

# Accelerating Farm Incomes (AFI): Building Sustainable Soil Health, Markets and Productivity in Telangana State, India

FINAL REPORT | OCTOBER 2019-FEBRUARY 2024



February 2024

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## Acronyms and Abbreviations

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ABS	Agricultural Business Specialist
ADS	Agricultural Development Specialist
AEGF	Agri Entrepreneur Growth Foundation
AFI	Accelerating Farm Incomes
AO	Accounts Officer
APO	Administration and Procurement Officer
ATMA	Agricultural Technology Management Agency
B2B	Business-to-Business
B2C	Business-to-Consumer
BC	Backward Castes
DAO	District Agricultural Officer
FMO	Field Monitoring Officer
FPO	Farmer Producer Organization
GAP	Good Agricultural Practices
GAU	Gujarat Agricultural University
IFDC	International Fertilizer Development Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information Communication Technology
IRRI	International Rice Research Institute
IIHR	Indian Institute of Horticulture Research
INM	Integrated Nutrient Management
IPM	Integrated Pest Management
IPWWA	Indira Priyadarshini Women Welfare Association
JADS	Junior Agricultural Development Specialist
KVK	Krishi Vigyan Kendra
MANAGE	National Institute for Agricultural Extension Management
MELA	Monitoring, Evaluation and Learning Associate
NCML	National Commodities Management Services Limited
NIAM	National Institute of Agricultural Marketing
NTI	Nodal Training Institute
PJTSAU	Professor Jayashankar Telangana State Agricultural University
PM	Project Manager
PSB	Phosphate Solubilizing Bacteria
SFI	Syngenta Foundation India
SC	Scheduled Caste
SERP	Society for Elimination of Rural Poverty
ST	Scheduled Tribe
USG	Urea Supergranules
WorldVeg	World Vegetable Center

# Accelerating Farm Incomes (AFI): Building Sustainable Soil Health, Markets, and Productivity in Telangana State, India

## Final Report October 2019 - February 2024

### Project Description

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The International Fertilizer Development Center (IFDC) implemented a development project entitled “Accelerating Farm Incomes (AFI): Building Sustainable Soil Health, Markets, and Productivity in Telangana State, India.” This project was originally conceived with a three-year duration from October 1, 2019, to September 30, 2022. The project performance period was extended to February 29, 2024, with consideration for the delayed start and subsequent COVID-19-related field-level movement restrictions affecting implementation plans during the first two years.

The project aim was to strengthen and reorient agricultural production systems in peri-urban areas and rural locations of Telangana State, India, through three diversified components – technology dissemination, knowledge-sharing and capacity building, and micro-enterprise development. The project interventions were expected to achieve an immediate impact in terms of improved productivity and increased farmers’ income through enhanced resource use efficiency and farmer-market linkages. Specifically, the project focused on:

- Increasing productivity by creating awareness and enhancing farmers’ knowledge of good agriculture practices (GAPs).
- Introducing and promoting adoption of site-specific technologies (seed, fertilizers, crop protection practices, and other inputs).
- Creating access to viable marketing pathways and sustainable opportunities for selling farmers’ produce and optimizing their income.

These are accomplished by:

- Disseminating climate-resilient and adaptable innovative technologies for enhancing the efficiency of natural resources, promoting mechanization and quality seed use, and reducing post-harvest losses.
- Linking farmers to markets for timely sales and obtaining a better price for agricultural products.
- Creating rural entrepreneurs in the target geography, empowering them with the latest agricultural knowledge, and linking them to the market actors.
- Connecting the beneficiary farmers with diverse public-private sector organizations to have sustainable access to quality inputs and advisory services.

## Goal and Objectives

The project goal was to increase productive employment in agriculture and related enterprises through the creation of competitive but sustainable markets for stakeholders in the value chain involving agribusiness inputs, outputs, and technologies. The project vision was in line with the Walmart Foundation's vision.

The specific objectives were:

- Accelerate farming incomes through productive technologies focusing on soil health, seed materials, and integrated approaches to nutrient-water management, i.e., an integrated soil-seed-water approach, to ensure sustainable outcomes for rice-, maize-, pulse-, and vegetable-based cropping systems in semi-arid regions of Telangana State.
- Build thriving markets through commercial orientation of farming toward promoting peri-urban agriculture in Telangana State.

## Target Geography

The project interventions were originally planned to be implemented in three adjoining districts of Hyderabad – Mahabubnagar, Medak, and Rangareddy. However, these districts underwent subdivisions for administrative purposes, making them smaller and mostly covering urban areas. Most agricultural lands in these three districts got converted into real-estate ventures. Due to these reasons, the project focused on the older delineation of these districts for the project implementation purposes.

## Implementation Approach – Challenges - Adjustments

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The project implementation approach during the first two years primarily focused on organizing 1,000 day-long training sessions, each consisting of 30 trainees, including 20% women. These trainings were expected to disseminate Good Agricultural Practices (GAP) to 30,000 direct beneficiaries. These farmers were expected to adopt these GAPs, thus resulting in higher agricultural production and farming incomes in the target geographies.

During the first two years the project team struggled to implement the planned activities and achieve the results. (Table 1) Lack of IFDC's registration in India required finding a host organization for pass-through of funds for project implementation. This, along with the fact that COVID-linked restrictions on movement of staff in villages and for organizing physical meetings negatively impacted the plans. There were significant delays in initiating the project activities and adhering to the plans. It was also difficult to recruit and retain qualified staff, as only short-term consultancy contracts with no staff benefits were offered. As a result, at the end of year 2, the project could only achieve 10% of the planned targets and could recruit/retain only 30% of the total planned staff strength. The project manager was changed three times in the first two years.

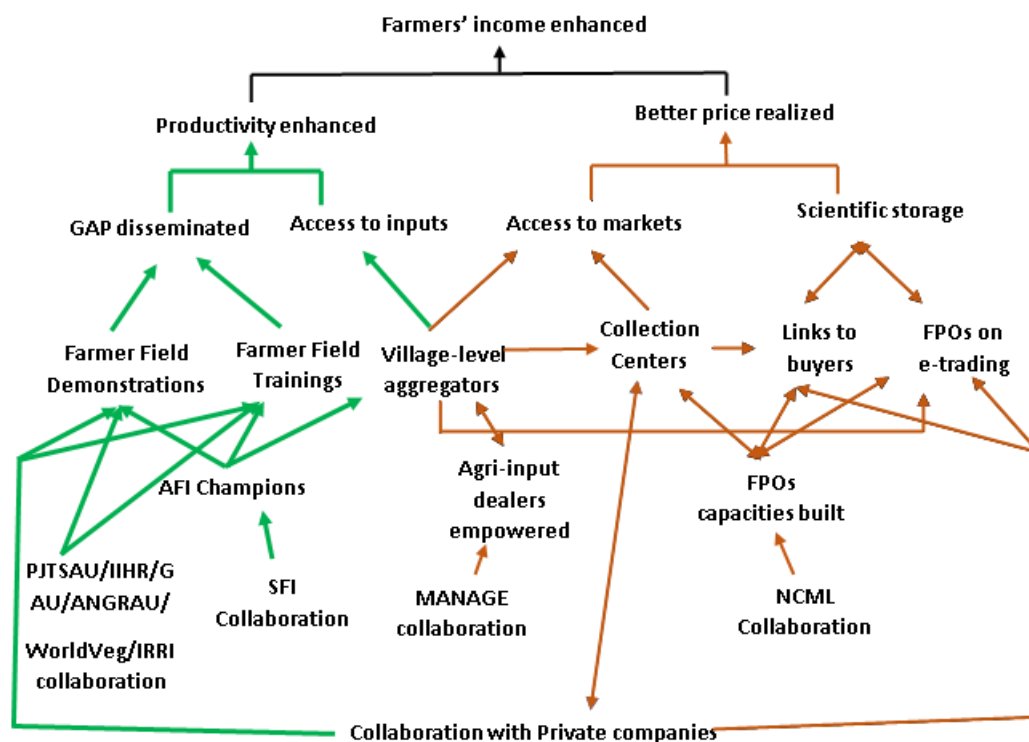
**Table 1. Cumulative achievements at the end of Year 2**

S. No.	Activity	Project Target	Achievement				
			Year 1 Achieved	Year 2 Targets	Year 2 Achieved	Cumulative Achievement	%
		A	B	C	D	E (B+D)	E*100/A
<b>Objective 1: Accelerate farm incomes through productive technologies</b>							
1	Farmers trained on productivity improvement, technology, and GAPs	30,000 (30 participants X 1,000 batches)	160	13,500	1,647	1,807	6.02
2	Coverage of land (ha) under various crops and GAPs	16,000 (combined)	0	8,000	1,565	1,565	9.78
	2.1 Paddy	10,000	0	5,000	1,054	1,054	10.54
	2.2 Maize	2,000	0	1,000	139	139	6.95
	2.3 Pulses	1,000	0	500	57	57	5.7
	2.4 Vegetables	3,000	0	1,500	315	315	10.5
3	Yield increase (demonstration plots)	30%	0	20-30%	33%	33%	100%+
4	Field demonstrations on crops	450	10	225	43	53	11.77
5	Field days with crop cuts (demonstration plots)	150	0	75	13	13	8.66
6	Market linkages established with farmer groups	20	0		0	0	0
<b>Objective 2: Build thriving markets</b>							
7	Stakeholder seminars linking farmers with market actors	18	0	9	2	2	11.11
8	Training of agro-input dealers	180	0	50	0	0	0
9	Training of rural retailers and farmers on small business (batches)	9	0	50	0	0	0
10	Input-based enterprises with an increase in clientele and income	25	0	12	0	0	0

At the end of the first quarter of Year 3, a new project manager was recruited and assigned the task of turning around the project implementation and achieving the project results. An internal review revealed that it was challenging to enroll farmers for day-long classroom trainings from the target geography, which mostly consisted of peri-urban areas of a fast-growing metropolitan city. It was noted that farmers from this unique demographic had access to agricultural knowledge and thus wanted the project interventions to go beyond classroom-based knowledge dissemination. Uncertainties, such as COVID-19 and the need to achieve project targets that were pending from the first two years of weak project implementation, required the project team to propose adjustments to the implementation approach. Subsequently during the second quarter of Year 3, a revised approach was proposed and received approval for implementation.

In the revised approach, the project proposed the creation of village-level agri-entrepreneurs – AFI Champions – by adopting a proven approach of systematic selection and mentoring. Once created, these rural entrepreneurs were expected to contribute as extended AFI team

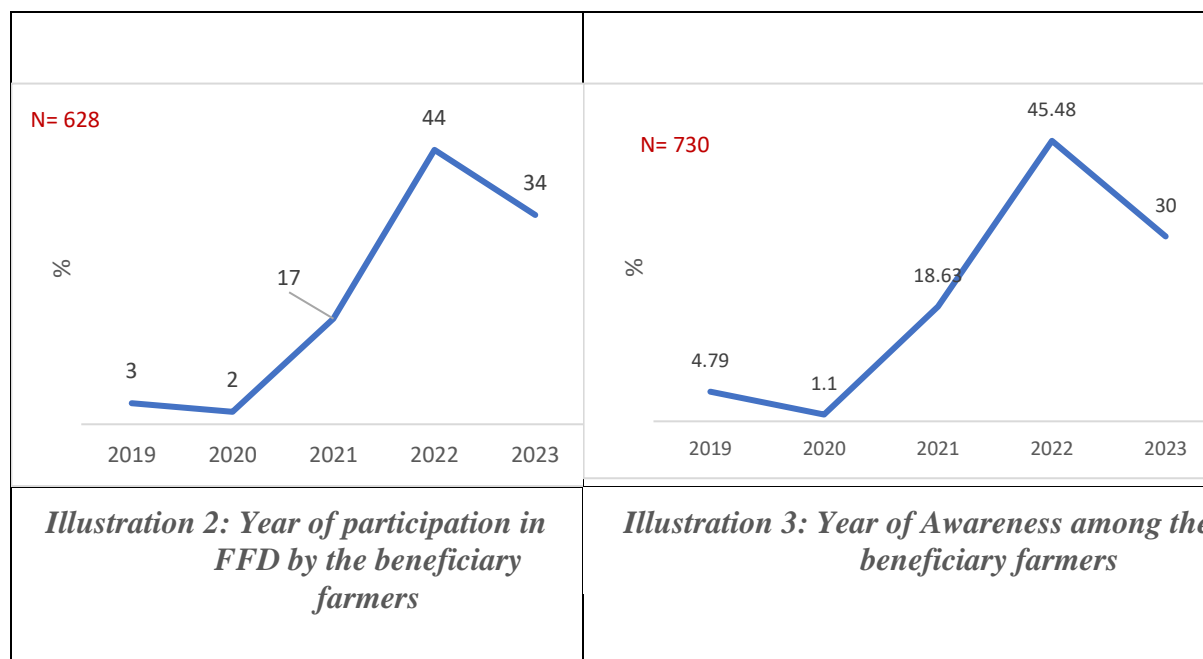
members and disseminate GAPs through season-long field-based experiential trainings, create access to inputs or services for adopting these practices, and facilitate farmer-market linkages for better price realization. These AFI Champions were expected to implement these activities in their own business interests, thus ensuring continuity for the project interventions beyond the project duration. Along with this, the project proposed capacity development of Farmer Producer Organizations (FPOs) on scientific storage and electronic trading. This intervention was aimed at assisting farmers to sell their marketable surplus in the right market and at the right time. The project also proposed establishing vegetable collection centers at selected FPOs so that their member farmers could pool their vegetables, grade, and sell to institutional buyers. The project also proposed capacity building of agri input dealers in the target geography so that they can provide quality services to the beneficiary farmers.



*Illustration 1. Project activities leading to results*

This approach required intensive efforts by the project team to implement multiple activities simultaneously. Practically everything had to be done from scratch – finalize the target geography, select the villages, build partnerships with expert organizations, identify potential AFI Champions from the target villages, impart a 45-day long virtual training to them, mentor them to establish agri businesses, mentor them to organize field-demonstration cum trainings, etc. Due to the short remaining time in the project, extensive planning and implementation were adopted through close supervision and monitoring of individual staff performances during the third year of the project. While this resulted in a turnaround in the project performance, as noted by an independent endline study (See Illustration 2 and 3), it put a lot of performance pressure on the project staff that were not used to an intensive work culture. This, along with the fact that the project staff were recruited as temporary consultants with no employment benefits, resulted in a stressful situation. This situation was exploited by people with vested interests to create a revolt in the team against the project management.

This resulted in slowing down of interventions in Year 4 of the project with the project management requiring to reduce the intensity of project planning and monitoring. This situation effectively left the project management with only a year to implement the revised approach.



Despite such an unfavorable work environment, the project team could accomplish some impressive results, as documented by the endline study team.

## Revised implementation approach and the theory of change

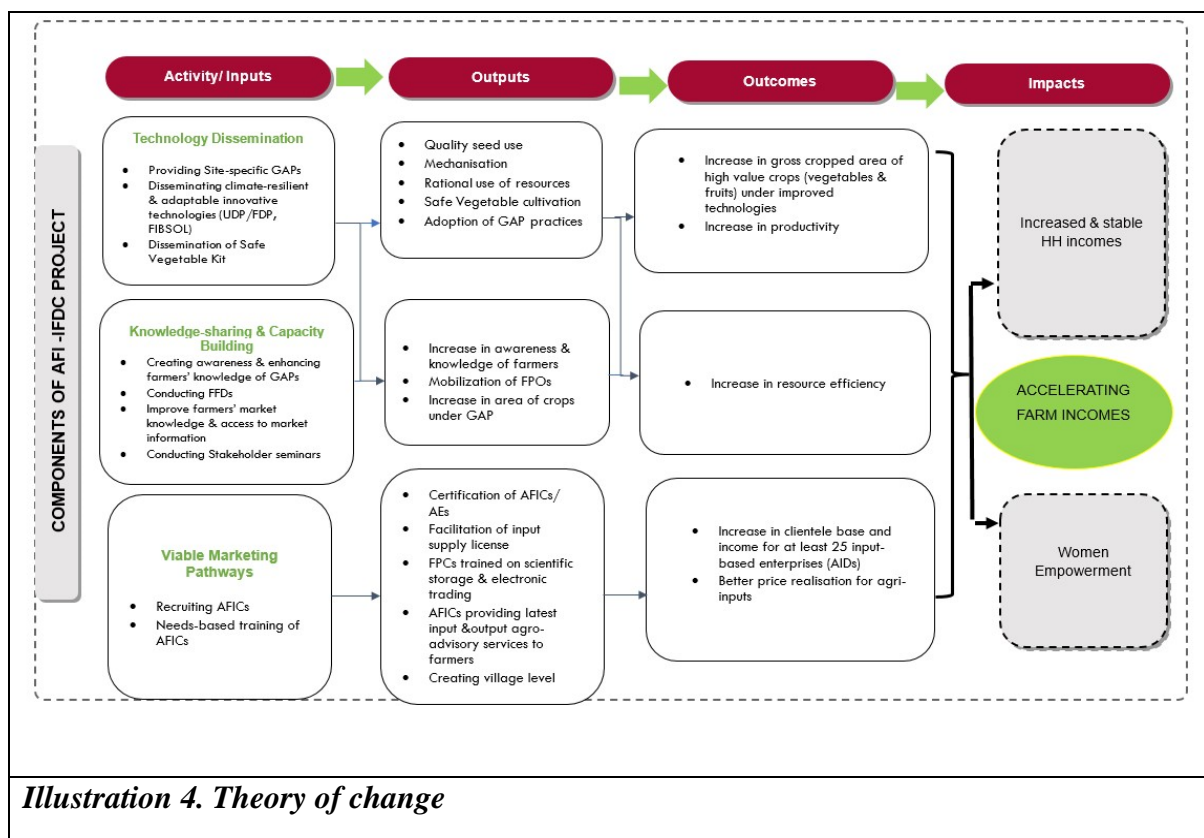
Losing two crucial years of the project period made it difficult to devise an approach to achieve the already tall order of results. Brainstorming sessions with the project team and experts helped in putting together an approach. Sustainability and scalability were the two key concerns considered in revising the approach. Key elements of this approach were:

- Working with farmers’ collectives: The project team will work with Farmer Producer Organizations (FPOs) to be able to reach a large number of beneficiaries in a short period. This approach was also expected to result in better monitoring and post-project sustainability.
- Focusing on the demand side: The project team will focus on the demand side and create a pull effect for disseminating GAPs. For this, rural resource persons (AFI Champions) will be developed, who will be setting up locally relevant agribusinesses, disseminating GAPs, and facilitating farmer-market linkages.
- Seeking farmers’ partnership in project interventions: The project team will work with the beneficiary farmers/FPOs to seek their ownership and contribution in the project

interventions, such as conducting GAP demonstrations, creating custom hiring centers, and establishing village-level aggregation centers/collection centers.

