant variety along with Silage preparation were also demonstrated.

Table 20. Entrepreneurship Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari			
2017-18	Vermi composting	Production and marketing of Vermi composting		-	-	30
2018-19	Vermi composting	Providing the like earthworms, training will be given to selected young farmers		-	-	24
2019-20	Vermi composting	Providing the like earthworms, training will be given to selected young farmers		-	-	24

Under Entrepreneurship Module, in 2018-19 Vermi composting was demonstrated in Hansapore, Pathari and Chijgam villages for 30 farmers. Same demonstration was conducted in 2019-20 also.

Table 21. NRM Based module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari			
2017-18	Banana pseudo sap organic liquid fertilizers	Provided NOVEL liquid organic fertilizer		60	-	50
	Use of Biofertilizers in TP paddy	Provided NOVEL liquid organic fertilizer		60	-	50
	Improving soil properties through soil amendment	Provided gypsum		40	-	60
2018-19	Improving soil properties through soil amendment	Provided gypsum	Hansapore, Chijgam	Rice: 10.1; Sugarcane: 8.54; Sapota: 3.4	Rice: 54.7; Sugarcane: 1070; Sapota: 5.7	60
2019-20	Improving soil properties through soil amendment	Provided gypsum		-	-	60

Under NRM Based module, in 2017-18 Banana pseudo sap organic liquid fertilizers technique was demonstrated in Hansapore, Pathari and Chijgam villages for 50 farmers. During 2018-19, Improving soil properties through soil amendment such as gypsum technology was demonstrated for 60 farmers. during 2019-20, same demonstration was conducted for 60 farmers.

Table 22. Integrated Farming System Based module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village Name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hansapore, Chijgam, Pathari	-	-	-
2017-18	Inter cropping Indian bean in fruit crops	NPS-1		10	4.98	50
	Inter cropping of Lucerne in new orchard	(Anand-2) TF		10	-	30
2018-19	IC of Lucerne with young sapota orchard + livestock + Vermicompost	(Anand-2) TF			253.50	45
	IC of green gram with young mango orchard + Vermicompost	Green gram-Meha			7.4	45
	Boundary plantation of drum stick	PKM-1			-	45
2019-20	IC of Lucerne with young sapota orchard + livestock + Vermicompost	(Anand-2) TF		0.20	258	50
	IC of green gram with young mango orchard + Vermicompost	GM-6		0.11	7.9	42
	Boundary plantation of drum stick	PKM-1		5 plants/ farmer	-	76

Under Integrated Farming System Based Module, in 2017-18 Inter cropping Indian bean in fruit crops (NPS-1) was demonstrated in Hansapore, Pathari and Chijgam villages for 50 farmers and it yielded 4.98 q/ha. In 2018-19, Inter Cropping of Lucerne with young sapota orchard + livestock + Vermicompost ((Anand-2) TF) were demonstrated for 45 farmers. During 2019-20, Inter Cropping of Lucerne with young sapota orchard + livestock + Vermicompost ((Anand-2) TF) on 0.20 hectare covering 50 farmers were conducted. Boundary plantation of drum stick (PKM-1) was conducted for 76 farmers.

Table 23. Dairy/Poultry/Goatery/Any other animal farming

S.No.	Components	Animals/ Village	Animals covered	No. of farmers covered
1.	**Dairy**			
	Name of fodder variety	800 animals in 3 villages e.g. Hansapore, Chijgam, Pathari	583	153
	Lucerne, (Anand-2) TF			
2.	**Feeding/Mineral Mixture**		583	153
	Amul milk co-gold(mineral)			
3.	**Animal health camp**		280	95
	Deworming		583	153
	Vaccination		-	-
	Check up camp		-	-
	Others (Pl. mention)			
	Mastideep, Dip cup , Rubber mate		120	60
	First aid kit		70	70
	Calf starter		70	70

Under Dairy/Poultry/Goatery/Any other animal farming, Lucerne, (Anand-2) TF fodder variety was demonstrated for 153 farmers. Amul milk co-gold (mineral) feed mixture was demonstrated for 153 farmers covering 583 animals. Vaccination programme, check-up, Deworming, First aid kit, Calf starter and others was demonstrated in Hansapore, Pathari and Chijgam villages for 800 animals.

Table 24. Production (q) and area (ha): Before and after data on new variety of different crops

S.No.	Name of crops	2016-17		2017-18		2018-19		2019-20	
		Before	After	Before	After	Before	After	Before	After
1.	**Rice**	-	-	38.20 (40)	44.00 (40)	42.14 (40)	47.68 (40)	27.40 (40)	32.73 (40)
2.	**Sugarcane**	-	-	69.85 (5)	78.70 (5)	75.75 (4.61)	91.083 (4.61)	-	-
3.	**Mango**	-	-	105 (20)	139 (20)	80.6 (75)	105.50 (75)	99.65 (40)	126.78 (40)
4.	**Sapota**	-	-	132 (20)	174 (20)	-	-	125.45 (20)	169.82 (20)

Before and after effect of different crops were assessed and found that for Rice crop in 2017-18 a positive difference of 5.8 q/ha on 40 hectare was observed, whereas in 2019-20 it was 5.33 q/ha. In case of Sugarcane, in 2017-18 a significant difference of 8.85 q/ha was observed on 05 hectare. During 2018-19 it was 15.33 q/ha. Mango was grown during 2017-18 to 2019-20 and found a significant difference of 34 q/ha to 27.13 q/ha. In case of Sapota a positive difference of 42 q/ha was observed on 20 hectare in 2017-18, whereas in 2019-20 it was 44.37q/ha.

Table 25. Average yield and income of different crops demonstrations in farmers' field

S.No.	Name of crops	Years	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
			Before	After	Before	After	Before	After
1.	Rice	2016-17	-	-	-	-	-	-
		2017-18	38.17	44.00	71,100	81,660	19,585	32,502
		2018-19	42.13	47.68	93,524	1,05,076	41,006	56,216
		2019-20	27.40	32.73	67676	80532	11816	28014
2	Sugarcane	2016-17	-	-	-	-	-	-
		2017-18	69.85	78.7	1,88,592	2,12,490	92592	118490
		2018-19	75.75	91.083	2,27,250	2,73,249	1,12,250	1,61,249
		2019-20	Result will be presented in 2020-21					
3.	Mango	2016-17	-	-	-	-	-	-
		2017-18	105	139	2,10,000	2,78,040	1,66,455	2,24,262
		2018-19	80.6	105.50	2,41,800	3,16,500	1,93,230	2,56,720
		2019-20	99.65	126.78	2,49,125	3,16,950	2,05,580	2,67,804
4	Sapota	2016-17	-	-	-	-	-	-
		2017-18	132	174	1,98,000	2,61,000	1,40,000	1,82,250
		2018-19	-	-	-	-	-	-
		2019-20	125.45	169.82	1,88,175	2,54,730	1,30,175	1,77,025

The Average yield and income of different crops demonstrations in farmers' field was observed during 2017-18 to 2019-20. During 2017-18, Rice, Sugarcane, Mango and Sapota were demonstrated and a net income of Rs. 32502, 118490, 224262 and 182250 was observed respectively. During 2019-20, for Rice (Rs. 28014), Mango (Rs. 267804) and Sapota (Rs. 177025) was obtained per hectare.

Table 26. Capacity building programmes

S. No.	Thematic Area	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Capacity building and group dynamics	-	-	-	-	-	-	-
2.	Crop production	2	3	2	2	314	138	452
3.	Entrepreneurship Development	1	2	2	2	00	120	120
4.	Farm Implements	-	-	-	-	-	-	-
5.	Livestock Production and Management	-	2	2	4	42	441	483
6.	Natural Resource Management	-	2	2	2	419	93	512
7.	Nutrition Security	-	-	1	2	54	207	261
8.	Plant Protection	1	2	3	3	97	39	136
9.	Processing and Value Addition	-	-	-	2	23	78	101
10.	Production of Inputs at site	-	-	-	-	-	-	-
11.	Soil Health and Fertility Management	1	1	1	3	140	74	214
12.	Women Empowerment	1	2	2	2	0	150	150
	Total	**6**	**14**	**15**	**22**	**1089**	**1340**	**2429**

Different Capacity building programmes were conducted for farmers and farm women. During 2017-18, 14 programmes were conducted whereas in 2018-19 and 2019-20 it was 15 and 22 respectively. A total of 2429 beneficiaries were benefitted with different capacity building programmes.

Table 27. Extension activities

S.No.	Programmes	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Advisory Services	-	-	-	-	-	-	-
2.	Celebration of important days	-	-	-	-	-	-	-
3.	Diagnostic visits	-	2	4	3	40	350	390
4.	Exhibition	-	-	-	-	-	-	-
5.	Exposure visits	1	2	2	2	97	40	137
6.	Ex-trainees Sammelan	-	-	-	-	-	-	-
7.	Farm Science Club	-	-	-	-	-	-	-
8.	Farmers' seminar/workshop	2	2	1	2	330	150	480
9.	Field Day	2	4	6	5	400	120	520
10.	Film Show	-	-	-	-	-	-	-
11.	Group discussions	3	6	2	3	200	110	310
12.	KisanGhosthi	-	2	3	1	65	40	105
13.	KisanMela	-	-	-	-	-	-	-
14.	Method Demonstrations	1	3	2	3	140	120	260
15.	Plant/animal health camps	-	2	2	3	90	70	160
	Total	**9**	**23**	**22**	**22**	**1362**	**1000**	**2362**

Different Extension activities (Advisory Services, Diagnostic visits, Exhibition, Group discussions, Plant/animal health camps etc.) were conducted for farmers and farm women. During 2017-18, 23 programmes were conducted whereas in 2018-19 and 2019-20 it was 22 and 22 respectively. A total of 2362 beneficiaries were benefitted with different Extension activities programmes.

Table 28. Content Mobilization

Module	WhatsApp			No. of voice calls		No. of Text message	No. of villages covered	No. of Farmers covered
	No. of chats	No. of videos	No. of clips	Outgoing	Incoming			
Crop based modules								
2016-17	-	-	-	-	-	-		-
2017-18	65	12	03	180	138	-		120
2018-19	78	13	04	205	170	20		120
2019-20	95	15	04	221	183	11		112
Horticulture based modules								
2016-17	-	-	-	-	-	-		-
2017-18	35	07	01	162	103	-		86
2018-19	67	10	05	178	155	-		152
2019-20	85	09	03	202	186	-		150
Enterprise based modules								
2016-17	-	-	-	-	-	-		-
2017-18	15	05	-	110	95	-		30
2018-19	25	06	-	123	115	-		24
2019-20	31	06	-	139	128	-	3	24
Livestock based modules								
2016-17	-	-	-	-	-	-		-
2017-18	30	08	01	170	100	-		90
2018-19	35	15	05	190	115	15		60
2019-20	49	19	09	220	135	29		70
NRM based modules								
2016-17	-	-	-	-	-	-		-
2017-18	39	-	-	140	88	-		160
2018-19	49	04	-	147	106	-		60
2019-20	58	09	-	168	110	-		60
Integrated farming System								
2016-17	-	-	-	-	-	-		-
2017-18	40	03	04	190	70	-		85
2018-19	49	08	05	201	89	12		135
2019-20	56	16	10	228	114	28		168
Total	**901**	**171**	**54**	**3174**	**2200**	**115**	**3**	**1716**

Under content mobilization different WhatsApp messages, voice calls and Text messages were disseminated. Under crop based module since 2017-18 to 2019-20 a total of 289 WhatsApp messages were sent and more than 1097 voice calls were made covering 352 farmers. Under Horticulture based modules, since 2017-18 to 2019-20 a total of 222 WhatsApp messages were sent and more than 986 voice calls were made covering 388 farmers. Under Enterprise based modules, since 2017-18 to 2019-20 a total of 88 WhatsApp messages were sent and more than 710 voice calls were made covering 88 farmers. Under Livestock based modules, since 2017-18 to 2019-20 a total of 171 WhatsApp messages were sent and more than 930 voice calls were made covering 220 farmers. In case of Integrated farming System module, 172 WhatsApp messages were sent and 892 voice calls were made covering 388 farmers.