- Implementing a cluster approach: The project team will implement interventions in clusters for effective coordination and oversight. This approach is expected to result in concentrated impact.
- Engaging marginalized communities: The project team will make deliberate efforts to reach out to the marginalized communities, including women and socioeconomically disadvantaged groups.
- Leveraging existing support systems: The project team will build collaborations with knowledge organizations and value chain actors that are operating in the agricultural ecosystem of the area.
- Strengthening the value chain actors: The project team will build capacities of the value chain actors through need-based trainings. Periodic stakeholder consultations will be organized with an aim to build networks that facilitate information exchange.
- Utilizing information and communication technology (ICT): ICT tools will be used extensively for timely information dissemination among a wide range of stakeholders.

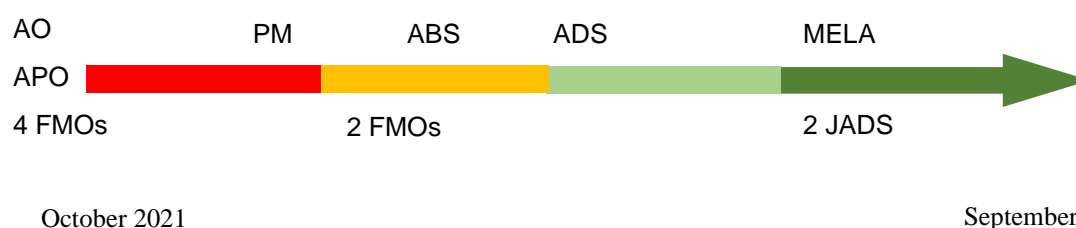
Theory of Change of the revised approach (Illustration 4) included technology dissemination, knowledge sharing and capacity building along with creation of viable market linkages through rural agri entrepreneurs to result in outputs, outcomes and ultimately in project aimed impacts of improved farm incomes and women empowerment.



# Project implementation with the revised approach and the results

## Strengthening the AFI Team

The project team had several key roles missing at the beginning of Year 3, and the existing team members were unsure about the possibility of accomplishing the project results. The challenges in the first two years of implementation had severely impacted their morale. One of the first and foremost tasks for the new project management was to develop a team with all the key roles and a shared understanding of the implementation plan.



**Illustration 5. Timeline of the establishment of the AFI Team during October 1, 2021, to September 30, 2022**

Soon after seeking approval for the revised implementation approach, the existing team members were motivated through a series of meetings. The plan was explained during these meetings, and experiences from other similar interventions were shared to demonstrate the feasibility of the plan. With some skepticism, the team members began implementing the planned activities. They slowly gained confidence in the plan after witnessing the partnerships and the initial successes. For instance, the team members were not sure about the AFI Champion creation. They gained confidence after attending a weeklong orientation by a project partner and learning about successful creation of such rural entrepreneurs in other states.

To fill the missing roles, the approved recruitment process was followed. One of the main challenges was attracting good talent for the short period remaining in the project. Some of the top-rated candidates refused to join. Those who were willing had to be pursued to join the team at the earliest. As soon as they joined, an orientation was organized, individual roles were defined, and immediate tasks were assigned.

Daily huddles (discussions) for work prioritization, weekly review meetings, and monthly planning meetings were organized to closely monitor and support the team members.

**Table 2. Recruitment of key project personnel during Year 3**

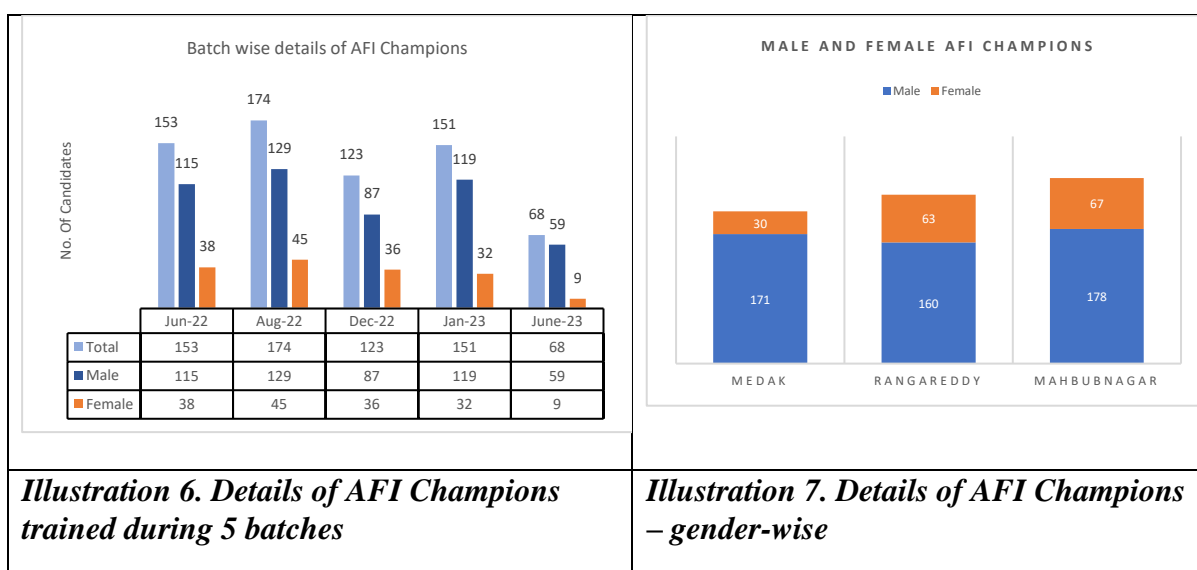
S. No.	Role	Recruited during Year 3
1	Project Manager (PM)	December 1, 2021
2	Agriculture Development Specialist (ADS)	April 1, 2022
3	Agribusiness Specialist (ABS)	March 15, 2022
4	MEL Associate (MELA)	July 13, 2022
5	Junior Agricultural Development Specialist (JADS)	July 11, 2022
6	Junior Agricultural Development Specialist (JADS)	July 1, 2022

7	Field Monitoring Officer (FMO, Medak)	February 15, 2022
8	Field Monitoring Officer (FMO, Medak)	Continuing
9	Field Monitoring Officer (FMO, Mahabubnagar)	Continuing
10	Field Monitoring Officer (FMO, Mahabubnagar)	Continuing
11	Field Monitoring Officer (FMO, Rangareddy)	February 10, 2022
12	Field Monitoring Officer (FMO, Rangareddy)	Continuing
13	Admin and Procurement Officer (APO)	Continuing
14	Accounts Officer (AO)	Continuing

## Creating Rural Entrepreneurs – AFI Champions

The project team is relatively small for implementing large-scale interventions in such a short span of time. In view of this, the decision was made to create a cadre of village-level resource people who could serve as an extended team in disseminating GAPs and establishing farmer-market linkages. To ensure the sustainability of this approach, the decision was made to develop them as agri-entrepreneurs, so that they could support farmers in their business interests.

The project team successfully created 667 AFI Champions in 324 villages in 65 blocks. To develop these rural agri-entrepreneurs in a short span of time, the project team collaborated with Syngenta Foundation India (SFI)/ Agri Entrepreneur Growth Foundation (AEGF), which have the necessary knowledge, skills, and network. The project implemented the proven approach – systematically selected candidates, enrolled them through an exam, imparted the required knowledge and skills through a 45-day virtual training accredited by the National Institute of Agricultural Marketing (NIAM), and mentored them to set up businesses and establish market linkages. All the candidates had to attend the mandatory classes, attend practical assignments, and finally pass an exam conducted by NIAM. The successful candidates received a certificate issued by NIAM, which made them eligible for seed and fertilizer licenses. These rural women and youth that have successfully completed the rigorous training program were mentored to establish locally relevant rural agribusinesses to serve their fellow farmers. While the project team envisaged 50% women AFI Champions, only 24% of female participation could be achieved due to a variety of reasons – including

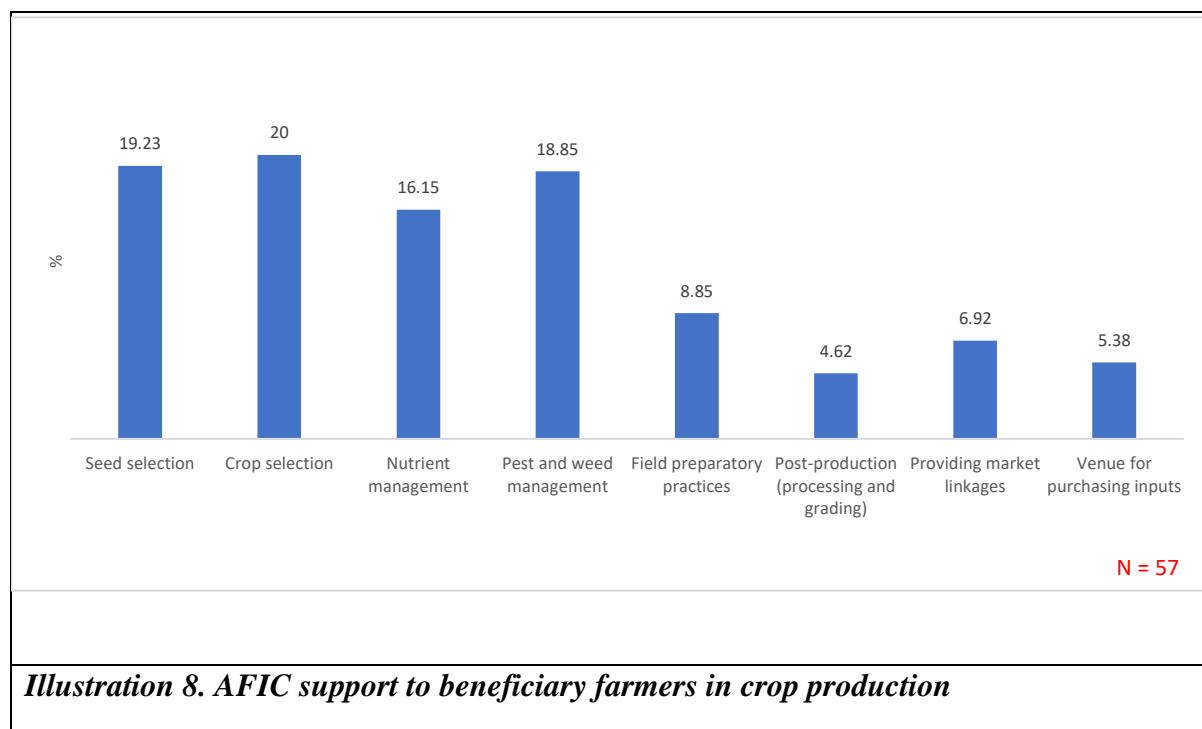


male family members discouraging their counterparts, women not interested in agri business

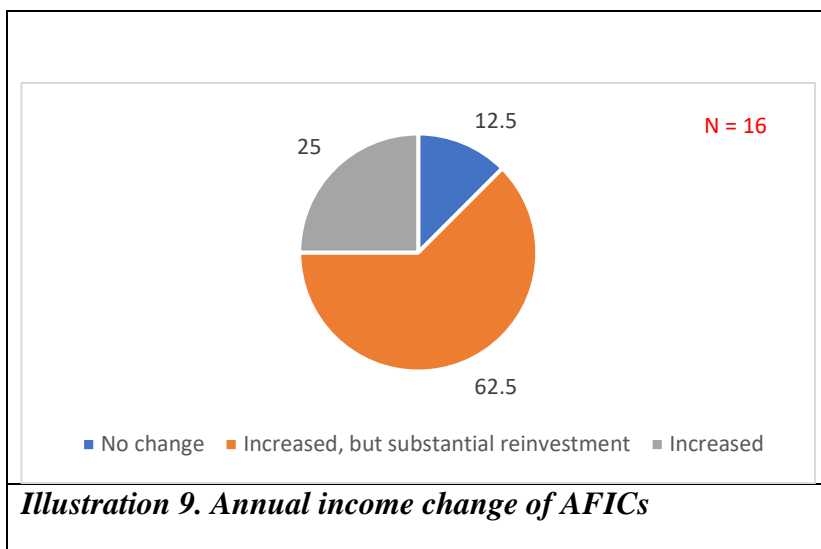
activities which require moving out of their homes and dealing with villagers/ middlemen/ etc. (Illustration 6 and 7) It was interesting to note that female project staff could convince more women to enroll for the AFI Champion intervention – resulting in higher percentage from that area.

After completing the training, these rural women and youth were mentored to identify appropriate businesses for their respective villages, develop business plans, arrange finances, secure necessary permissions, undergo specific trainings, and begin their business. At the end of the project duration, a total of 342 businesses have been incubated. These include agri-input shops, vegetable nurseries, village-level agricultural produce aggregation/procurement centers, soil testing labs, farm mechanization services, milk collection centers, vermicomposting, drone operators, etc. Through these businesses, the AFI Champions have served a total of 48,067 farmers in the first year of their operations. During this period, these AFI Champions’ made business transactions were worth over INR 165,153,760 (over U.S. \$2 million). They reported a net profit of over INR 18,994,662 (about U.S. \$200,000). The beneficiary farmers reported a reduced cost of cultivation due to better access to inputs and Agri machinery, improved market linkages, and optimized fertilizer use.

An independent endline study noted that on an average, one AFIC supported 64 farmers at the village level. 79% AFICs reported that they provide services only to their own village, while 16% reported performing their duties in other villages within the same Gram Panchayat (GP), and 5% provided services in different GPs within the same block. In terms of support provided by AFICs, 20% AFICs have mentioned that they helped farmers with crop selection, 19% each aid in seed selection as well as pest and weed management, and 16% provide guidance on nutrient management. The other areas of support include field preparatory practices (9%), provisioning of market linkages (7%), access to input shops as well as post-production processing and grading services (5%).



While serving fellow farmers, these AFI Champions gained additional income. About 87% reported an increase in annual income.



**Box 1. Realized a life-long dream of opening an input shop:** The AFI project helped me realize my lifelong dream of serving fellow farmers through an agro-input shop. My low formal education was a hindrance to securing a license to establish this shop. After earning the AFI project’s training certificate, I was able to obtain a seed and fertilizer license and then establish my agro input shop. I made plans to service paddy, maize, and cotton farmers in my areas during Kharif 2023 and procured the required quantities of quality seeds and other inputs. I am happy that I could support 138 paddy farmers to grow the RNR15048 variety on 300 acres by selling them quality seeds at a 10% lower price than the prevailing market rate.” – Lakshmaiah, Jakaram

**Box 2. Newly married AFI Champion plans to help as a village-level aggregator and make her husband proud**

Swetha is newly married to Srisailam and moved to Pomal village in Rangareddy District. She became an AFI Champion in August 2022. Encouraged by husband who is a smallholder farmer, Swetha became a village-level aggregator and supported farmers in her village to receive better prices for their marketable surplus. She collected information from farmers who are willing to sell their paddy and maize through her, along with the expected quantities and date of harvesting. The project team helped her by linking her to local traders and institutional buyers.





*Saritha, Lavanya, and Sandhya display their vegetable grafts alongside Rukmini, Field Monitoring Officer of the AFI project*

### **Box 3. Women AFI Champions collaborate to start multiple agribusinesses**

Saritha, Lavanya, and Sandhya, married mothers from Guduru village in Rangareddy District, successfully completed the AFI Champion training in July 2022. Since then, they have been disseminating GAPs to their fellow farmers through farmer field demonstrations. Saritha and Lavanya joined together to start an agri input shop. They participated in the vegetable grafting training and have plans of starting a vegetable nursery together.



*Rajeshwari in her shop*

### **Box 4. Earning additional income and disseminating GAPs**

Rajeshwari, mother of a five-year-old child, operates a daily-needs shop in Amadabakula village in Wanaparthy District. She successfully completed the training to become an AFI Champion in June 2022. Rajeshwari told the project team that she learned a great deal about agriculture during the training and has been sharing that knowledge with neighboring villagers, especially women. She also started a digital banking service after the training. Udai Kumar, AFI Field Monitoring Officer, appreciates her help in disseminating GAPs in her village. Rajeshwari attended a vegetable grafting training organized by the project. She is interested in starting a grafted seedling nursery.

## **Promoting Good Agricultural Practices (GAP)**

One of the main approaches in improving farmers' income is by disseminating GAPs. These include use of improved seeds, crop management practices, labor-saving agricultural equipment, and innovative technologies. The revised approach proposed disseminating this knowledge through field-based practical trainings through farmer field demonstrations (FFDs).

The project team worked with the knowledge partners to identify locally relevant GAPs for dissemination in the target geography. During Year 3 and 4 a total of 1459 FFDs were organized for disseminating these GAPs. AFI Champions in respective villages led these demonstrations with technical support from local Field Monitoring Officers (FMOs). For this, each of the selected demonstration farmers was supported to implement GAPs in a small area of about 1,000 square meters (m<sup>2</sup>). Farmers from the neighboring areas were invited to witness the performance of GAPs for further dissemination.

The project team worked with Professor Jayashankar Telangana State Agricultural University (PJTSAU), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Krishi Vigyan Kendras (KVKs), and Gujarat Agricultural University (GAU) for procuring improved variety seeds of paddy, red gram, and groundnut for farmer field demonstrations.

After completing the pre-season trainings, the demonstration farmers sowed the seed and followed the recommended GAPs.

### Pre-season Trainings in Collaboration with PJTSAU experts

The project team approached PJTSAU, seeking their experts to participate in pre-season trainings for the demonstration farmers. The director of research of PJTSAU accepted the request and assigned multi-disciplinary teams from local KVKs (farmer training centers). These events were widely covered in the local media, giving widespread popularity to the project.