JAU, Junagadh

Table 29. Household under different categories of farmers

Category	No. of farmers	Name of village (% of farmers)	Name of village (% of farmers)	Name of village (% of farmers)	Name of village (% of farmers)	Total (%)
Landless	59	02.50	03.13	02.11	02.72	02.61
Marginal (<1 ha)	276	10.60	14.96	10.76	12.26	12.15
Small (1-2 ha)	1136	45.51	44.86	54.74	43.05	47.04
Semi medium (2-4 ha)	752	37.86	32.14	25.38	36.51	32.97
Medium (4-10 ha)	116	03.24	04.46	06.43	05.19	04.83
Large (>10 ha)	10	00.29	00.45	00.58	00.27	00.40

Under farmer FIRST project, JAU Junagadh centre, Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya villages were selected. In this maximum farmers (1136) were under Small farmer (1-2 ha) category followed by Semi medium (2-4 ha) category. A total of 2346 farmers were covered under farmer FIRST project.

Table 30. Existing productivity and cost of cultivation of major crops in selected villages

Crops	Yield q /ha)	Cost of cultivation (Rs/ha)
Groundnut	17.30	31,250
Cotton	20.71	72,800
Wheat	43.41	30,733
Gram	12.15	22,356
Coriander	14.50	46,505
Sesame	12.50	35,310

The existing productivity and cost of cultivation was observed for different crops. For Groundnut crop, the yield was 17.30 q/ha and cost of cultivation was Rs. 31,250/ha. In case of Cotton the yield was 20.71 q/ha and cost of cultivation was found to be Rs. 72,800/ha. For Wheat and Gram the yield was 43.41 q/ha and 12.15 q/ha respectively. In case of Coriander, the yield was 14.50 q/ha and cost of cultivation was Rs. 46,505/ha. Sesame was also grown and its yield was 12.50q/ha.

Coverage of different technological interventions in FFP villages

Table 31 . Crop Based Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	-	-	-	-
2017-18	Groundnut	GG-20	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	40	702.40	100
	Cotton	GTHH-49		64	1637.76	160
	Wheat	GW-496		40	1679.60	100
	Gram	GJG-3		20	246.40	50
2018-19	Groundnut	GG-20	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	20	347.00	100
	Cotton	GTHH-49		32	728.64	160
	Wheat	GW-496		20	921.60	100
	Gram	GJG-3		10	121.80	50
2019-20	Groundnut	GG-20	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	20	346.00	100
	Cotton	GTHH-49		32	662.72	160
	Wheat	GW-496		20	843.40	100
	Gram	GJG-3		10	121.50	50

Under crop based module, different crops like Groundnut, Cotton, Wheat and Gram were demonstrated. In 2017-18, Groundnut (GG-20) was demonstrated in Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya villages on 40 hectare for 100 farmers yielded 44 q/ha. Cotton (GTHH-49 variety) was demonstrated for 160 farmers on 64 hectare and produced 1637.76 q/ha. Wheat (GW-496 variety) was demonstrated on 40 hectare covering 100 farmers. In case of Gram (GJG-3 variety) was demonstrated for 50 farmers on 20 hectare. During 2018-19 and 2019-20 same demonstarion was carried out and similar results were obtained.

Table 32 . Livestock Based Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	Only input were provided in last quarter		50 (One buffalo of each farmer)
2017-18	Buffalo	Jaffrabadi		50 buffaloes	1,17,750 (lit milk)	50
2018-19	Buffalo	Jaffrabadi		50 buffaloes	1,23,150 (lit milk)	50
2019-20	Buffalo	Jaffrabadi		50 buffaloes	1,26,300 (lit milk)	50

Under Livestock Based Module, in 2017-18 a demonstration on Jaffrabadi buffalo was conducted on 50 animals for 50 farmers and produced 117750 litre milk was obtained. In 2018-19 and 2019-20 same demonstration was carried out and similar esult was obtained.

Table 33 . Entrepreneurship Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	Apiculture	Apis mellifera	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	-	-	100*
2017-18	Apiculture in sesame	Apis mellifera		50	8.20 (q. honey)	50
		Farmers' local variety			625	
	Apiculture in coriander	Apis mellifera		50	8.20 (q. honey)	50
		Farmers' local variety			725	
2018-19	Apiculture in sesame	Apis mellifera		50	14.72 (q. honey)	50
		Farmers' local variety			582	
	Apiculture in coriander	Apis mellifera		50	14.72 (q. honey)	50
		Farmers' local variety			564.5	

Under Entrepreneurship Module, in 2016-17 Apiculture was demonstrated in Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya villages for 100 farmers. During 2017-18, Apiculture in sesame was carried out and 625 quintal was obtained, whereas apiculture in coriander was conducted and 8.20 quintal of honey was obtained for 50 farmers. In 2018-19, Apiculture in sesame was conducted for 50 farmers and 14.72 quintal honey was obtained, whereas Apiculture in coriander produced 564.5 quintal of honey was obtained.

Table 34. NRM Based Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya	-	-	-
2017-18	Groundnut-	GG-22		20	359.80	50
2018-19	Groundnut+ Pigeon pea	GG-22 + GJP-1		10	231.90	50
2019-20	Groundnut+ Pigeon pea	GG-22 + GJP-1		10	139.10	50

Under NRM Based module, in 2017-18, Groundnut (GG-22 Variety) was demonstrated for 20 hectare for 50 farmers. During 2018-19, Groundnut+ Pigeon pea demonstration was conducted on 10 hectare for 50 farmers in Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya villages.

Table 35. Crop Diversification Module technological interventions

Year	Crop/Animal/ Enterprise	Variety	Village name	Area covered (ha)	Quantity produced (q)	No. of farmers covered
2016-17	-	-	Hadala, Deri Pipaliya, Mavjinjava,	-	-	-
2017-18	Cotton + Black gram	-		16	446.88	40
2018-19	Cotton + Sweet corn	-		8	220.56	40
2019-20	Cotton + Sweet corn	-		8	144.96	40

Under Crop Diversification Module, in 2017-18, Cotton + Black gram was demonstrated for 16 hectare for 40 farmers. During 2018-19 and 2019-20, Cotton + Sweet corn demonstration was conducted on 08 hectare for 40 farmers in Hadala, Deri Pipaliya, Mavjinjava, Nava Vaghaniya villages.