This approach of engaging local KVK experts in farmer training was an effort to leverage the local agricultural development ecosystem actors. Demonstration farmers' interaction with the KVK experts is expected to continue beyond the project period, contributing to the sustainability of the project interventions.



Pre-season training and media coverage

### Farmers' Field-Based Trainings/Mid-Season Trainings

The project team implemented farmer field-based trainings through FFDs to disseminate GAPs effectively. Each of the demonstration plots was used as a site for these field-based trainings. Once every two weeks, the AFI agricultural experts visited the demonstration villages to impart practical trainings based on the crop stage. The topics included integrated pest management (IPM), through use of pheromone traps, neem oil sprays, rope pulling in paddy, and clipping of paddy seedlings at the time of transplanting; integrated nutrient management (INM), such as phosphate-solubilizing bacteria (PSB) application; and techniques to improve crop yield, such as nipping for red gram and empty drum rolling for groundnut. The beneficiary farmers have been highly appreciative of these practical hands-on trainings. They have begun realizing how these simple low-cost practices can contribute to higher yields (see Boxes 6 and 7).



*AFI agricultural experts conducting field-based mid-season GAP trainings during Kharif*

### **AFI Groups**

The project promoted agricultural learning groups, or AFI Groups. In each village with demonstration plots, an AFI Group consisting of a minimum of 30 farmers was formed. Meetings were held every two weeks near demonstration plots to discuss crop stage-specific GAPs. AFI Champions in their respective demonstration plot villages have been given the responsibility to organize these meetings. This approach is expected to continue beyond the project period, as the local AFI Champions who are currently organizing these learning meetings can continue to do so in the future.

### **Motivational Exposure Visits**

The project team organized motivational exposure visits to encourage farmers and AFI Champions to practice improved agricultural practices and start agribusinesses. These visits exposed them to various topics, including vegetable collection centers (collective marketing), solar dryer units (for drying C-grade vegetables that are not accepted in the market), agri-processing units, agro-input shops run by rural entrepreneurs, low-cost vegetable nurseries, vermicomposting units, and custom hiring centers (village-level agri-equipment rental centers).



*Motivational exposure visit by AFI Champions on rural agribusiness opportunities*



*Motivational exposure visit of FPO representatives on vegetable market linkages*

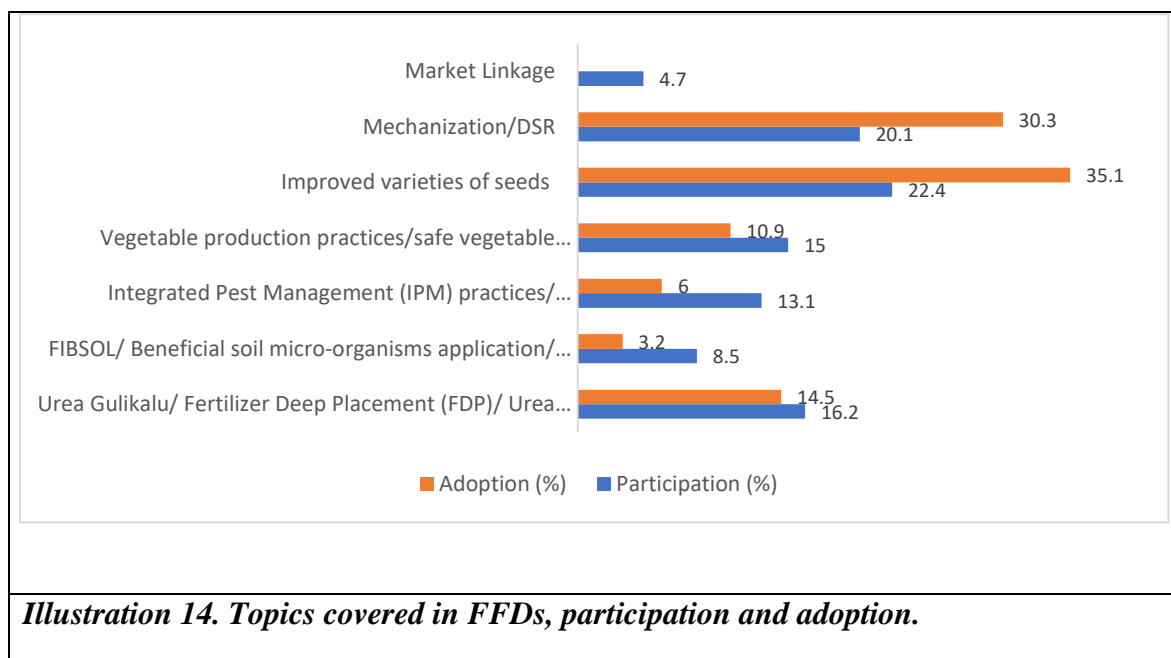
After returning from one such exposure visits to an FPO-operated vegetable collection center, twelve FPOs have set up similar centers in their respective locations. The project team worked with AFI Champions on starting rural agribusinesses.

An independent assessment documented that about 87% of the respondent farmers reported that they have participated in FFDs at the village level, conducted by AFI Champions, and learnt GAPs for income enhancement. Among these, 44%, participated in FFDs for the first time in 2022, around 34% participated in FFDs in 2023, followed by 17% in 2021. In terms of frequency of FFDs conducted, 40% of the AFICs who were interviewed as part of the sample reported that they conduct Field Days for field demonstration of GAPs once a month, while 33% conduct Field Days multiple times in a month. When enquired about the frequency of the participation in FFDs, 53% farmers reported that they have attended half (50%) of the total number of FFDs conducted. 20% reported that they have attended some (25%) of the FFDs conducted, while 17% have attended most (75%) of the FFDs conducted. Around 9% reported they have participated in all (100%) the FFDs conducted, while around 1% have participated in very few (10% or less) FFDs.

<p><b>Illustration 10. Beneficiary participation in Farmer Field Demonstrations (FFD)s</b></p>	<p><b>Illustration 11. Frequency of beneficiary participation</b></p>
<p><b>Illustration 12. Frequency of conducting FFDs</b></p>	<p><b>Illustration 13. Frequency of beneficiary farmers participating in FFDs</b></p>

The topics covered in FFDs include GAPs such as urea/fertilizer deep placement, a soil micronutrient concoction called FIBSOL, integrated pest management (IPM) practices, safe vegetable production practices, improved varieties of seeds, mechanization or Direct Seeded Rice (DSR), and market linkages. The details of participation and adoption rates are provided

in Illustration 14. The highest participation rates were reported for FFD sessions on improved varieties of seeds (22%) and mechanization/DSR (20%), while the lowest were recorded for FIBSOL (9%) and market linkages (5%). The highest adoption rates were also recorded for improved varieties of seeds (35%) and mechanization/DSR (30%), while the lowest was recorded for FIBSOL (3%).



While most farmers have adopted improved varieties of seeds and mechanization, the average area covered under the respective GAPs are provided in Table 3. The highest average area under a specific GAP has been recorded for mechanization at 3.31 acres, closely followed by UDP/FDP at 3.17 acres and improved varieties of seeds at 3.15 acres.

**Table 3. GAP adoption**

Name of the GAP	Adoption (%)	Average Area Under GAP (Acre)
<b>UDP/FDP</b>	14.5	3.17
<b>FIBSOL</b>	3.2	2.70
<b>IPM</b>	5.96	3.03
<b>Safe Vegetable Production</b>	10.94	1.63
<b>Improved Seeds</b>	35.13	3.15
<b>Mechanization</b>	30.28	3.31

Over 75% farmers who have adopted GAPs have reported experiencing a positive change in their income. This is a sizeable proportion given the slump due to COVID-19 and the short time period during which intensive activities were undertaken. Around 87% farmers who have adopted UDP/FDP have reported a change in their income, which is the highest reported among all the GAPs, indicating its potential to accelerate farm incomes. As illustrated in Table 4, the average additional income received exceeds the average additional cost incurred

for the adoption of GAPs in a year, which points towards net gains accruing to farmers who have adopted GAPs promoted by the AFI program. A note of caution is that more intensive efforts in disseminating UDP/FDP technology may not lead to income increase in all cases. This is because the farmers, during the FGDs, responded by saying UDP technology is expensive to implement, and they may need financial assistance at first to employ the method in their farms. The size of the farm will also have a bearing on the sustainability of such a method as it may not be economical for small and marginal farmers.

**Table 4. Cost and Benefit of GAP adoption**

GAP	% Farmers with Change in Income	Average Additional Cost Incurred Annually (INR)	Average Change in Annual Income (INR)
<b>UDP/FDP</b>	87.42	11421	17213
<b>FIBSOL</b>	77.78	6093	9467
<b>IPM</b>	74.63	7327	8930
<b>Safe Vegetable Production</b>	80.89	5892	7438
<b>Improved Seeds</b>	80.89	6980	8837
<b>Mechanization</b>	75.04	13308	18085

**Box 5. “Urea supergranules use gave me two additional harvests from my chili crop” – R. Ramulu, Yadhira village, Chowderguda Mandal, Rangareddy District**

Fertilizer deep placement (FDP) is not known in the project areas of Telangana. The project team organized several meetings in the villages to explain the benefits of FDP. Subsequently, in February 2022 urea briquettes (pellets of urea made using a machine) were distributed to farmers who were willing to try the intervention in small areas (about 1,000 m<sup>2</sup>).

Ramulu and Ramesh were two such farmers from Yadhira village in Rangareddy District. They used urea briquettes, also known as urea supergranules, in their chili crop, albeit with some hesitation. They decided to try the new approach due to their confidence in IFDC staff member, Mallareddy, who has been working with them for the past two years. IFDC staff visited the fields on a weekly basis to monitor the intervention and provide necessary support. Farmers from the village were invited to observe the benefits of the intervention. When the crop started producing yield, both Ramulu and Ramesh were happy to see that their crop performed better than the neighboring fields. They had two additional harvests, generating additional income. Ramulu mentioned that he also applied less fertilizer to his crop, since the vegetative growth in the crop was good and thus he did not feel additional fertilizer was needed. He was thankful to the Walmart Foundation and IFDC for introducing this new crop production technique.



**Mallareddy, AFI Field Monitoring Officer, explaining GAPs for chili to Ramulu and Ramesh from Yadhira Village in Rangareddy District**

**Box 6. “Fertilizer deep placement could help reduce the cost of cultivation and prevent the overuse of fertilizers” – Venkateshwarlu, District Agricultural Officer, Mahabubnagar District**

IFDC collaborated with farmer producer organizations (FPOs) to promote the fertilizer deep placement (FDP) technique, which is expected to optimize fertilizer use while improving the crop yield. A fertilizer briquette-making machine was procured and placed with the

Buddhapuram FPO, promoted by the Indira Priyadarshini Women Welfare Association (IPWWA).

Awareness-raising meetings were organized by inviting representatives from 12 FPOs from the area. In the presence of Venkateshwarlu, the District Agriculture Officer, who is head of agricultural extension and advisory services in Mahabubnagar District, use of the machine was launched. All the attendees of the meeting appreciated the introduction of a new crop production technique. The Buddhapuram FPO took the lead in producing urea briquettes and supplying them to 100 farmers from four FPOs, who tested them in demonstration plots. G. Gowardhini, the head of IPWWA, said that this could be a game-changing intervention that has the potential to reduce the overuse of fertilizers and help the FPO to generate some income through fertilizer briquette sales.



*The District Agricultural Officer talks to representatives of 12 FPOs on the benefits of FDP*

**Box 7. Improved pegging and pod formation in groundnut through the empty drum-rolling technique**

Nariya, from Dattayapalli Tanda in Mahabubnagar District, has always received low yields from his groundnut crop. He was interested in learning GAPs and volunteered to become AFI’s demonstration farmer during Kharif 2022. The project supported him to cultivate a high-oil variety, GJG33, originally developed by ICRISAT as ICGV07222. This is a high-yielding variety at with a yield potential of 2.5 metric tons per hectare (mt/ha). Nariya followed the complete package of practices suggested by the project team, including the empty drum-rolling technique – an empty iron drum rolled on the crop 40-45 days after sowing to increase pegging. He was initially hesitant to implement the practice, thinking it might damage the delicate

pegs emerging from the shoot. However, he was encouraged by the project team to follow the technique. Nariya was surprised to see that this technique helped the pegs to enter the moist soil. He has witnessed an increased number of pods formed in the demonstration plot in comparison to his own plot and is expecting a 10-15% higher yield from the demonstration plot.



*Nariya practicing empty drum-rolling during mid-season training*



**Murali Mohan, ADS along with Rukmini FMO teaching the nipping technique to Yadagiri and Ramesh**

**Box 8. Improved branching and flowering through nipping in red gram**

Yadagiri and Ramesh are smallholder farmers living in Gangannagudem village in Rangareddy District. Each one of these farmers owns 0.5 hectares and mainly cultivates red gram during Kharif season. They use seeds procured from their neighbors and produce about 1 mt/ha. Through project support, Yadagiri and Ramesh are now cultivating an improved variety, Ujwala (PRG176), which

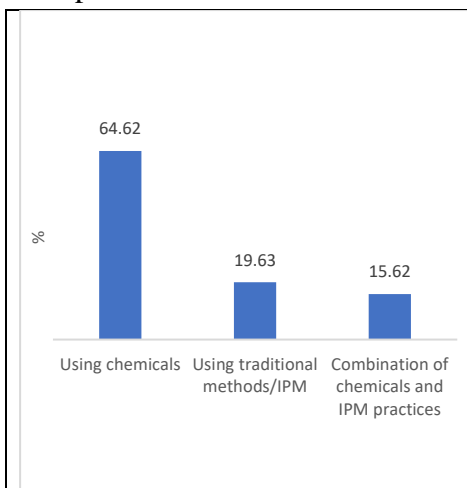
was originally developed by ICRISAT as ICPL 14003. This variety has a yield potential of 2.5 mt/ha in 130 days. One of the GAPs promoted by the project was the nipping technique in red gram – removal of top 5 cm of the plant 20-30 days after sowing to encourage branching. Although skeptical in the beginning, Yadagiri and Ramesh practiced the technique in the demonstration plots. To their surprise, there were about 20% more branches and subsequently more flowering. The proper plant spacing they were taught during the pre-season trainings helped promote emergence of these additional branches. They are expecting at least a 30% higher yield in the demonstration plots, in comparison to their local variety and farmer practice.

**Adoption of GAPs and the way forward**

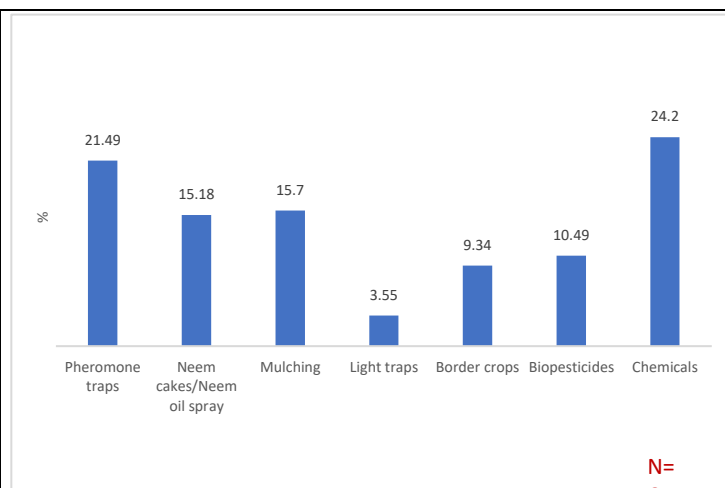
An independent endline study documented the adoption of GAPs promoted by the project and the way forward. This reputed organization’s study team applied appropriate qualitative and quantitative tools for collecting the data.

**Integrated Pest Management (IPM)**

The study noted that 65% of the beneficiary farmers were using chemicals for pest control before AFI project intervention. About 20% were using traditional methods or IPM practices, and almost 16% were using a combination of chemicals and IPM practices to protect crops from pests and insects.



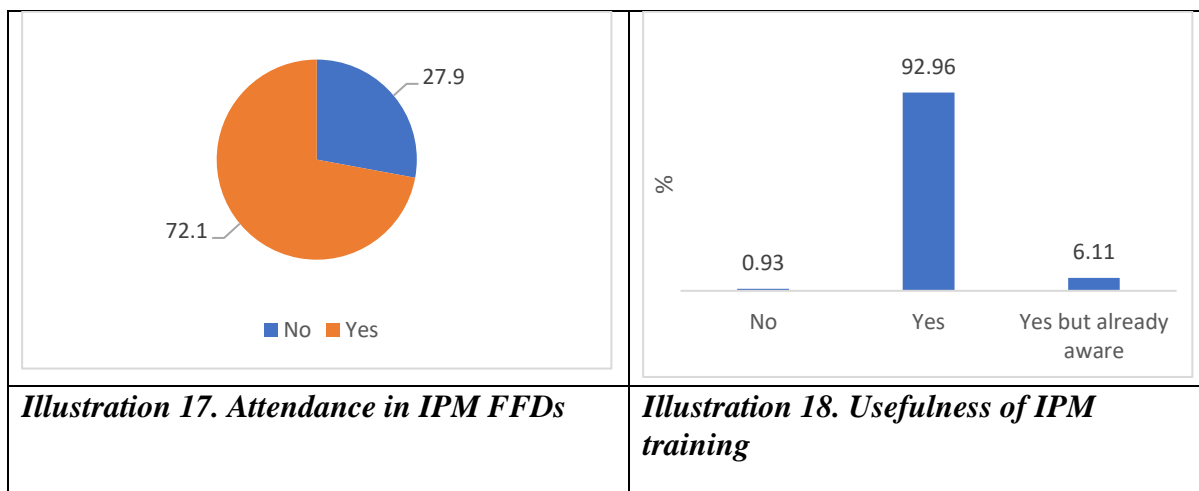
**Illustration 15. Pest management before AFI**



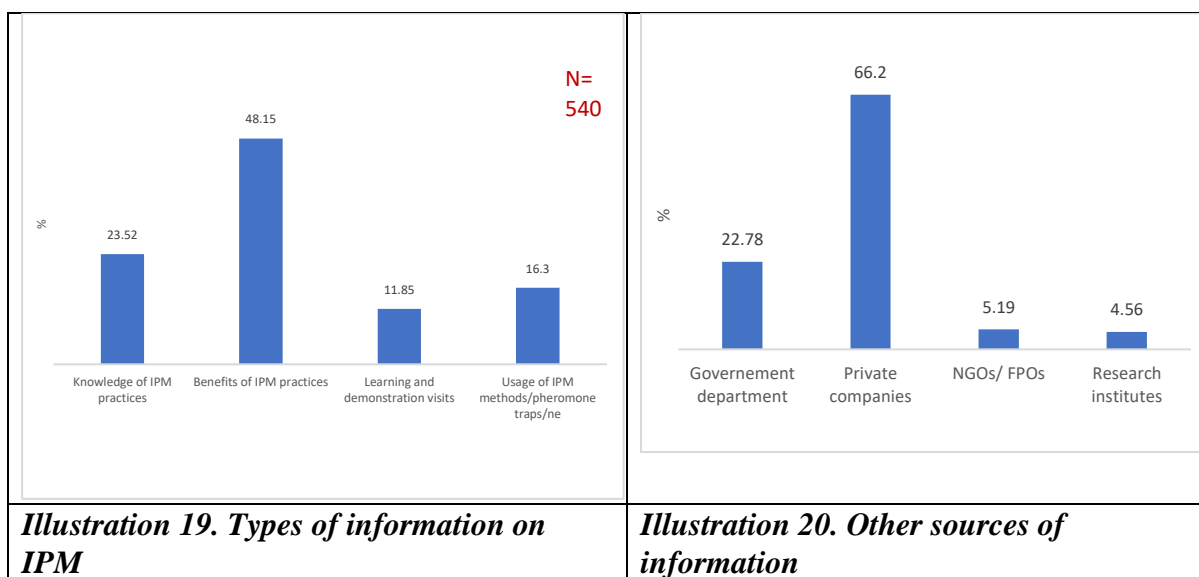
**Illustration 16. Current Usage of Different IPM Practices**

Presently, almost 64% farmers reported using IPM practices under the AFI program. As shown in Illustration 16, out of the beneficiary farmers that are currently using IPM practices, 24% are using chemicals, 21% are using pheromone traps, 16% are using mulching, 15% are using neem cakes or neem oil spray, 10% are using biopesticides, 9% are using border crops, and 4% are using light traps. This points towards a wide range of IPM practices being adopted because of the AFI program.

A huge majority of the respondents (72%) have attended FFD sessions on IPM practices. Out of them, around 93% have found them to be useful, while 6% have said they are already aware of this GAP.

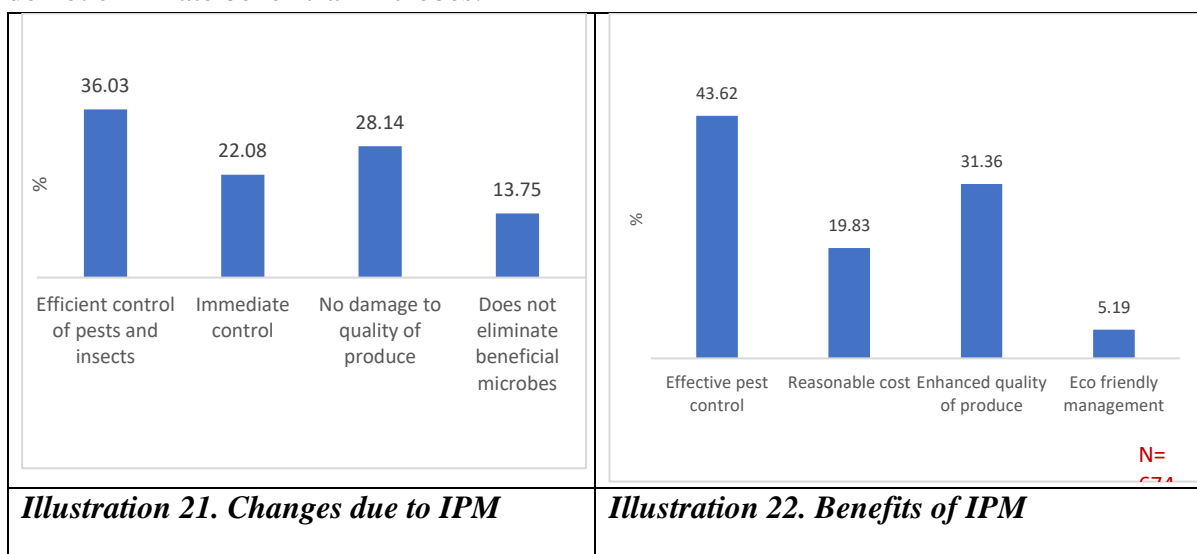


Around 48% of the participants who attended FFDs on IPM practices said they were informed about the benefits of the practice, 24% were provided with knowledge of IPM practices, 16% were informed about the usage and application of IPM practices, and 12% reported learnings from demonstration visits.



Around 47% respondents reported that they have received training or information on IPM practices from other sources recently. Around 66% of these respondents have received information from private companies, 23% have received training or information from government agriculture departments, around 5% have received training or information from research institutes, while around 5% have received training or information from NGOs and FPOs.

About 93% of the respondents reported that they have observed substantial changes in the usage of IPM practices in the last two years. Out of these, around 36% reported efficient control of pests and insects, 28% said that there was no damage to the quality of produce, 22% reported immediate control of pests and insects, and almost 14% said that IPM practices do not eliminate beneficial microbes.

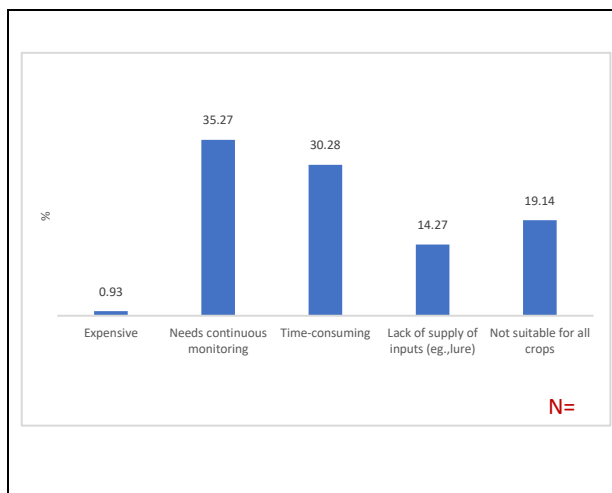


When further probed about the benefits of using IPM practices, almost 44% respondents said that it has led to effective pest control, 31% reported enhanced quality of produce, 20% said they are able to use IPM practices at a reasonable cost, and 5% said that it is an eco-friendly method of pest management.

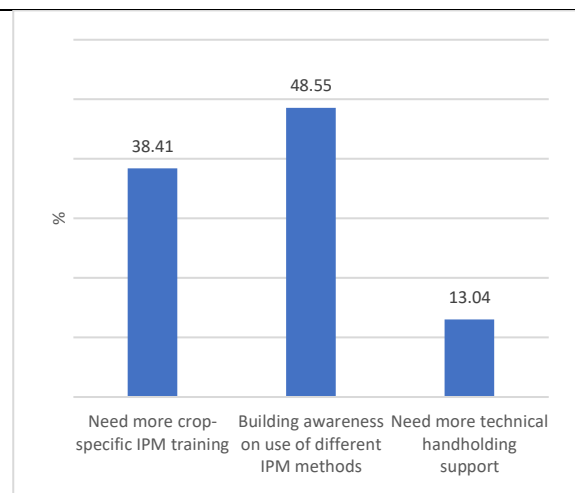
When asked if they were interested to continue using IPM practices or take it up in future, most farmers (66%) responded yes. This is a sign of encouragement and points towards behavioural change brought in by the FAI program in part due to the benefits accruing to farmers by adopting this GAP. This also means positive news for the sustainability of the GAP. For the farmers who said no, the reasons ranged from it needing continuous monitoring (35%) and being too time-consuming (30%), to the fact that it is not suitable for all crops (19%), lack of supply of inputs (14%), and it being too expensive (less than 1%).

When farmers were asked about the ways in which the adoption of IPM practices can be improved or their expectations from the AFI program, around 49% said there is a need for building more awareness on the use of different IPM methods, 38% need more crop-specific IPM training, and 13% need more technical and handholding support. This suggests that IPM is a GAP that had good attendance in FFDs, has accrued visible results in terms of pest

management which points towards its efficiency and is cost effective. The suggestions to improve adoption are more about handholding and training. Therefore, this a GAP that can be deployed at a relatively lower cost with high efficiency. The challenge is that it needs continuous monitoring and is time consuming which may not be sustainable for some farmers.



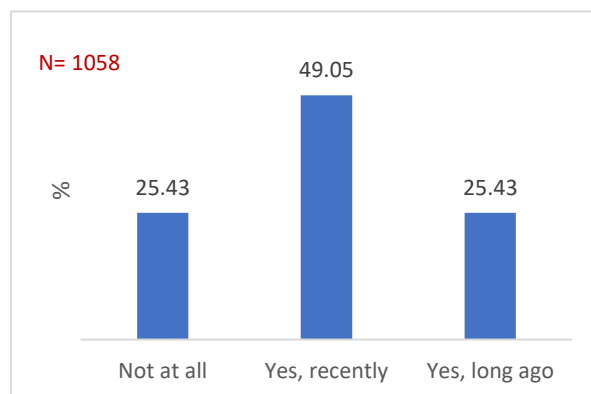
**Illustration 23. Barriers to using IPM practices**



**Illustration 24. Suggestions to improve adoption of IPM practices**

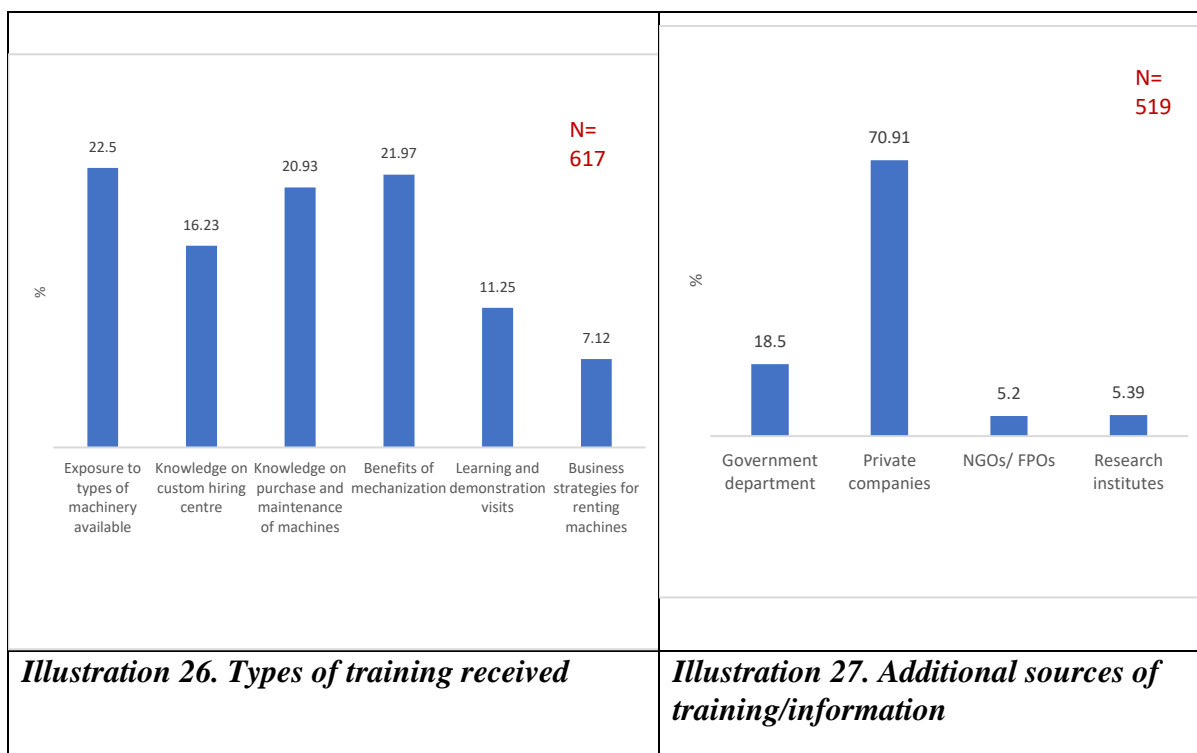
### Farm mechanization

Farm mechanisation is a widely adopted GAP in the areas of intervention. Around 88% of the respondents have said that they have been using machinery/DSR since before introduction to the AFI program. Around 49% of the respondents say field demonstrations/trainings have been conducted recently, while 25% each say FFDs were conducted a long time ago or not at all. This is shown in Figure 17. Around 82% respondents claim to have attended these sessions, out of which almost 90% found them useful. A few of them 7% are of the opinion that while the sessions are useful, they are already aware of mechanisation practices.



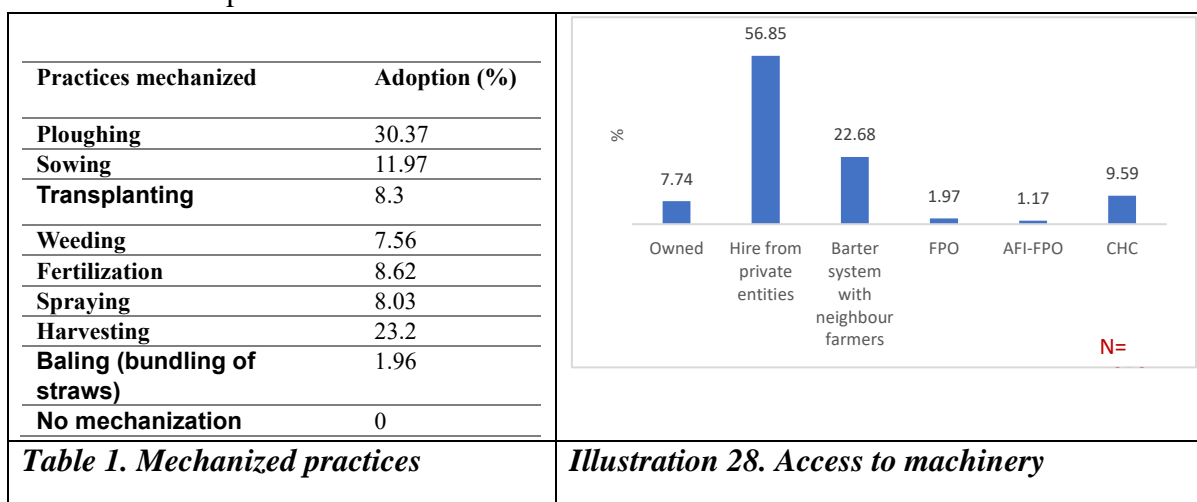
**Illustration 25. FFD on farm mechanization**

Around 23% of the participants who attended FFDs on mechanisation said they were exposed to different types of machinery available, 22% were informed about the benefits of mechanization in agriculture, 21% received knowledge on the purchase and maintenance of machinery, 16% received knowledge about custom hiring centres, 11% reported learnings from demonstration visits, and 7% became aware of business strategies for renting machinery.

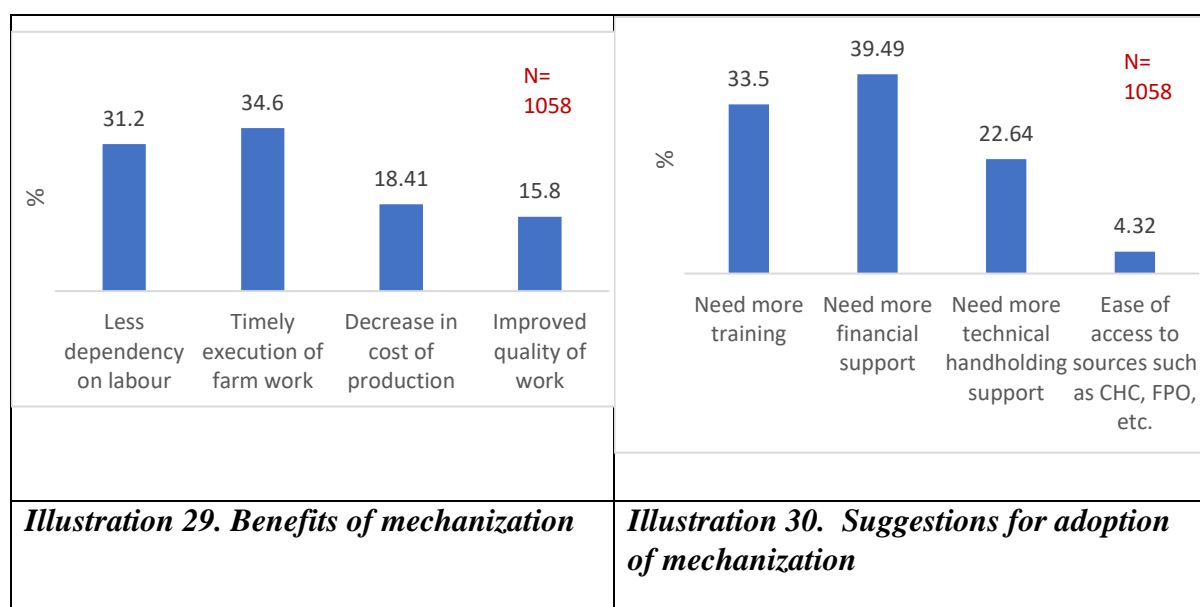


Some of the respondents reported having received training or information from additional sources other than the AFI program. Around 71% of these respondents reported having received information from private companies, around 19% have received training or information from government agriculture departments, while around 5% each reported having received training or information from NGOs/FPOs and research institutes.

When asked about the mechanisation practices they have adopted in the last two years, around 30% farmers said they use machinery for ploughing, followed by 23% who use machines for harvesting, and almost 12% use machines for sowing. Other practices for which machinery is used include fertilisation (9%), transplanting (8%), spraying (8%), weeding (8%), and baling (2%). It is noteworthy that all the respondents are using some form of machinery for farming practices, as illustrated in Table 8 where no farmers chose the ‘No mechanisation’ option.