Table 36. Dairy/Poultry/Goatery/Any other animal farming

S.No.	Components	Village/ Animals	Area Covered (ha)	No. of farmers covered
1.	**Feeding/Mineral Mixture**	• Chelated mineral mixture: 40 g/buffalo/day • Calcium supplement: 50 ml/buffalo/day • Fenbendazole bolus -3g : one bolus in 3 month interval per buffalo	50 Jaffrabadi buffaloes	50 Farmers (One buffalo of each farmer)

Under Dairy/Poultry/Goatery/Any other animal farming, demonstration on Feeding/mineral mixture with specific technology of Chelated mineral mixture@ 40 g/buffalo/day, Calcium supplement@50 ml/buffalo/day and Fenbendazole bolus -3g : one bolus in 3 month interval per buffalo was recommended for 50 Jaffrabadi buffaloes.

Table 37. Production (q) and area (ha): Before and after data on new variety of different crops

S.No.	Name of crops	2016-17		2017-18		2018-19		2019-20	
		Before	After	Before	After	Before	After	Before	After
1.	Crop based module								
	Groundnut	-	-	619.20 (40)	702.40 (40)	304.2 (20)	347.0 (20)	304.0 (20)	346.0 (20)
	Cotton	-	-	1363.8 (64)	1637.7 (64)	644.4 (32)	728.6 (32)	554.8 (32)	662.7 (32)
	Wheat	-	-	1540.8 (40)	1679.6 (40)	842.2 (20)	921.6 (20)	770.2 (20)	843.4 (20)
	Gram	-	-	212.40 (20)	246.40 (20)	102.9 (10)	121.8 (10)	102.3 (10)	121.5 (10)
2.	NRM Based module								
	Groundnut	-	-	315.40 (20)	359.80 (20)	-	-	-	-
	Groundnut+ Pigeon pea	-	-	-	-	192.3 (10)	231.9 (10)	105.7 (10)	139.1 (10)
3.	Crop diversification								
	Cotton + Black gram	-	-	367.04 (16)	446.88 (16)	-	-	-	-
	Cotton + Sweet corn	-	-	-	-	143.2 (8)	220.5 (8)	97.12 (8)	144.9 (8)

Before and after effect of different crops were assessed and found that for Groundnut crop in 2017-18 a positive difference of 83.2 q/ha on 40 hectare was observed, whereas in 2019-20 it was 42 q/ha. In case of cotton, in 2017-18 a significant difference of 300.9 q/ha was observed on 64 hectare. During 2019-20 it was 107.9 q/ha. Wheat was grown during 2017-18 to 2019-20 and found a significant difference of 34 q/ha to 19.2 q/ha. In case of Gram a positive difference of 34 q/ha was observed on 20 hectare in 2017-18, whereas in 2019-20 it was 19.2 q/ha.

Table 38. Average yield and income of different crops demonstrations in farmers' field

Name of crops	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
	Before	After	Before	After	Before	After
Crop based Module						
Groundnut						
2016-17	-	-	-	-	-	-
2017-18	15.48	17.56	78,029	88,833	46,779	61,807
2018-19	15.20	17.35	69,032	79,119	37,782	51,640
2019-20	15.21	17.30	68,382	78,280	37,132	51,378
Cotton						
2016-17	-	-	-	-	-	-
2017-18	21.31	25.59	1,17,222	1,40,721	44,422	75,546
2018-19	20.14	22.77	1,10,763	1,25,208	37,963	60,033
2019-20	17.43	20.71	95,881	1,13,924	23,081	48,749
Wheat						
2016-17	-	-	-	-	-	-
2017-18	38.52	41.99	65,476	71,375	34,743	45,642
2018-19	42.11	46.08	77,487	84,778	46,754	59,045
2019-20	38.51	42.17	74,141	81,177	43,408	55,444
Gram						
2016-17	-	-	-	-	-	-
2017-18	10.62	12.32	42,512	49,216	20,156	29,958
2018-19	10.29	12.18	41,184	48,752	18,828	29,494
2019-20	10.23	12.15	40,920	48,639	18,556	29,493

The Average yield and income of different crops demonstrations in farmers' field was observed during 2017-18 to 2019-20. During 2017-18, Groundnut, Cotton, Wheat and Gram were demonstrated and a net income of Rs. 61807, 75546, 45642 and 29958 was observed respectively. During 2019-20, for Groundnut (Rs. 51378), Cotton (Rs. 48749), Wheat (Rs. 55444) and Gram (Rs. 29493) was obtained per hectare.

Table 39. Average yield and income of NRM Based Module: Groundnut+ Pigeon pea

	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
	Before	After	Before	After	Before	After
2016-17	-	-	-	-	-	-
2017-18	15.27	17.99	80,025	94,206	40,268	57,527
2018-19	19.23	23.19	76,932	92,751	37,175	56,078
2019-20	10.57	13.91	52,850	69,500	13,093	32,871

During 2017-18, Groundnut+ Pigeon pea was demonstrated and a net income of Rs. 57527 was observed. During 2019-20, a net income of Rs. 32,871 was obtained per hectare.

Table 40. Average yield and income of Crop diversification: Cotton + Sweet corn

	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
	Before	After	Before	After	Before	After
2016-17	-	-	-	-	-	-
2017-18	22.94	27.93	1,03,219	1,25,695	62,462	94,938
2018-19	17.90	27.54	80,564	1,23,943	39,807	1,04,436
2019-20	12.14	18.12	60,688	90,588	19,931	65,956

During 2017-18, Cotton + Sweet corn was demonstrated and a net income of Rs. 94,938 was observed. During 2019-20, a net income of Rs. 65,956 was obtained per hectare.