When asked whether they have incurred additional cost on mechanisation, around 70% farmers responded yes. The average additional cost incurred was Rs. 13,369. As shown in illustration 28, only around 8% farmers have ownership over machinery. Most farmers at 57% hire machinery from private entities, 23% have established a barter system with neighbours where they exchange and utilise machines, and almost 10% rent machinery from CHCs. Approximately, 2% reported that they access machinery through FPOs, and around 1% access machinery from FPOs associated with the AFI program.



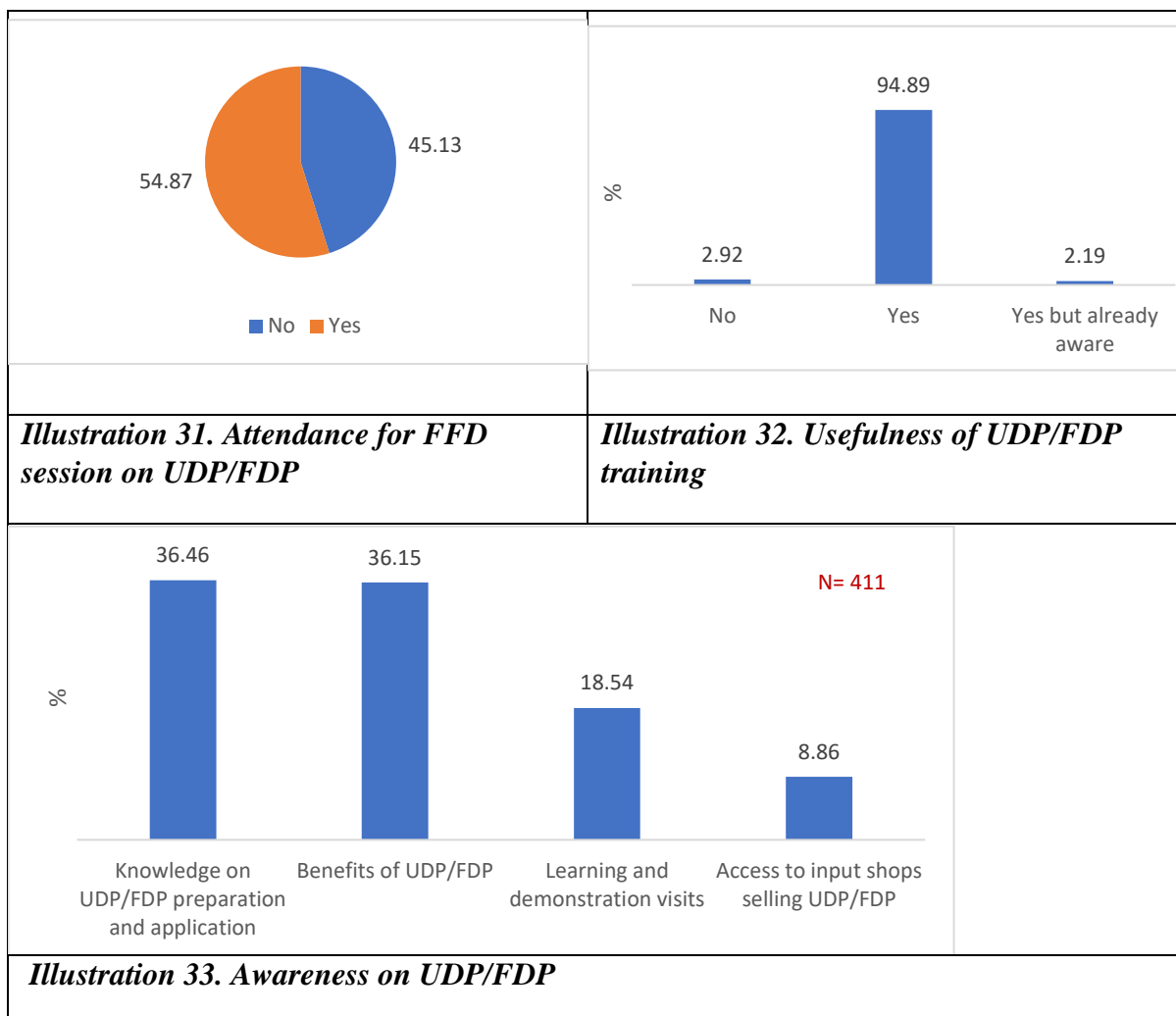
When asked about the benefits of mechanization, around 35% respondents said that it helped them in timely execution of farm work, 31% listed reduced dependency on farm labour as a benefit, 18% claimed using machinery has reduced their cost of production, and 16% reported an improvement in the quality of work.

When farmers were asked about the ways in which the adoption of mechanization can be improved, 39% said there is a need for more financial support, while almost 34% require more training and 23% need technical support and handholding in using machinery for agricultural activities.

The higher rate of acceptance and adoption of mechanisation may be due to the awareness that already existed on the benefits of mechanisation, and therefore, not requiring a change in attitude. Information about new technologies and CHCs facilitated through the AFI program may have led to a higher adoption rate. Here too, financial support is one of the leading suggestions for higher adoption. This points insufficient funds being a major barrier in adoption.

### **Urea Deep Placement/ Fertilizer Deep placement (UDP/FDP)**

About 29% of the respondent farmers are using UDP/FDP presently. Around 55% respondents have attended FFD sessions on UDP/FDP, out of which almost 95% have found them to be useful, while 2% have said they are already aware of this GAP.



Around 36% of the participants who attended FFDs on UDP/FDP said they were exposed to knowledge on preparation and application, 36% were informed about the benefits of the practice, 19% reported learnings from demonstration visits, and 9% were provided access to input shops selling the products.

About 42% respondents reported that they have received training or information on UDP/FDP from other sources recently. The sources for awareness on UDP/FDP are shown in illustration 33. Around 49% of the farmers who practice UDP/FDP presently started using it in 2022, almost 30% of them started in 2021, and about 13% started recently in 2023.

When asked about changes they have observed in UDP/FDP practice in the last 2 years, 94% said that the adoption of the GAP has increased, around 5% said that it has remained unchanged, while less than 1% reported a decrease.

When asked about the benefits of using UDP/FDP, around 37% respondents said that it has brought about an increase in yield, 31% claimed that the quality of produce has improved,

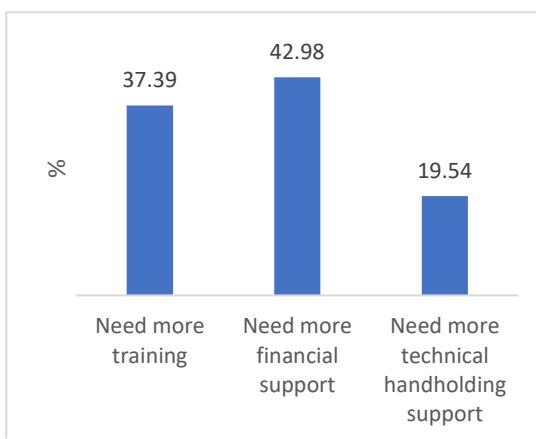
20% said they get better prices in the market from sale of produce, and 12% reported that it helps in efficient dissolving of the fertiliser. This is shown in illustration 36.

<table border="1"> <thead> <tr> <th>Source</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Government department</td> <td>24.04</td> </tr> <tr> <td>Private companies</td> <td>60.79</td> </tr> <tr> <td>NGOs / FPOs</td> <td>5.19</td> </tr> <tr> <td>Research institutes</td> <td>6.83</td> </tr> </tbody> </table>	Source	Percentage (%)	Government department	24.04	Private companies	60.79	NGOs / FPOs	5.19	Research institutes	6.83	<table border="1"> <thead> <tr> <th>Response</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>No</td> <td>4.97</td> </tr> <tr> <td>Yes, increased</td> <td>94.04</td> </tr> <tr> <td>Yes, decreased</td> <td>0.99</td> </tr> </tbody> </table>	Response	Percentage (%)	No	4.97	Yes, increased	94.04	Yes, decreased	0.99		
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<p><b>Illustration 34. Other sources of information</b></p>	<p><b>Illustration 35. Changes in UDP/FDP usage</b></p>																				
<table border="1"> <thead> <tr> <th>Benefit</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Increase in yield</td> <td>36.79</td> </tr> <tr> <td>Better quality of produce</td> <td>31.15</td> </tr> <tr> <td>Better price realization</td> <td>20.13</td> </tr> <tr> <td>Efficient dissolving of fertilizer</td> <td>11.92</td> </tr> </tbody> </table>	Benefit	Percentage (%)	Increase in yield	36.79	Better quality of produce	31.15	Better price realization	20.13	Efficient dissolving of fertilizer	11.92	<table border="1"> <thead> <tr> <th>Barrier</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Expensive</td> <td>29.69</td> </tr> <tr> <td>No differentiated demand</td> <td>24.94</td> </tr> <tr> <td>Time consuming</td> <td>24.02</td> </tr> <tr> <td>Labour-intensive</td> <td>20.85</td> </tr> </tbody> </table> <p style="text-align: right; color: red;">N=570</p>	Barrier	Percentage (%)	Expensive	29.69	No differentiated demand	24.94	Time consuming	24.02	Labour-intensive	20.85
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<p><b>Illustration 36. Benefits of using UDP/FDP</b></p>	<p><b>Illustration 37. Barriers to FDP/UDP adoption</b></p>																				

When asked if they were interested to continue using UDP/FDP or take it up in future, most farmers (54%) responded no. When probed about the reason for this decision, almost 30% of the respondents said that it is too expensive, 25% said they receive no differentiated demand for their produce and hence it is not profitable for them, 24% reported that it is time-consuming, while 21% said that it is labour-intensive. These responses point towards the unsustainability of this GAP in the present financial and market conditions. It may be

beneficial then to create strong market linkages with private players to help farmers sell the higher quality product after using UDP/ FDP technology at a rate commensurate with the quality.

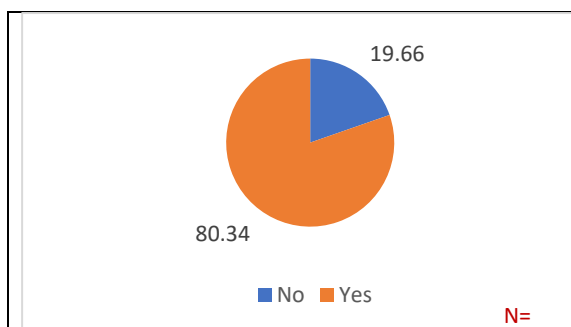
When farmers were asked about the ways in which the adoption of UDP/FDP can be improved, around 43% said there is a need for more financial support, 37% require more training, and around 20% need technical support and handholding for using UDP/FDP.



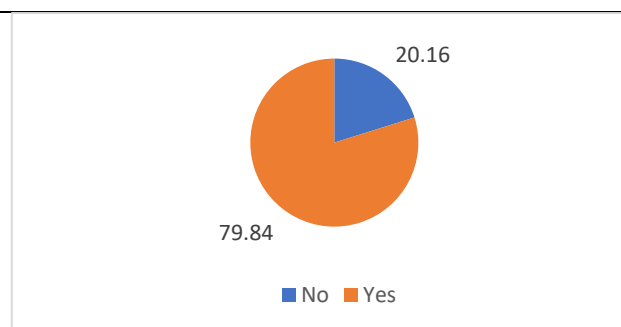
**Illustration 38. Suggestions to improve UDP/FDP adoption**

### Improved varieties of seeds

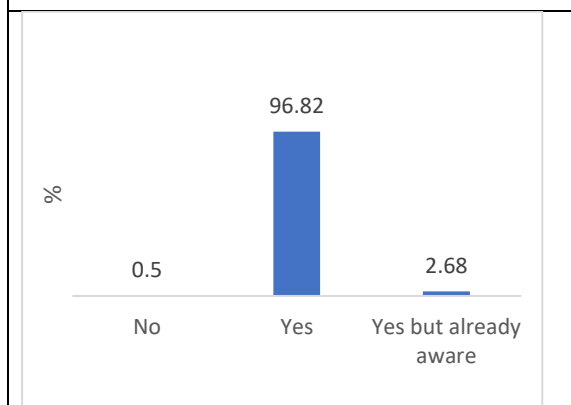
When asked about their usage of improved varieties of seeds such as Telangana Sona for paddy, black gram and green gram for pulses, groundnut, etc. before the AFI program, most farmers (86%) responded yes. Presently, 80% farmers are using improved varieties of seeds. Around 80% respondents have attended FFD sessions on improved varieties of seeds. Out of them, around 97% have found them to be useful, while 3% have said they are already aware of this GAP.



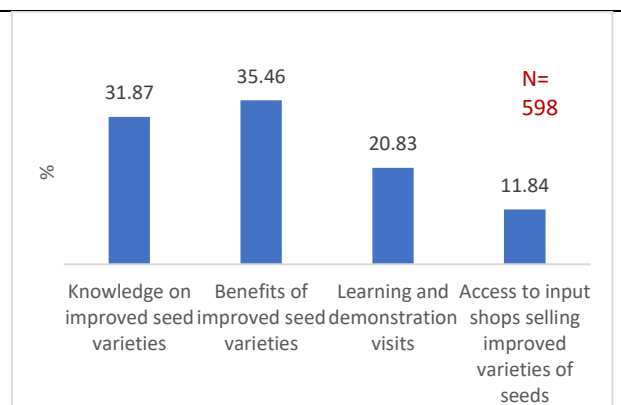
**Illustration 39. Usage of improved seed varieties**



**Illustration 40. Participation in FFD on improved seed varieties**



**Illustration 41. Usefulness of training**

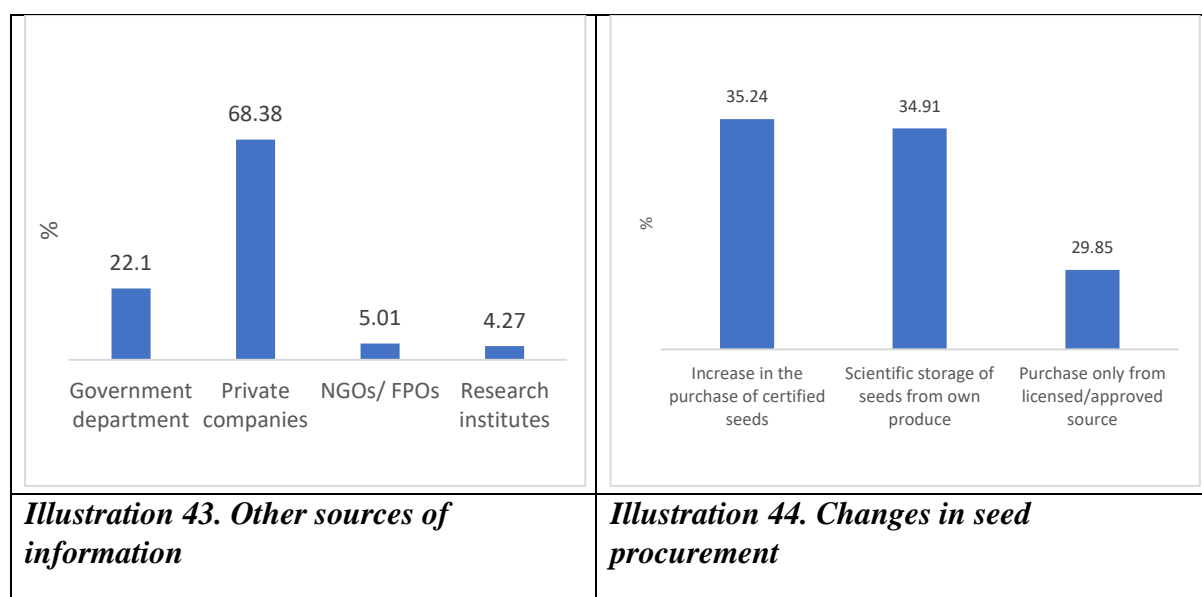


**Illustration 42. Types of information**

Around 35% of the participants who attended FFDs on improved varieties of seeds said they were informed about the benefits of using them, 32% received knowledge about improved seed varieties, 21% reported learnings from demonstration visits, and 12% were provided access to input shops selling improved varieties of seeds.

Around 51% respondents reported that they have received training or information on improved seed varieties from other sources recently. Around 68% of these respondents have received information from private companies, around 22% have received training or information from government agriculture departments, around 4% have received training or information from research institutes, while around 5% have received training or information from NGOs and FPOs.

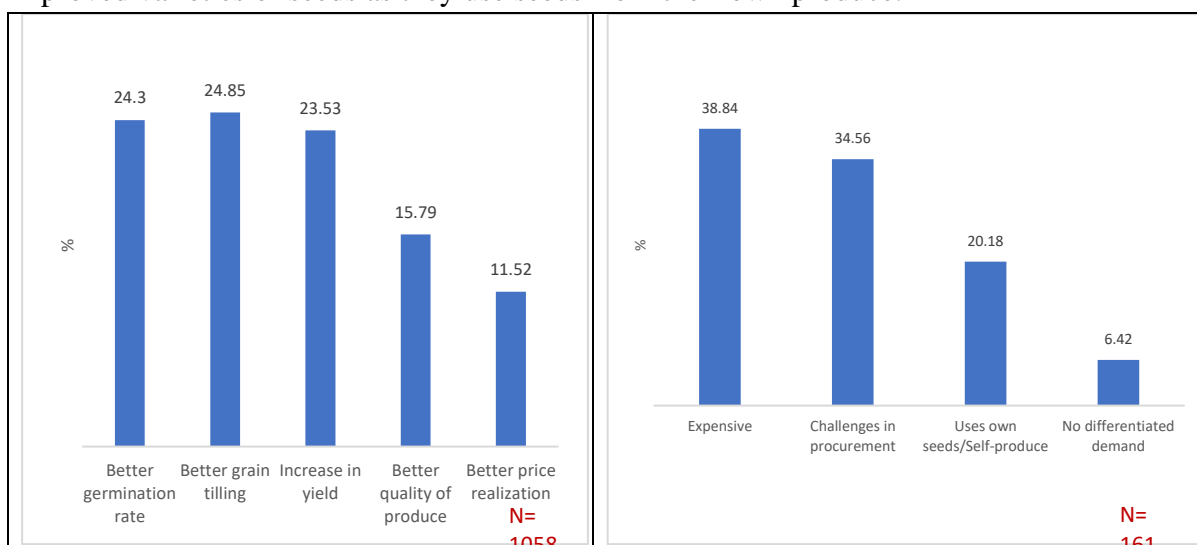
While several farmers reported using improved varieties of seeds since the early 2000s, about 16% started in 2021, around 31% of the farmers started using it in 2022, and almost 30% of them started in 2023. An overwhelming majority of 92% respondents reported a change in seed procurement in the last 2 years, with 35% reporting an increase in the purchase of certified seeds, 35% claiming to scientifically store seeds from their own produce, while 30% said that they now purchase seeds only from licensed sources. These numbers point to the success of the FFDs in disseminating this GAP.



When asked about the benefits of using improved seed varieties, around 25% respondents said that it has resulted in better grain tilling, 24% said that it has led to better germination rate, 23% reported an increase in yield, 16% said it has improved the quality of produce, and 12% said they receive better prices in the market for their produce as a result.

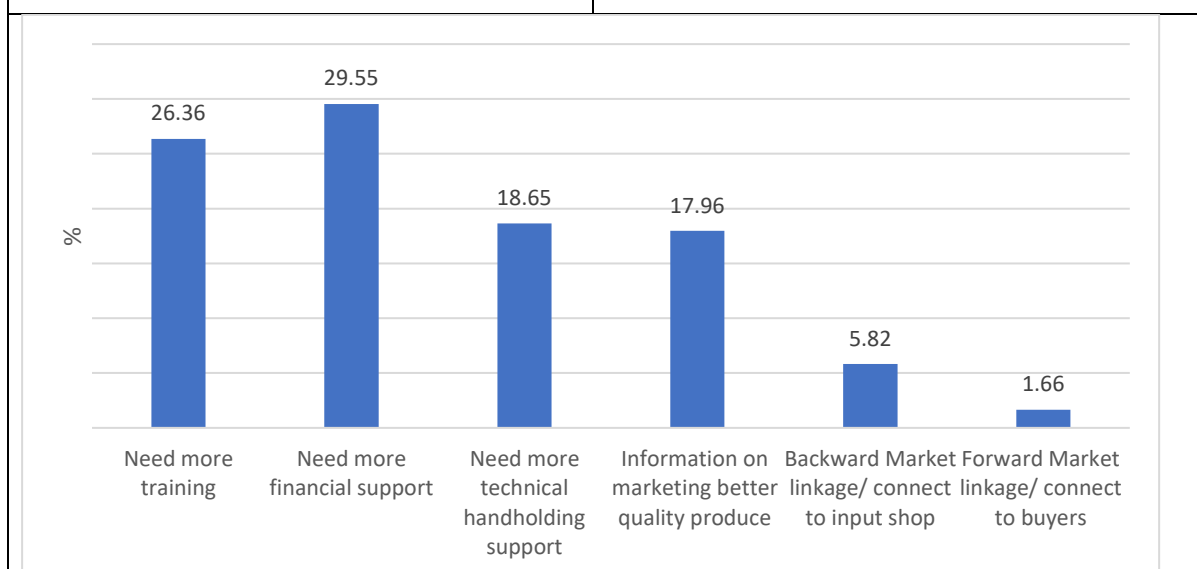
When asked if they were interested to continue using improved varieties of seeds or take it up in future, most farmers (85%) responded yes, which is a positive sign. For the 15% who said no, the reasons ranged from it being too expensive (39%), to challenges in procurement

(35%), and the lack of differentiated demand (6%). 20% said they do not plan on procuring improved varieties of seeds as they use seeds from their own produce.



**Illustration 45. Benefits of using quality seeds**

**Illustration 46. Barriers to quality seed usage**

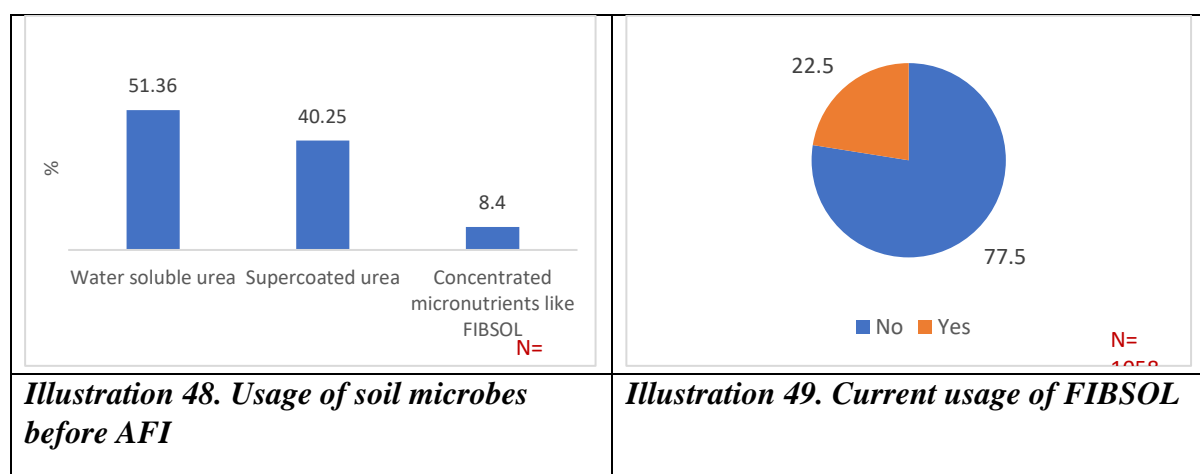


**Illustration 47. Suggestions to improve usage of quality seeds**

When farmers were asked about the ways in which the adoption of improved varieties of seeds can be improved or their expectations from the AFI program, around 30% said there is a need for more financial support, 26% require more training, almost 19% need technical support and handholding for using improved seed varieties, and almost 18% need more information on marketing better quality produce. Around 6% and 2% of the respondents expect better backward and forward market linkages respectively, which would help strengthen the networks between input shops, farmers and buyers. Therefore, there is a need to double down efforts for backward linkages to reduce the costs of GAPs, including reduced price and accessibility reducing transportation and opportunity costs, and forward linkages to ensure better price for crops grown using GAPs.

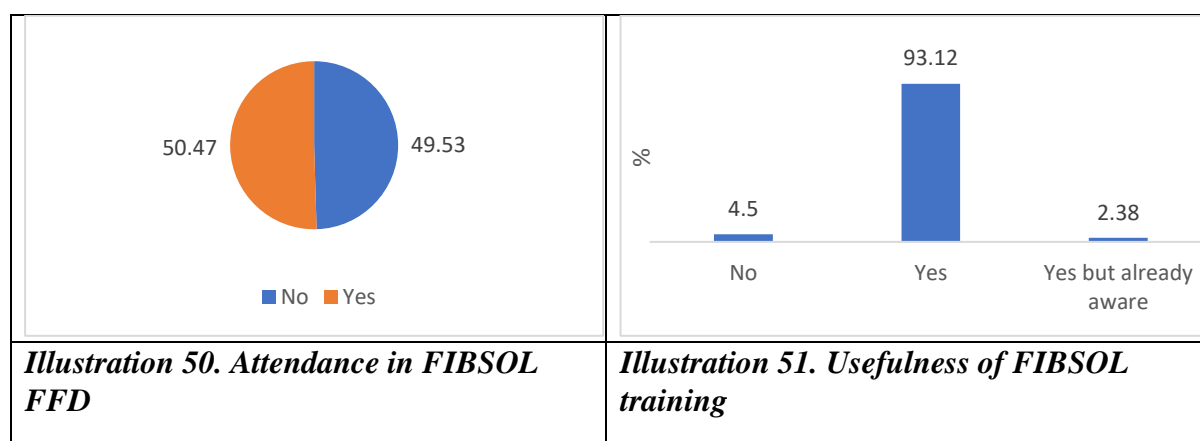
## **FIBSOL – Application of beneficial soil micro-organisms and biological agents for crop management**

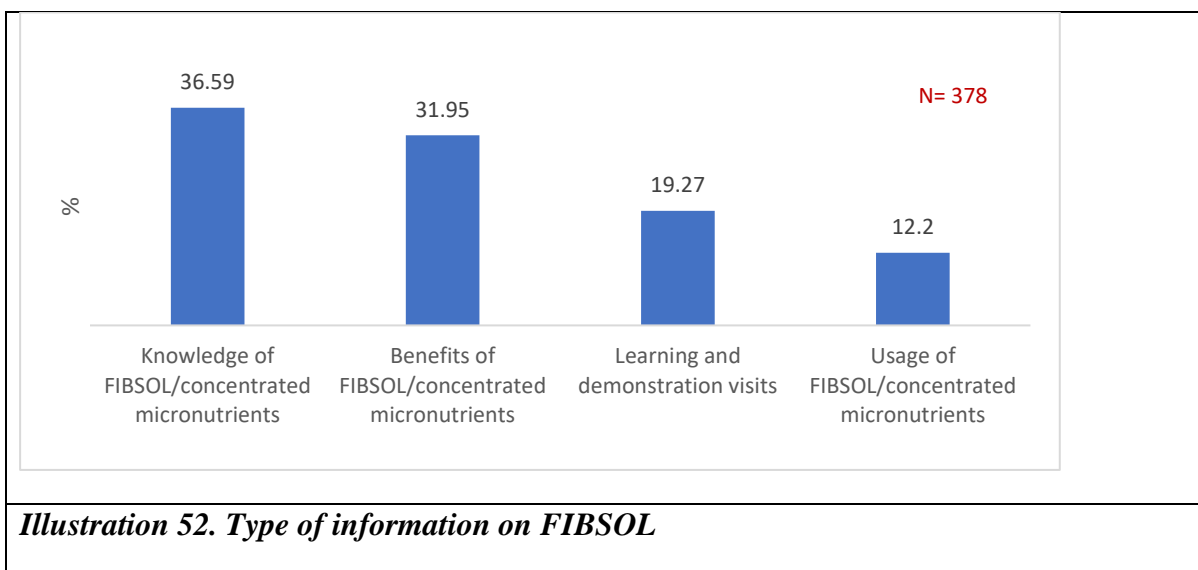
When asked about their usage of soil microbes such as Azosprillum, Azatobactor, and Rhizobium, or highly concentrated inputs such as FIBSOL and liquid urea before the AFI program, almost 67% respondents said no. Out of the respondents who said yes, more than half (51%) were using water soluble urea, 40% were using super coated urea, while only 8% were using concentrated micronutrients like FIBSOL.



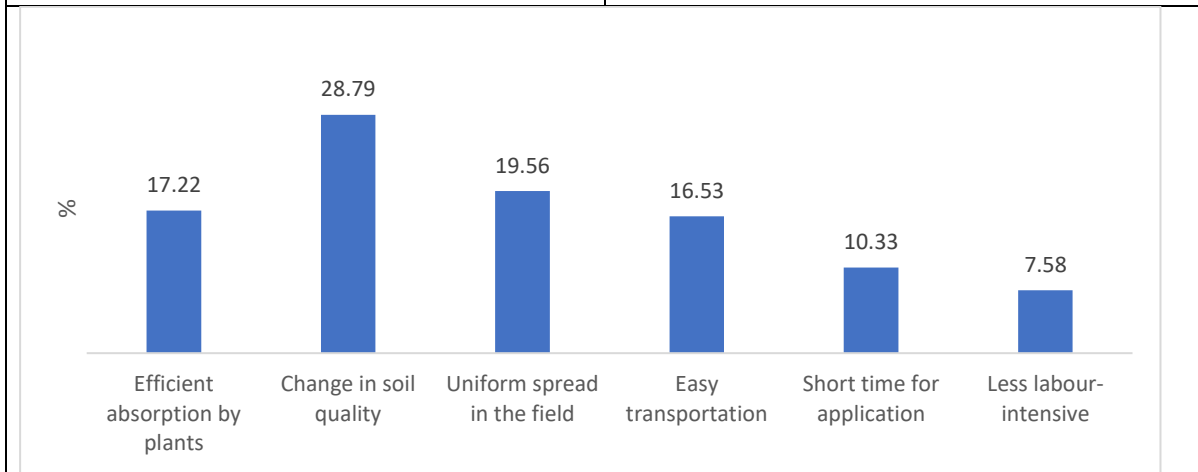
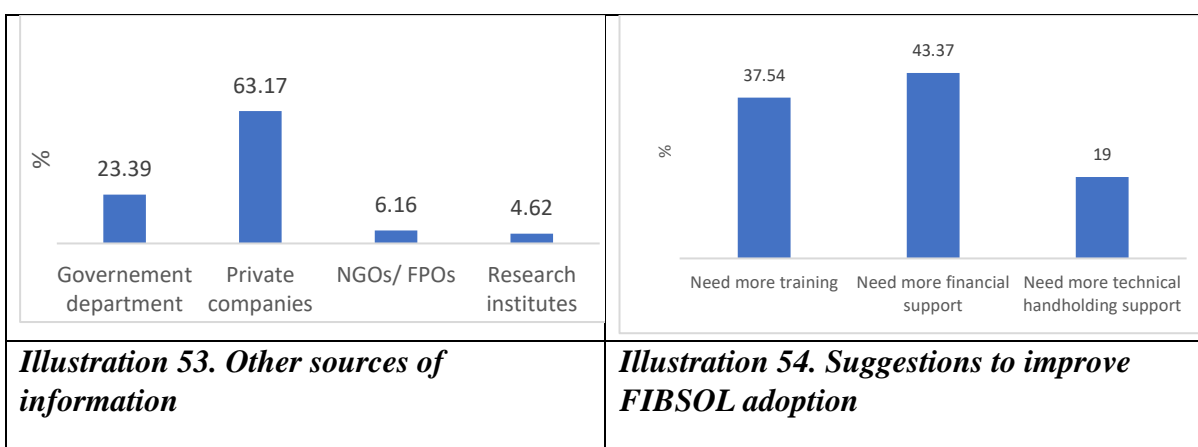
Presently, around 23% farmers reported using FIBSOL under the AFI intervention. Half of the respondents (50%) have attended FFD sessions on FIBSOL. Out of them, around 93% have found them to be useful, 2% have said they are already aware of this GAP, while almost 5% did not find them to be useful.

Around 37% of the participants who attended FFDs on FIBSOL said they were provided with knowledge of FIBSOL and other concentrated micronutrients, 32% were informed about the benefits of the practice, 19% reported learnings from demonstration visits, and 12% were informed about the usage and application of FIBSOL and other concentrated micronutrients.

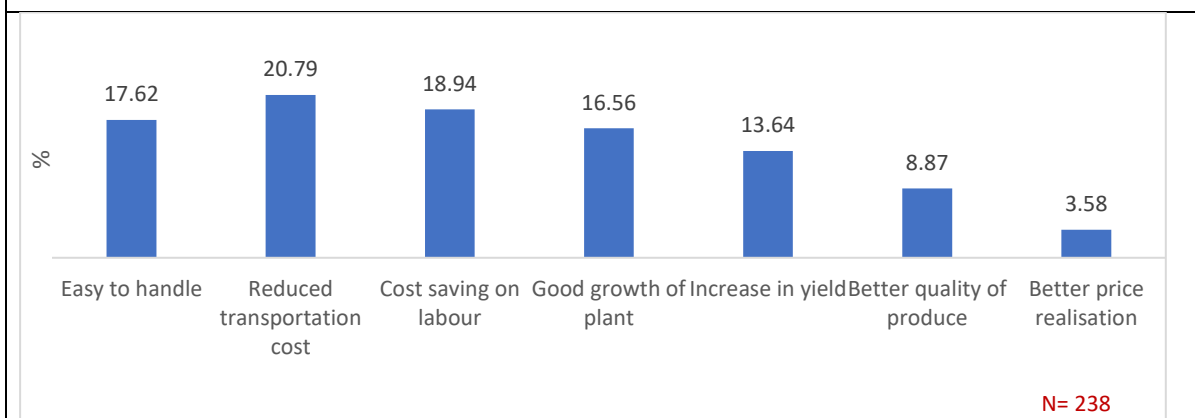




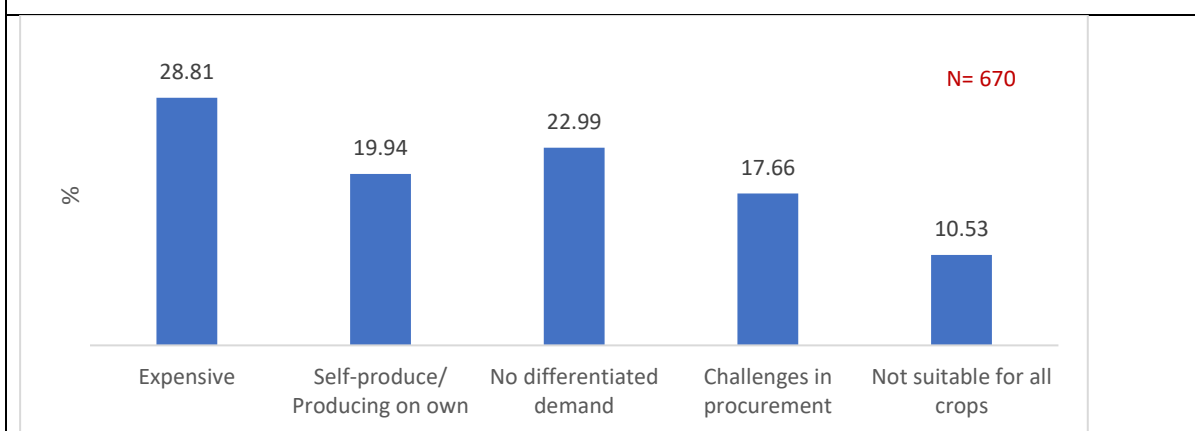
Around 35% respondents reported that they have received training or information on FIBSOL and other concentrated micronutrients from other sources recently. Around 63% of these respondents have received information from private companies, 23% have received training or information from government agriculture departments, around 5% have received training or information from research institutes, while around 6% have received training or information from NGOs and FPOs.