Table 41. Average yield and income of Enterprise based module

	Avg. yield (Qtl/ha)		Gross Income (Rs/ha)		Net Income (Rs/ha)	
	Before	After	Before	After	Before	After
Honey bee Hives in Sesame						
2017-18	11.25	12.50	1,01,250	1,12,500	60,940	78,420
Honey		0.041		1230		
Honey bee Hives in Coriander						
2017-18	12.00	14.50	60,000	72,500	24,690	43,420
Honey		0.04		1230		
Honey bee Hives in Sesame						
2018-19	9.65	11.64	1,11,038	1,33,862	64,533	94,565
Honey		0.073		2208		
Honey bee Hives in Coriander						
2018-19	9.98	11.29	74,880	84,690	39,570	56,588
Honey		0.04		2208		

Average yield and income of Enterprise based module was assessed. In 2017-18, Honey bee Hives in Sesame was conducted and a net income of Rs. 78420 was obtained and in coriander it produced a net income of Rs. 43420. During 2018-19, Honey bee Hives in Sesame was conducted and a net income of Rs. 94565 was received, whereas in coriander it was Rs. 56588.

Table 42. Average yield and income of Livestock module

Name of crops	Avg. milk yield (litre/day)		Gross Income (Rs/buffalo/day)		Net Income (Rs/buffalo/day)	
	Before	After	Before	After	Before	After
50 Buffaloes	7.24	8.42	348	403.50	-	Rs. 45.70*

In case of livestock module, 50 buffaloes were taken for demonstration and after intervention produced 8.42 liter/day and produced a net income of 45.70 per litre.

Table 43. Capacity building programmes

S.No.	Thematic Area	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Capacity building and group dynamics	2	13	18	11	1204	160	1408
2.	Crop production	3	27	38	28	2363	325	2784
3.	Entrepreneurship Development	2	12	10	7	588	340	959
4.	Farm Implements	1	2	3	1	184	12	203
5.	Livestock Production and Management	2	9	12	7	306	655	991
6.	Natural Resource Management	1	9	8	6	587	37	648
7.	Nutrition Security	-	-	-	-	-	-	0
8.	Plant Protection	-	13	17	22	1515	340	1907
9.	Processing and Value Addition	-	1	2	1	69	19	92
10.	Production of Inputs at site	-	-	-	-	-	-	0
11.	Soil Health and Fertility Management	-	8	10	7	780	35	840
12.	Women Empowerment	-	1	2	1	-	117	121
	Total	**11**	**95**	**120**	**91**	**7596**	**2040**	**9953**

Different Capacity building programmes were conducted for farmers and farm women. During 2017-18, 95 programmes were conducted whereas in 2018-19 and 2019-20 it was 120 and 91 respectively. A total of 9953 beneficiaries were benefitted with different capacity building programmes.

Table 44. Extension activities

S. No.	Programmes	Number of Programmes				Number of beneficiaries		
		2016-17	2017-18	2018-19	2019-20	Male	Female	Total
1.	Advisory Services	239	1167	1075	780	13755	1055	**14810**
2.	Celebration of important days	1	4	4	3	344	40	**384**
3.	Diagnostic visits	10	119	146	123	2865	319	**3184**
4.	Exhibition	-	1	2	1	785	603	**1388**
5.	Exposure visits	3	21	4	0	787	109	**896**
6.	Ex-trainees Sammelan	-	1	2	2	138	27	**165**
7.	Farm Science Club	-	-	-	-	-	-	-
8.	Farmers' seminar/workshop	1	4	4	3	269	55	**324**
9.	Field Day		13	20	23	657	71	**728**
10.	Film Show	-	-	-	-	-	-	-
11.	Group discussions	2	18	20	13	1177	42	**1219**
12.	KisanGhosthi	2	17	13	7	639	63	**702**
13.	KisanMela	-	1	2	1	457	251	**708**
14.	Method Demonstrations	2	6	7	4	436	77	**513**
15.	Plant/animal health camps	-	-	-	-	-	-	-
16.	Any other	8	42	37	28	2237	523	**2760**
	Total	**268**	**1414**	**1336**	**988**	**24546**	**3235**	**27781**

Different Extension activities (Advisory Services, Diagnostic visits, Exhibition, Group discussions, Plant/animal health camps etc.) were conducted for farmers and farm women. During 2017-18, 1414 programmes were conducted whereas in 2018-19 and 2019-20 it was 1336 and 988 respectively. A total of 27781 beneficiaries were benefitted with different Extension activities programmes.

Table 45. Content Mobilization

Module	WhatsApp			No. of voice calls		No. of Text message	No. of villages covered	No. of Farmers covered
	No. of chats	No. of videos	No. of clips	Outgoing	Incoming			
Crop based modules								
2016-17	18	-	2	425	378	112	4	410
2017-18	171	5	5	780	750	430	4	520
2018-19	192	8	8	592	680	577	4	633
2019-20	122	4	4	660	577	713	4	577
Enterprise based modules								
2016-17	7	-	1	412	480	27	4	150
2017-18	31	1	6	480	420	67	4	230
2018-19	42	2	5	477	356	78	4	289
2019-20	33	1	2	318	347	45	4	278
Livestock based modules								
2016-17	12	-	1	98	72	37	4	63
2017-18	75	3	2	78	86	152	4	75
2018-19	108	2	3	82	92	178	4	72
2019-20	62	1	2	107	112	203	4	77
NRM based modules								
2016-17	8	-	1	68	66	32	4	59
2017-18	63	3	3	79	73	143	4	81
2018-19	75	2	2	82	78	165	4	77
2019-20	47	1	1	98	96	177	4	93
Crop diversification based module								
2016-17	8	-	2	52	56	27	4	53
2017-18	45	3	3	64	68	112	4	72
2018-19	37	2	4	76	80	128	4	93
2019-20	32	1	1	81	86	157	4	78
Total	**1188**	**39**	**58**	**5109**	**4953**	**3560**	**80**	**3980**

Under content mobilization different WhatsApp messages, voice calls and Text messages were disseminated. Under crop based module since 2017-18 to 2019-20 a total of 539 WhatsApp messages were sent and more than 4842 voice calls were made covering 2140 farmers. Under Enterprise based modules, since 2017-18 to 2019-20 a total of 132 WhatsApp messages were sent and more than 3290 voice calls were made covering 947 farmers. Under Livestock based modules, since 2017-18 to 2019-20 a total of 271 WhatsApp messages were sent and more than 727 voice calls were made covering 287 farmers. In case of NRM module, 206 WhatsApp messages were sent and 640 voice calls were made covering 310 farmers.