**Illustration 55. Changes due to FIBSOL usage**



**Illustration 56. Benefits of FIBSOL**



**Illustration 57. Barriers to FIBSOL usage**

While a few farmers reported using FIBSOL or other concentrated micronutrients since between 2015 and 2020, around 31% of them started in 2021, around 47% of the respondents started using it in 2022, and about 19% started only recently in 2023. 96% of the respondents reported that they have observed substantial changes in the usage of FIBSOL and other concentrated micronutrients and their associated benefits in the last two years. Out of these, almost 29% observed changes in soil quality, 20% reported uniform spread in the field, 17% observed more efficient absorption by plants, 17% said that the ease of transportation has improved, 10% said that it now takes lesser time for application, while 8% said that it is less labour-intensive.

When asked about the benefits of using FIBSOL or other concentrated micronutrients, around 21% respondents said that it has reduced transportation cost, 19% reported cost-saving on labour as the process has become less labour-intensive, 18% said that it is easy to handle, 17% reported good growth of plants, 14% reported an increase in yield, 9% said the quality of produce has improved, and 4% said they receive better prices in the market for their produce as a result.

When asked if they were interested to continue using FIBSOL or take it up in future, most farmers (63%) responded no. This points towards the barriers that exist in adoption of this GAP which has negative implications for its sustainability. When probed about the reasons for discontinuation, the reasons ranged from it being too expensive (29%), to challenges in procurement (18%), lack of differentiated demand for crops grown under this practice (23%), and the fact that it is not suitable for all crops (11%). 20% said they do not plan on using FIBSOL as they produce their own inputs.

When farmers were asked about the ways in which the adoption of FIBSOL can be improved or their expectations from the AFI program, around 43% said there is a need for more financial support, 38% require more training, and 19% need technical support and handholding for usage and application of FIBSOL.

### Promoting Safe Vegetable Cultivation through Home Garden Kits

Most farmers in the target geography do not prefer to engage in commercial cultivation of vegetables during Kharif season. The vegetables cultivated during this season are either for home consumption or for local markets. In view of this, the project team decided to promote safe vegetable cultivation in home gardens.

The AFI project partnered with the World Vegetable Center (WorldVeg) to promote safe vegetable cultivation. As part of the intervention, the team undertook a needs assessment to understand the vegetable cultivation practices in the target geography. The assessment indicated that farmers cultivate few types of vegetables, indiscriminately use agrochemicals, and are not familiar with improved vegetable cultivation practices. Based on this, a plan was developed to provide a kit of 16 vegetable seeds, to be grown on a small area of 36 m<sup>2</sup>, to each household and train them in safe vegetable cultivation practices. This activity has the following objectives:

- Disseminate GAPs on safe vegetable cultivation, avoiding unnecessary use of agrochemicals.
- Expose farmers to the cultivation of improved varieties (for example, the photo insensitive Dolichos bean and multi-cut varieties of leafy vegetables) of various types of vegetables.
- Improve frequency and quantity of intra-household consumption of vegetables.
- Encourage farmers to begin or expand vegetable cultivation by replacing cereal in some part of their farms.

WorldVeg experts designed a home garden kit with 16 improved varieties of vegetables. The AFI project team procured these vegetable seeds from the Indian Institute of Horticulture Research (IIHR), WorldVeg, and the local market. Trainings on safe vegetable cultivation were organized with the help of Tuniki and Madanapuram KVKs, FPOs, and AFI Champions. A total of 6269 beneficiary families received these kits to produce vegetables in their homestead. The project team worked with the partner organizations and individuals to monitor the vegetable garden establishment.



*Beneficiaries of the safe vegetable production through vegetable garden kits intervention*

**Box 8. Underprivileged children and pregnant and lactating women benefit from nutritious vegetables**

The project’s safe vegetable garden intervention benefited 481 Anganwadi centers in Medak District. These government operated-centers provide health support to underprivileged children as well as pregnant and lactating women. The vegetable garden kits helped these centers cultivate 16 types of nutritious vegetables in vacant space on the premises. In Thimmayapalli village, the garden is supporting 30 children and 18 women every day to have nutritious food as part of the mid-day meal program. The Anganwadi workers are very happy that the intervention has been complementing their meager mid-day meals and provide nutritious food to the needy community members.



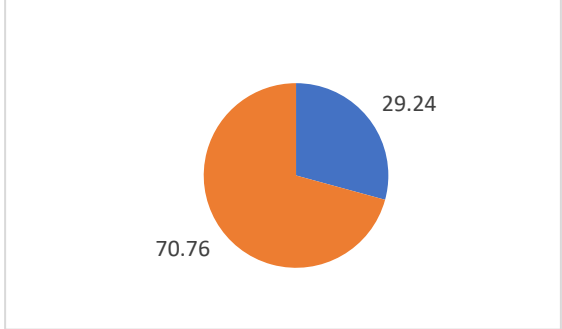
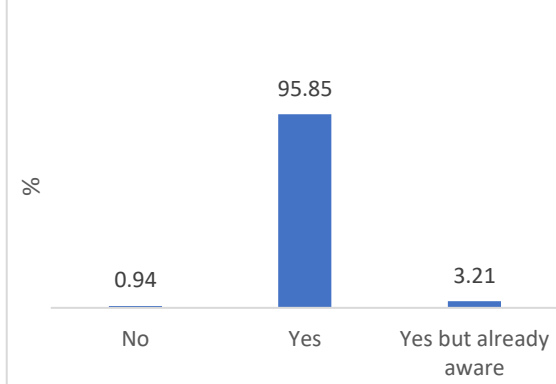
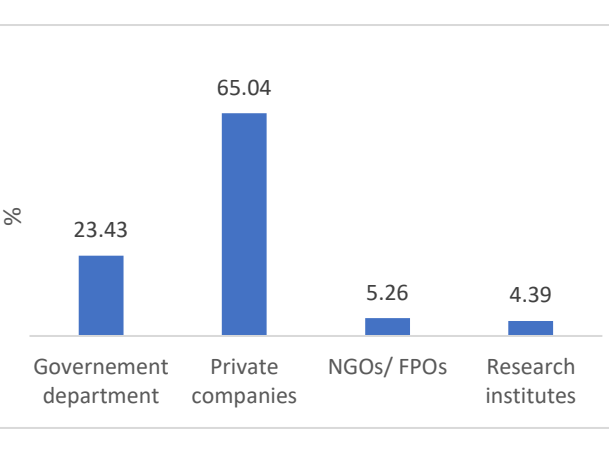
*Renuka, Anganwadi Teacher, Thimmayapalli village, Medak district, inspecting the vegetable garden*

The endline study team noted that 58% of the beneficiary farmers had been practicing vegetable production before the AFI program. When asked whether they are currently practicing safe vegetable production as part of the AFI intervention, around 53% responded yes. Around 71% respondents attended FFD sessions on safe vegetable production. Out of them, around 96% have found them to be useful, while 3% have said they are already aware of this GAP. The other 1% did not find it useful. (Illustration 58 and 59)

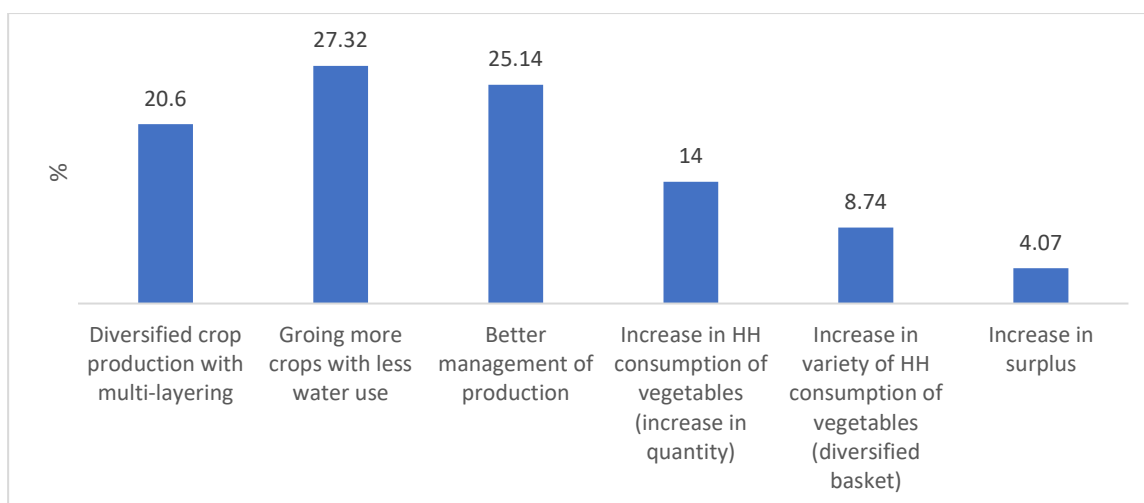
Around 34% of the participants who attended FFDs on safe vegetable production said they were informed about the benefits of the practice, 32% received knowledge about the concept of safe vegetable production, 20% reported learnings from demonstration visits, and 13% were informed about the usage of safe vegetable production kits.

Around 50% respondents reported that they have received training or information on safe vegetable production from other sources recently. Around 65% of these respondents have received information from private companies, 23% have received training or information from government agriculture departments, around 4% have received training or information

from research institutes, while around 5% have received training or information from NGOs and FPOs.

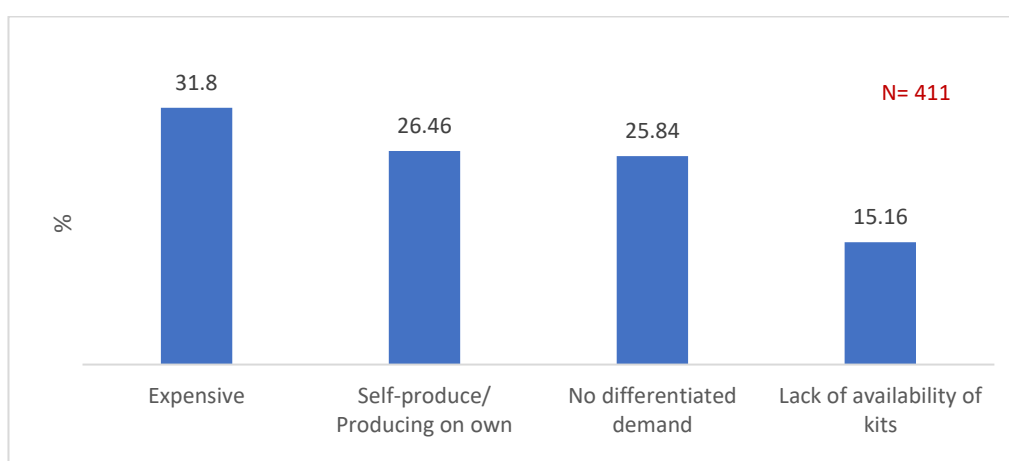
	
<p><b>Illustration 58. Attendance in FFD</b></p>	<p><b>Illustration 59. Usefulness of training</b></p>
	
<p><b>Illustration 60. Other training/information sources</b></p>	

While a few farmers reported practicing vegetable production since the early 2000s, about 16% started in 2021, around 43% of the respondents started practicing safe vegetable production in 2022, and around 24% of them started in 2023. A lot of positive changes have been observed in vegetable production in the last 2 years. Around 27% respondents reported growing more crops with less water use, 25% reported better management of production, 21% have been diversifying crop production with multi-layering, 14% reported an increase in the quantity of household consumption of vegetables, 9% reported dietary diversification at the household level due to the availability of a variety of vegetables, and 4% have benefitted from an increase in marketable surplus.



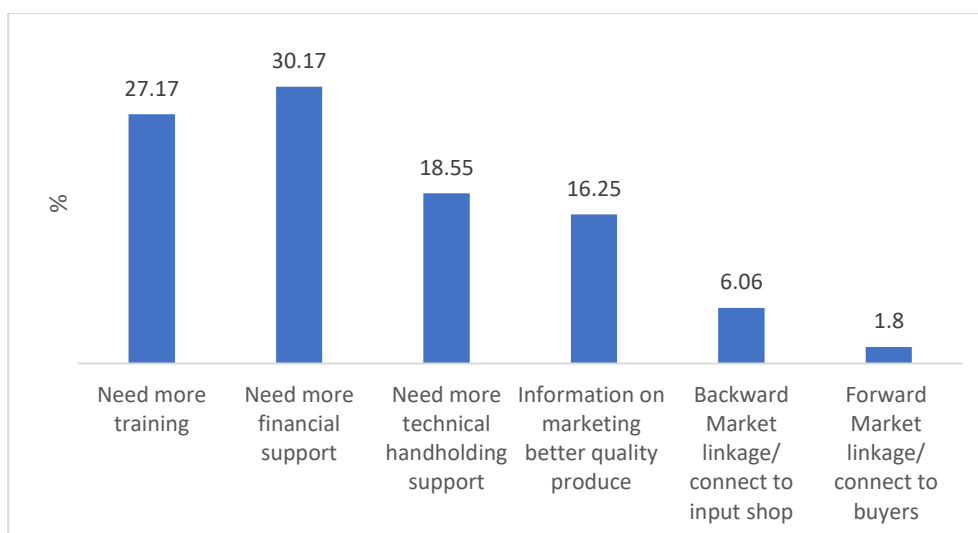
**Illustration 61. Changes in vegetable production**

When asked if they were interested to continue practicing safe vegetable production or take it up in future, most farmers (61%) responded yes. This encouraging finding highlights the financial and nutritional benefits that this GAP has brought about for farmers in the intervention geography, which has contributed towards its sustainability. A qualitative insight from AFICs is that women were more interested in this GAP as it had nutritional benefits. For the respondents who said no, the reasons ranged from it being too expensive (32%), to lack of availability of safe vegetable production kits (15%), and the lack of differentiated demand for vegetables grown under this practice (26%). Another 26% said they do not plan on using the kits as they use seeds from their own produce.



**Illustration 62. Barriers to practicing safe vegetable production**

When farmers were asked about the ways in which the adoption of safe vegetable production can be improved or their expectations from the AFI program, around 30% said there is a need for more financial support, 27% require more training, almost 19% need technical support and handholding for practicing safe vegetable production, and around 16% need more information on marketing better quality produce. Around 6% and 2% of the respondents expect better backward and forward market linkages respectively, which would help strengthen the networks between input shops, farmers and buyers.



**Illustration 63. Suggestions to improve adoption of safe vegetable production**

### Training on Vegetable Grafting

Vegetable grafting is a technique of producing good-quality seedlings by combining the best characteristics of two plant species. For instance, grafting tomato on an eggplant will allow the tomato to have the best characteristics of the eggplant (hardiness). These grafts have been proven to prevent soil-borne diseases and contribute to higher yield. The project team proposed this training to impart the grafting skill to beneficiaries, with the expectation that some will produce these grafts and make them available to fellow farmers.

The project organized vegetable grafting trainings to benefit 293 rural youth and women. WorldVeg experts delivered practical training in which each trainee could practice grafting of 25 seedlings: golden tomato shoot on wild eggplant rootstock; bitter gourd on sponge gourd; and cucumber on pumpkin. Subsequently, the project team followed up with these trainees, some of whom are AFI Champions, to produce grafted seedlings and make them available in their respective villages at a reasonable cost. Local agricultural extension department officials and KVK experts also participated enthusiastically in this practical training. These events were widely covered in local print media. The project team has been in touch with commercial banks and non-banking financial institutions to facilitate loans for rural entrepreneurs who are interested in setting up nurseries.

**Table 5. Beneficiaries of vegetable grafting training**

S. No.	Venue	Male Trainees	Female Trainees	Total Trainees
1.	Guduru village, Rangareddy District	10	60	70
2.	Ramayampet, Medak district	73		73
3.	Rudraram village, Mahabubnagar District	50	10	60
4.	Madanapuram village, Wanaparthy District	80	10	90
	<b>Total</b>	<b>213</b>	<b>80</b>	<b>293</b>

## మహిళా రైతులకు అంట్లు కట్టి విధానంలో శిక్షణ



కొత్తూరు 22 సెప్టెంబర్ (ఆవాజ్ హైదరాబాద్): మండలంలోని గూడూరు గ్రామపంచాయతీలో గురువారం గ్రామ సర్పంచ్ సత్తయ్య ఆధ్వర్యంలో మహిళా రైతులకు కూరగాయ పంటలో అంట్లు కట్టి విధానంపై శిక్షణ కార్యక్రమం నిర్వహించారు. ముఖ్యంగా టమాటం, వంగ, కీర, గుమ్మడి పంటలలో అంట్లుగంటే విధానం గురించి ప్రత్యక్షంగా నిర్వహించారు. ఈ కార్యక్రమానికి ముఖ్యఅతిథిగా నవ్య అగ్రికల్చర్ సైపెరిస్ట్ రివి హోజరయ్యారు. ఈ సందర్భంగా ఆయన మాట్లాడుతూ.. రైతుల్లో పంటల పెట్టుబడును తగ్గించి దిగుబడులు పెంచి ఆదాయాలు పెంచాలనేదే ముఖ్య ఉద్దేశం అని వారు పేర్కొన్నారు. కార్యక్రమంలో ఎన్ ఎంఐ లావణ్య, వినోద్ మరియు సరిత, లావణ్య, సంధ్య గ్రామ మహిళా రైతులు తదితరులు హాజరయ్యారు.

*Vegetable grafting training at Gudur village in Rangareddy District (left) and media coverage of the event (right)*

## Facilitating Farmer-Market Linkages

One of the major challenges faced by farmers in the region is exploitative market conditions. Addressing this situation could contribute to a 20-30% improvement in the farmers' income. The project implemented multiple activities during the reporting period to facilitate farmer-market linkages.

## Onboarding Institutional Buyers

Connecting farmers and FPOs directly to institutional buyers has the potential for a win-win situation in which farmers will be supplying the required quality material to buyers, and in turn, the buyers will be paying a fair price to the farmers. This arrangement helps farmers to understand the quality and quantity requirements and thus make the necessary adjustments in their crop production practices. The institutional buyers understand the location and estimated quantity of produce of required quality so they can make the necessary inventory planning.