Mahatma Phule Krishi Vidyapeeth, Farmer FIRST Centre

Special Intervention-01

Red gram production technology

Title of intervention /technology demonstrated	No. of farmers benefited	Area (ha.)	Measurable indicators yield (q/ha)		Economics of Demo (Rs.)		Economics of check (Rs.)	
			Demo	Local	Gross Return	Net Return	Gross Return	Net Return
Red gram production technology	50	20	19.50	14.50	87750	55750	65250	32850

Red gram production technology

- Red Gram variety Vipula responded well in both conditions of irrigated as well as rainfed with proper utilization of inputs.
- Proper use of INM and IPM and application of fertilizers on the basis of soil test report helped to reduce the cost of cultivation.
- The use of bio fertilizers increased the potential yield of red gram

Special Intervention-02

Rabi Sorghum production technology (2017-18)

Title of intervention /technology demonstrated	No. of farmers benefited	Area (ha.)	Measurable indicators yield (q/ha)		Economics of Demo (Rs.)		Economics of check (Rs.)	
			Demo	Local	Gross Return	Net Return	Gross Return	Net Return
Five point *rabi* sorghum production technology Phule Suchitra (Medium Soil) Phule Anuradha (Light Soil) Phule Vasudha Phule Revati (Light to deep soil, suitable for irrigated area)	100	40	Grain – 18.3 Fodder – 45.9	Grain – 10.28 Fodder – 38.6	61600	34600	41790	11690

Under rabi sorghum production technology, Phule Suchitra (Medium Soil), Phule Anuradha (Light Soil), Phule Vasudha, Phule Revati (Light to deep soil, suitable for irrigated area) were demonstrated on 40 hectare for 100 farmers during 2017-18 and gained popularity. In ckeck it produced net return of Rs. 11690 and in demo Rs. 34600. It has produced a good grain and fodder ratio (10.28:38.6).

Special Intervention-03

Post-Harvest Management

Provided two PKV Mini Dal Mills to Womens Self Help Group in the project villages Chinchvihire and Kangar for processing through Dal Mill. Tranined Self Help Groups about dal preparation.

Initial Investment / Dal Mill

1. Cost of dal mill – Rs. 80,000/ mill
2. Electricity - Rs. 10,000/ mill
3. Motor starter and other – Rs. 2500 / mill

Dal production Chinchvihire village (Period: Dec- 2018 to April - 2019)

Sr. No	No. of customer	Types of Dal	Total quantity (Kg.)	Rate/ Kg.	Total amount (Rs)	Expenditure (Rs.)	Net income (Rs)
Without raw material only dal preparation						(Electricity bills and raw material) 6750	17350
1	88	Tur, Mung, Udid andGram	1080	10	10800		
2	25	Tur, Mung and Udid	105	80	8400		
3		Broken and Hull	245	20	4900		
Total	**113**				**24100**		

Self-help group started the PKV Mini Dal Mills enterprise and earned a net income of Rs. 17350. They used different types of dal such as Tur, Mung, Udid and Gram. This has emerged as good source of income and employment for women and other stakeholders.

Navsari Agricultural University, Farmer FIRST Centre

Special Intervention-04

Assessment of new released paddy variety by NAU (GNR 3)

Table 01: Result of the experiment conducted on "Assessment of new released paddy variety by NAU (GNR 3)" during *Kharif*-2019, (Area= 0.4 ha/farmer) (n=100)

S. N.	Growth and yield Parameter	GNR-3	Other variety (Jaya, Gurjari)
1	No of plants /sq. m	31.80	31.06
2	No of tillers/hill	6.65	6.29
3	No of effective tillers/hill	5.60	5.35
4	Panicle length (cm)	27.54	27.33
5	No of grains per Panicle	98.44	93.32
6	Grain Yield g/hill	17.78	17.32
7	Straw yield g/hill	21.96	21.28
8	Grain Yield kg/ha	**3273**	**2740**
9	Straw yield kg/ha	**3768**	**3219**

The result of the experiment indicated that the average increment of yield 533 kg/ha (19.45 %) in the grain yield and 549 kg/ha straw yield of GNR-3 as compare to Jaya/Gurjari varieties in the farmers field of the selected three villages. Farmers consider better variety in their opinion. Lower yield of Paddy was due to late commencement of rainy season makes it late planting, which will affect growth and ultimately a smaller number of effective tillers as well as late rains at maturity (October-November) create loss of grains and fodder resulted in poor yield and net return from this year crop season.

Special Intervention-05

Improving soil properties through soil amendment 2019-20

According to the results of soil and water analysis report, Hansapor and Chijgam village's soil and ground water samples having the problem of sodicity. Reclamation of sodic soils can be done by application of gypsum as soil application as well as putting gypsum bags in small water tanks in which the water from bore well falls and distributed in the fields. The farmers had applied the gypsum to *kharif* rice and sugarcane as well as existing sapota orchards. According to the results of soil and water analysis report, Hansapor and Chijgam village's soil and ground water samples having the problem of sodicity. Reclamation of sodic soils can be done by application of gypsum as soil application as well as putting gypsum bags in small water tanks in which the water from bore well falls and distributed in the fields.

Improving soil properties through soil amendment 2019-20

(Area= 0.53 ha/farmer) (n=70)

Location	**Village Hansapore, Tal. Jalalpore, Dist. Navsari (20^{o} 51.961 N and 72^{0} 54.010 E)**	**Chijgam village, Tal. Jalalpore, Dist. Navsari (20^{0} 51.961 N and 72^{0} 54.010 E)**	**Village Pathri, Tal. Gandevi, Dist. Navsari (20^{0} 51.449 N and 72^{0} 51.114 E)**
Typifying pedon	Hansapore	Abr-1	Nani-Kakrad
Land use	Cultivated	Cultivated	Salt pain

Special Intervention-06

Scientific Calf Rearing Practices-Application of Calf Starter feeding, First Aid Kit and Deworming

Average daily weight gain (g) of experimental calves

Daily weight gain	Control (n)	Treatment(n)
1st	221.34±24.59 (10)	253.20 ±10.05 (39)
2nd	307.63±64.71 (9)	306.63±11.58 (39)
3rd	355.56±92.65 (9)	442.55±21.03 (39)
4th	314.11±60.38(9)	496.79±40.93(39)

Average daily gain (ADG) for control and treatment was 221.34±24.59and 253.20 ±10.05, respectively. Final ADG was for control and treatment was 314.11±60.38 and 496.79±40.93, respectively reflecting higher average daily weight gain in calf starter supplemented group.

Effect of Feeding Calf Starter on Daily Weight Gain

Attributes	Control (n)	Treatment(n)
Birth weight	30.95±0.98 (10)	31.23±0.37 (39)
BW 1 month	36.86±0.73 (9)	38.82±0.41 (39)
BW 2 month	46.93±1.51 (9)	48.02±0.55 (39)
BW 3 month	53.80±5.51 (9)	56.09±2.19 (39)
BW 4 month	61.69±6.60 (9)	68.95±3.29(39)

The results revealed that birth weight of calves are almost similar (30.95 vs 31.23 kg). As the age advanced the weight gain calf starter supplemented groups tend to show higher weight gain as compared to control (Table-11). Weight after 4th month was around 7.26 kg higher in treatment group as compared to control (61.69 vs 68.95 kg).



Junagadh Agricultural Univeristy, Junagadh

Special Intervention-07

Introduction of improved high yielding variety of groundnut (GG-22)

Technology Application:

- Adoption of high yielding improved variety of groundnut (GG-22)
- Adoption of recommended plant protection measures

A. For White grubs management

- Seed treatment of chlorpyriphos 20 EC @ 25 ml/kg seed before sowing.
- Furrow application of phorate 10 G @ 10 kg/ha before sowing before sowing.
- In case of sever infestation, drenching of chlorpyriphos 20 EC @ 25 ml/10 l of water.
- Installation of light trap

B. For Stem rot management

- Seed treatment of tebuconazole 1.5 g/kg 25% WG
- Application of *Trichoderma* @ 2.5 kg/ha enriched in 250 kg/ha caster cake or FYM @100 kg/ha
- Soil drenching at 30 days after sowing or apply *Trichoderma* @ 2.5 kg/ha as soil drenching at 30 days after sowing.

Groundnut: Yield, economics and efficacy			
Parameter	**Experiment (Variety + Stem rot + White grub Mgmt.)**	**Farmer's Practice**	**Z test**
Pod yield (kg/ha)	1730 (875 to 2330)	1520 (800 to 2145)	5.08**
Pod yield increase (kg/ha)	212	--	--
Haulm yield (kg/ha)	2251 (1138 to 3029)	1900 (1000 to 2681)	6.60**
Haulm yield increase (kg/ha)	352	--	--
Gross return (Rs/ha)	78280	68382	--
Additional return (Rs/ha)	9898	--	--
Additional cost (Rs/ha)	4348	--	--
Additional net return (Rs/ha)	5550	--	--
ICBR	2.28	--	--
Stem rot incidence (%)	2.92 (0.67 to 5.00)	6.27 (3.17 to 9.33)	18.44**
Percent plant killed by white grub	0.98 (0 to 5.33)	2.19 (0 to 7.67)	5.49**
Incidence decrease (%)	55.18	--	--

Farmers' feedback: For Groundnut crop:

- Groundnut improved variety + Stem rot + White grub management system is adoptable for additional income and risk reduction of crop failure. It gave 13.97 % and 18.53 % higher pod and haulm yield than Farmers existing practices. It gave additional net return of Rs. 5550/ha with ICBR of 2.28.

Special Intervention-08

Introduction of improved high yielding variety of Bt. Hybrid cotton: GTHH-49 (Bt)

Technology Assemblage:

Introduction of improved high yielding variety of Bt. Hybrid cotton: GTHH-49.

Closed planting technology (90 x 30 cm) and detopping the cotton plant at 75 DAS.

Recommended crop protection technology for management of pink bollworm.

Technology Application:

Adoption of high yielding improved Bt hybrid GTHH-49 released by Talod, SDAU, SK nagar.

- Adoption of crop production technologies.

a. Closed planting technology (90 x 30 cm): planning of cotton between row 90 cm and between plant 30 cm.

b. Detopping technology: Advise to detopping the cotton plant at 75 DAS for branched growth to obtain higher seed cotton yield and net return.

- Adoption of crop protection technology: Pink Ball worm management:
  - Installation of 16 pheromone trap/acre.
  - For the control of pink bollworm in cotton to spray Spinosad 45 SC @ 2 ml /10 litre of water.
  - Spray of bio-pesticides, *Beauveria bassiana* @ 40 g /10 litre of water.

Crop Based Module (Cotton) Yield, economics and efficacy (2019-20)			
Parameter	**Experiment (Variety + Spacing + Pink ball worm Mgmt.)**	**Farmer's Practice**	**Z test**
Seed cotton yield (kg/ha)	2071 (1736 to 2688)	1743(1479 to 2270)	18.20**
Yield increase (kg/ha)	328	--	--
Yield increase (%)	18.82	--	--
Gross return (Rs/ha)	113924	95881	--
Additional return (Rs/ha)	18042	--	--
Additional cost (Rs/ha)	7625	--	--
Additional net return (Rs/ha)	10417	--	--
ICBR	2.37	--	--
Pink ball worm damage (%)	16.76 (4.80 to 28.80)	42.90 (23.40 to 62.40)	35.35**
Incidence decrease (%)	60.94	--	--

- Cotton improved variety + Spacing + Pink ball worm management system is adoptable for additional income and risk reduction against crop failure.
- It gave 18.82% higher seed cotton yield than FP.
- It gave additional net return of Rs. 10417/ha with ICBR of 2.37.

Success stories of Integrated Farming System

Name of farmer: Shri. Maruti Natha Gite

Village: Chinchvihire

Land holding : 0.90 ha.

Component	Total Income (Rs. in lakh)	Cost of production (Rs. in lakh)	Net Profit (Rs. in lakh)	Profit %
Crops	1.10	0.37	0.73	22.67
Poultry	0.48	0.17	0.31	9.62
Horticulture	2.45	0.62	1.83	56.83
Fishery	0.50	0.15	0.35	10.86
Total (2019-20)	**4.53**	**1.31**	**3.22**	
2018-19	**4.30**	**1.25**	**3.09**	**-**
2017-18	**4.10**	**1.15**	**2.95**	**-**
2016-17	**3.57**	**1.17**	**2.40**	**-**

Shri. Maruti Natha Gite, a farmer owns 0.90 hectare from Chinchvihire village, Rahuri taluka, district Ahmednagar, Maharashta has adopted a model of integrated farming system and got the benefits. Shri Gite has grown various crops such as Jawar, Redgram, Bajra and got a total income of Rs.1.10 lakh, whereas a net profit of Rs.0.73 lakh. From poultry he earned Rs.0.31 lakh of net profit. In case of horticulture based crops he received a benefit of Rs.1.83 lakh. He also adopted fisheries component and with 0.15 lakh cost of production, earned 0.35 lakh as net profit. Similarly in since 2016-17 to 2019-20 he received a economic benefits of 2.40 lakh to 3.22 lakh respectively.

Success stories of Integrated Farming System

Name of farmer: Shri. Dilip Kisan Nalkar

Village: Chinchvihire

Land holding : 2.5 ha.

Component	Total Income (Rs. in lakh)	Cost of production (Rs. in lakh)	Net Profit (Rs. iIn lakh)	Profit %
Crops	2.45	1.04	1.41	14.31
Dairy	6.10	2.85	3.25	32.99
Goat	0.75	0.15	0.60	6.09
Poultry	0.46	0.17	0.29	2.94
Horticulture	5.00	1.50	3.50	35.53
Fodder crops	1.12	0.32	0.80	8.13
Total (2019-20)	**15.88**	**6.03**	**9.85**	
2018-19	**15.30**	**5.85**	**9.45**	**-**
2017-18	**14.03**	**5.15**	**8.88**	**-**
2016 -17	**12.68**	**4.90**	**7.78**	**-**

Shri. Shri. Dilip Kisan Nalkar , a farmer owns 2.5 hectare from Chinchvihire village, Rahuri taluka, district Ahmednagar, Maharashta has adopted a model of integrated farming system. Shri Nalkar has grown various crops such as Jawar, Redgram, Bajra and got a total income of Rs.2.45 lakh, whereas a net profit of Rs.1.41 lakh. From Dairy component he earned a economic benefit 3.25 lakh. From poultry he earned Rs.0.29 lakh of net profit. He also adopted Goatry component and got 0.60 lakh as net income. In case of horticulture based crops he received a benefit of Rs. 3.50 lakh. He also adopted fodder crops component and with 0.32 lakh cost of production, earned 0.80 lakh as net profit. Similarly in since 2016-17 to 2019-20 he received economic benefits of 7.78 lakh to 9.85 lakh respectively.

Success Stories-03

Name of Farmer: Patel Vishaliben Dipakbhai
Age: 30 years
Education: 12th
Village: Pathri
Heard Size: 06

As part of FFP she was trained in scientific feeding & management of dairy animals and provided inputs like mineral mixture (@ of 50 gms/amimal/day) to supplementation & deworming (once in 6 month to each animals) in the lactating animals.

During regular visit, it was observed that there was increased of 2 to 3 liters of milk /animal/day and drastic changes in milk composition was reduced to a great extent in all the randomly selected animals which were fed with mineral mixture supplementation and dewormed regularly.

Sr .No.	Particulars	Regular feed Without Mineral mixture supplementation and deworming	Regular feed With Mineral mixture supplementation and deworming
1.	Average milk production (lt.)/animal/day	8.34	10.31
2.	Total Expenditure (Rs.)/animal/day	208	232
3.	Total income (Rs.)/animal/day	250	309
4.	Net income (Rs.) / animal /day	42	77
5.	Net income (Rs.)/animal /lactation	**11340**	**20790**

Success Stories-04

Name of Farmer/Beneficiary: Shri Dharmeshbhai Patel
Age: 35 years
Address: Village: Chijgam
Tal: Gandevi, **Dist :** Navsari

How Farmer Adopted Technology

Dharmeshbhai has been farming of cultivated mango since last 15 years. Earlier he used the traditional methods for mango cultivation, in which fruit dropping problem was very high. Due **to high fruit dropping and small fruit size, the production was very low**. He also did not get the better market price due to poor shining and bad quality of fruit.

Under FFP program, the training about technical knowledge and scientific cultivation practices of mango was given and various inputs were distributed. According to the information given to them, they sprayed the Novel Liquid Fertilizer (2 liters), urea 4 kg and NAA (4 g) mixed in 200 liters of water and then sprayed at time of fruiting and then after 15 days. Then sprayed Sulphate of Potash 4 kg/200 liters.

Results/Impacts: Due to this spray, **the 25-30 % fruit dropping has reduce**d and increase the fruit size and quality. This led to an increase in production and market prices.

Success Stories-05

Success Story of Technology Adoption: Livestock based module

Name of Farmer: Kalubhai Dhanjibhai Rabadiya

Address: Village: Mavjinjava, Tal: Bagasara, Dist: Amreli, Gujarat)

Heard Size: 10 Jaffrabadi buffaloes

Problems: No mineral mixtures and deworm to their buffaloes and deficiency of calcium and other minerals, worm infestation and genetic degradation of breed.

Intervention:
Feeding mineral mixture, calcium supplements and dewormer to Jaffrabadi buffaloes.

Inputs: (1) Chelated mineral mixture: 40 gm./buffalo/day

(2) Calcium supplement: 50 ml/buffalo/day

(3) Artificial insemination.

(4) Fenbendazole bolus (De-wormer) 3gm. : one bolus in 3 month interval

Farmer observed that there was considerable increase in milk yield (about 1 to 1.5 lit/buffalo/day) and fat percent in milk and improvement in general and reproductive health of the buffalo.

He started feeding these input items to all his 10 buffaloes by purchasing these items from market.

Economics:

A. Total 9.5 litres of milk production were increased per day from 7 lactating buffaloes. The benefit was of **Rs. 416/ per day.**

B. The farmer adopted it to his all buffaloes and got additional income of Rs. 1.5 lakh/year from his small dairy unit. This practice has considerably improved socio-economic status of the farmer.