The project team approached several institutional buyers for paddy, maize, vegetables, and groundnut. These included:

1. Ninjakart, Vijetha Super Market, More Super Market, Ratnadeep Super Market, Radisson Hotels, and Meesho for vegetable market linkages.
2. Venkateshwara Hatcheries, Suguna Chicken, and Sneha Poultry Farms for maize market linkages.
3. Deccan Mudra, Befach, rice millers such as Sri Raghavendra Industries, Boyapalli, Mahabubnagar, and Reliance Mart for paddy market linkages.
4. Cold press-oil extraction units such as Gajanana Industries, Jadcherla, Lakshmi Venkateshwara Industries, Jadcherla, Wanaparthy Mandala Mahila Paraspara Sahakara Samakhya (WANA) oil mill, Sriharihara traders, and Sri Saibaba oil mill in Wanaparthy for groundnut market linkages.

Several rounds of discussions were held with senior-level, mid-level, and local representatives of these companies to understand their preferences, concerns, and quality requirements. The same has been communicated to the FPOs and village-level aggregators.

The project team received appreciation from all these institutional buyers for its efforts to facilitate quality produce exchange between producers and processing units.



*Sunil, operations manager of Suraksha FPO's collection center, inspecting the grading and sorting of vegetables*

### **Box 9. FPO vegetable collection center expects a higher margin from vegetable sales and diversified orders**

Suraksha FPO is one of the 30 FPOs supported by the project. The FPO established a vegetable collection center six months ago and is currently servicing about 200 member farmers and selling about 1.5 mt per day. They depend on middlemen to sell their produce to institutional buyers, losing up to 70% of the profit as they do not have a vendor code with an institutional buyer. The project team helped this FPO to secure a vendor code with a supermarket chain. The project team

recently connected the FPO to Radisson Hotels and helped them understand the vegetable supply requirements. Sunil, who works as the operations manager of the collection center and is also a vegetable grower, told the project team that the FPO used to sell mainly four types of vegetables. Now they understand that they can sell 12-15 types of vegetables. The FPO educated their member farmers to cultivate these vegetables, so that they can be sold to Radisson Hotels directly through an institutional arrangement.

## **Establishing Vegetable Collection Centers**

To ensure better prices for beneficiary farmers, the project team worked with 12 FPOs to establish vegetable collection centers – places where FPO members can pool their vegetables, grade and sort them, and send them directly to the markets (institutional buyers and local traders). This intervention is expected to address the exploitation (arbitrary quality assessment, price determination, and weighing malpractices) that is prevalent when middlemen are involved.

The project team held several rounds of meetings with FPO leaders and member farmers to explain the advantages and the process. The project team worked with the FPOs and finalized standard operating procedures for collection centers, assisted them in mapping farmers and villages that will be utilizing the collection center services, and supported them in procuring necessary infrastructure, such as crates, a grading table, weighing scale, and receipt books.

The project team facilitated an exposure visit of six FPO representatives to a successfully operating collection center in Mulugu, Medak. This visit helped the FPO representatives become motivated and learn the operational modalities.

The project facilitated access to vendor codes from supermarkets for these centers, which enabled them to sell the pooled vegetables directly to the supermarkets. A total of INR 37,55,000 (about U.S. \$47,000) worth of vegetables were sold by three centers. The project supported six centers to obtain solar vegetable dryers. These dryers help the centers dry C-grade vegetables (vegetables that have some physical damage) and sell the dried produce to companies for additional income. These types of vegetables are usually thrown away or fed to cattle, but now, farmers cut and dry them hygienically to earn more money. Based on the market demand,



some of these centers have also begun drying flowers using these dryers. Due to this intervention, the beneficiary farmers and FPOs have additional income through better prices for the vegetables that no longer go to waste. FPOs have the added benefit of improved business transactions and, eventually, greater trust from their member farmers.

*“The AFI project’s support in establishing a vegetable collection center and obtaining a solar vegetable dryer is highly commendable. The Nambiguruswamy FPO members have begun benefiting from aggregating vegetables and selling these directly to a supermarket. The solar vegetable dryer is helping farmers earn additional income. We are selling dried vegetables to the Raheja Group through a buyback arrangement. Our FPO members appreciate these new initiatives. – Narasimha Reddy, CEO*



**Table 6. Beneficiaries of the collection center intervention**

S. No.	FPO	Collection Center Location	Number of Beneficiaries
1	Nawabpeta FPCL	Kakarlaphad, Mahabubnagar District	500
2	Hanwada FPCL	Hanwada, Mahabubnagar District	500
3	Nambiguruswamy FPCL	Nawabpet, Rangareddy District	500
4	Wargal FPCL	Chowderpalli, Medak District	500
5	Palamuru FPCL	Takara, Mahabubnagar District	500
6	Toopram FPCL	Toopran, Medak District	500
7.	Samisti FPCL	Velchal, Vikarabad	500
8.	Thummalapally FPCL	Narsapur, Vikarabad	500
9.	Siripuram FPCL	Siripuram, Vikarabad	500
10.	Devarampalli FPCL	Devarampalli, Vikarabad	500
11.	Nizampeta FPCL	Naskal, Medak	500
12.	Mucharlapalli FPCL	Mucharlapalli, Mahabubnagar	400
	<b>Total</b>		<b>5900</b>

### Promoting Village-Level Aggregators

The project has promoted AFI Champions who are interested in playing the role of village-level aggregator. These entrepreneurs pool non-perishable produce from farmers in their respective villages and sell to institutional buyers. The aggregators pay individual farmers, after recovering their expenses and a small service charge (commission). This activity is expected to address the malpractices (weighing, rejections, price realization, etc.) of the middlemen. This will also help ensure the quality requirements of the institutional buyers are met. These entrepreneurs educate their client farmers about the quality requirements, such as acceptable moisture content, grain size, and fungus percentage, and ensure those are met while aggregating the produce. The project supported these AFI Champions by providing small equipment, such as moisture meters for measuring the moisture content in the produce for fixing the price.

The project team accepted nominations of AFI Champions who are interested in setting up an aggregation business. Several rounds of discussions were held with interested entrepreneurs. These AFI Champions were advised to collect names of farmers along with details of yield and time of harvesting to estimate the volume of produce they will be handling. At their request, the project team participated in meetings in respective villages with farmers to explain the purpose and advantages of aggregation. The project team connected these aggregators to institutional buyers.

The project team advised these entrepreneurs to ensure transparency and build trust during the initial days, so that their client farmers will return to them the next time and help expand the client base. The project team hopes that these people will also calculate the demand for inputs for the next season and facilitate their purchase. This way, they will be serving their fellow farmers for both input purchases and output marketing.



*Shankaraiah in his maize field*

**Box 10. Shankaraiah, of Karukonda in Mahabubnagar District, is excited to serve his fellow farmers as a village-level aggregator**

Shankaraiah, a smallholder farmer who also serves as a Board of Director for the Nawabpeta FPO, became angry while recalling his previous experiences in selling maize. Last year when he took his produce to Jadcherla market, they looked at his

produce and quoted Rs. 1800 per quintal, while the prevailing market price was Rs. 2000 per quintal. They told him that the price was based on the quality of his produce, without proper assessment or justification. In addition, the trader took an extra 2 kg per 50-kg bag, saying it was for transport losses and waste. The trader deducted 5% for handling and 2% for early payment. In the end, Shankaraiah received about Rs. 200 less per quintal than the price originally quoted for his produce. He hopes that such exploitation can be avoided this time around. He is educating farmers about the quality requirements and then performing a proper moisture measurement using a moisture meter, weighing, and other assessments.

### **Building the Capacity of Farmer Collectives (FPOs) for Scientific Storage and E-Trading**

One of the ways farmers can improve their income is by selling the produce at right time in the right market. However, farmers usually engage in distress sales immediately after harvest, when the prices are low, to have cash on hand. The project proposes to address this by building the capacities of FPOs on scientific storage and electronic trading. Scientific storage will help the farmers access warehouse receipts for their immediate cash requirements until the stocks are sold.

During the reporting period, the project collaborated with the large private company in the post-harvest space in India, National Commodities Management Services Limited (NCML), to deliver this important training. The project team worked with NCML to implement a study to understand the current storage situation and marketing by the target FPOs. Based on this, a training module was prepared. NCML will be delivering trainings during October/ November to each of the 30 FPOs. Subsequently, the project team will support these FPOs to practice scientific storage and electronic trading.

The project team worked with 30 farmer producer organizations (FPOs) to help 16,042 of their member farmers from 219 villages have better access to the markets. The project team collaborated with the National Commodities Management Services Limited (NCML) to mentor these FPO members on safe storage practices and electronic trading. A total of 485 representatives from these FPOs were trained on theoretical and practical aspects of scientific storage and electronic trading. (Annexure 4) Subsequently, the project team worked with these FPOs and helped 13 of them enroll in an electronic trading platform. The project team expected these FPOs to aggregate their members' produce at harvesting time when prices are low, safely store it in warehouses, and then sell it in an appropriate market at appropriate time to realize a better price for the produce. Despite the project team members' continuous follow-ups to make this happen, these FPOs did not move forward with the intervention. They reported a lack of working capital as a major reason for not aggregating and storing produce. Farmers in the target geography did not come forward to pool their produce and wait for a good time to sell. They wanted cash in hand at the time of harvest. Local traders used this opportunity to purchase the produce at lower prices. In anticipation of shortages this year, traders aggressively purchased grains from farmers during Kharif 2022; sometimes they purchased the produce from the fields before it was harvested. To address this challenge, the project organized an interactive session for the beneficiary FPOs with leading financial institutions and experts to help facilitate working capital.

### Stakeholder Conferences



***The District Agricultural Officer (DAO) addressing the stakeholders in Jadcherla***

Information exchange between various agricultural value chain actors can help in addressing production and marketing challenges. The project proposed to accomplish this by organizing stakeholder conferences in the target geography.

During the reporting period, the project team organized three stakeholder conferences by inviting all major value

chain actors and support system organizations. The purpose of these local meetings was to facilitate information exchange regarding major challenges and opportunities for agricultural production and marketing in the respective areas. As the project interventions were not widely known in the area, these events helped reach a large number of stakeholders. The networks built during these events helped the project team members in implementing the project interventions.

The project team is planning crop-based stakeholder conferences (for example, a stakeholder conference on maize and another stakeholder conference on premium paddy) during October and November. These meetings are expected to result in a common understanding of input requirements, marketable surplus, quality parameters, management practices, etc.

## Building the Capacities of Agro-Input Dealers

Agro-input dealers can play an important role in educating farmers on crop production practices. In the target geography, they play multiple roles, such as money lenders, advisory service providers, sellers of inputs, and buyers of outputs.

The project team partnered with MANAGE, the Indian Government's premier training institute, to impart needs-based trainings to agro-input dealers in the target geography. The main purpose of these trainings was to motivate these important agricultural stakeholders to deliver useful agricultural advisory services and help them learn the latest developments in agriculture. Keeping in mind the time constraints of these busy businesspeople, trainings were organized for one or two days per week. During the reporting period, six trainings were organized, benefiting 192 agro-input dealers.

MANAGE engaged six expert Nodal Training Institutes (NTIs) for the purpose. Each of these trainings had six training days. The project team, together with MANAGE, identified topics for the trainings. (see Annexure 2). The NTIs engaged experts for the topics and conducted the trainings. These trainings had both classroom sessions and practical sessions/exposure visits.

The project proposed to work with the trained agro-input dealers by connecting them with AFI Champions from their respective areas for communicating aggregated input demand, so that inventories could be planned for timely availability to farmers.

*Table 7. Details of agro-input dealer trainings*

S. No	NTI	Date of Inauguration	Day(s) of Classes	Number of Participants
1	Project Director (PD), ATMA, Sangareddy	August 24, 2022	Wednesday	32
2	Farmers' Training Center (FTC), Rajendra Nagar	August 26, 2022	Friday and Saturday	34
3	PD ATMA, Siddipet	August 30, 2022	Tuesday and Friday	33
4	KVK, Tuniki, Medak district	September 4, 2022	Sunday	32
5	PD ATMA, Sangareddy	September 5, 2022	Monday and Friday	31
6	FTC Mahabubnagar	August 29, 2022	Monday and Friday	30
	<b>Total</b>			<b>192</b>



*Agro-input dealers participating in the needs-based trainings*

## Liberal Use of Digital Tools

Field-level interventions were significantly impacted during the first 2 years by COVID-19 restrictions on travel and physical meetings. To address this concern and to be prepared for any similar occurrence in future, the project team adopted the use of digital tools to a great extent. This approach is effective for timely information dissemination and reaching a large number of beneficiaries in a short period of time, especially with a smaller team.

The project team also adopted digital tools for project management and monitoring. Documents shared on OneDrive were used for tracking staff fieldwork, utilization of financial resources, data collection, surveys, etc.

The project team communicated with several organizations to identify providers of the most useful end-to-end digital solution with the following capabilities:

- Creating digital engagement channels and processes for all farmers in the target areas to cultivate adherence to the package of practices recommended by the AFI.
- Enabling digital sales channels for appropriate inputs and necessary services required for cultivation through assisted e-commerce.
- Assisting farmers to discover an expanded market for their produce.
- Enabling business-to-business (B2B) and business-to-consumer (B2C) sales through e-commerce stores by participating farmers and traders, with traceability.

After following the due process, Kalgudi Digital, a private company, was engaged to create this digital solution. The electronic platform was used by the beneficiary farmers, project team members, and other stakeholders to exchange information for effective project implementation. The platform provided an option for the farmers to purchase inputs and sell their marketable surplus to businesses and consumers directly. One of the key features of this platform is its ability to continue beyond the project period, as the beneficiary farmers could use this simple mobile-based application to receive agricultural advisory services and market prices by the Kalgudi team. These farmers can use the platform to purchase agro-inputs and sell their marketable surplus, as they will have familiarized themselves with it during the project period.



*Kalgudi Digital ICT platform*

## Impact on Individuals

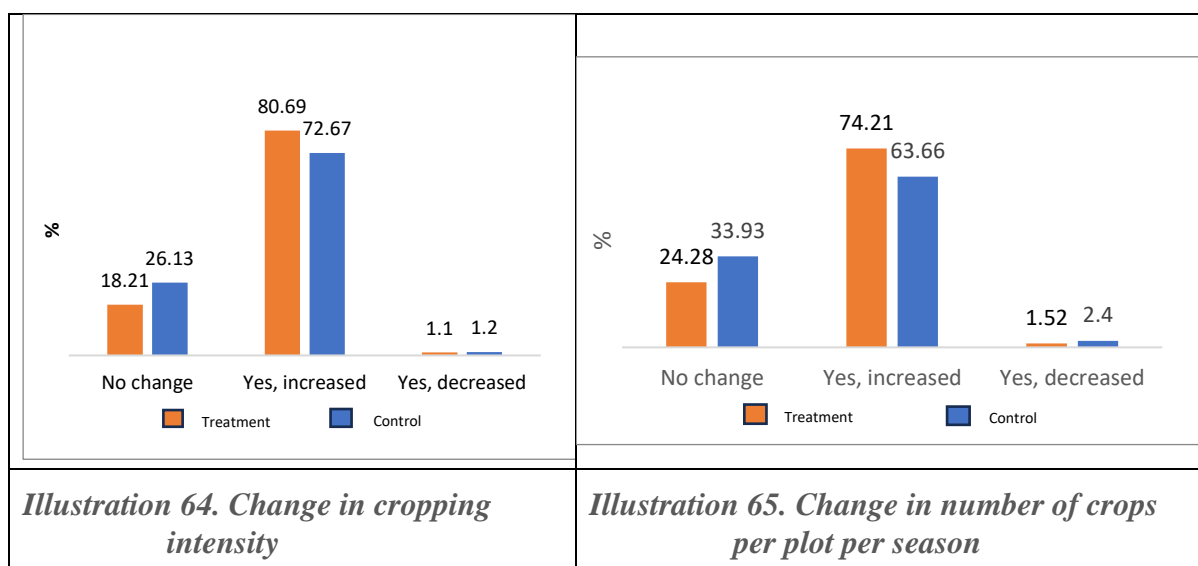
The AFI project has brought significant changes to the lives of beneficiary farmers. These impacts are primarily at two levels – rural agri-entrepreneurs, known as AFI Champions, and farmer beneficiaries.

### Impact on beneficiary farmers

#### Cropping intensity:

The project interventions helped the beneficiary farmers to improve their cropping intensity – defined as the number of crops a farmers grows in a given agricultural year on the same field. As noted by the independent endline study, the cropping intensity per plot for AFI farmers increased for about 81% of the AFI farmers, while 18% reported no change and 1% reported negative change. However, what is notable is the trend in the control group is not far from that of treatment group when it comes to increase in cropping intensity at almost 73%. Therefore, the entire 81% change cannot be attributed to the AFI program. At the same time, we cannot discount the possibility of control group farmers benefiting from information disseminated by the FMOs, AFICs, and the beneficiaries themselves.

Another metric that was studied by the endline study was the number of crops grown per season per plot, as shown in the illustration 65. This tells a story similar to cropping intensity. About 74% of the beneficiaries increased intensity of cultivation per season with the control group not far behind at 64%, i.e., a 10-percentage point difference.



### Returns:

Based on the cross-sectional data collected from farmers on outputs produced and price received by farmers by recall method, the quantity of main produce and prices received per quintal are compared with control farmers. Treatment farmers reported more quantity of main produce than control farmers and better market price during Kharif season for the major crop. However, the prices received vary across seasons and depend on other external market sources. In Rabi season, the treatment farmers' crop yield shows a significant increase as compared to control farmers, and the prices received by treatment farmers is marginally higher than control farmers.

*Table 2: Comparison of main yield and prices received by treatment and control farmers*

Seasons	Crop	Average quantity of main produce			Price/Quintal in the market		
		Treatment	Control	Diff (%)	Treatment	Control	Diff (%)
Kharif	Crop 1	60	53	13%	3398	3692	-8%
	Crop 2	36	39	-8%	5195	6509	-20%
	Crop 3	55	57	-4%	5977	3535	69%
<b>Seasonal average</b>		<b>50</b>	<b>50</b>	<b>0%</b>	<b>4857</b>	<b>4579</b>	<b>6%</b>
Rabi	Crop 1	59	59	0%	2892	2822	2%
	Crop 2	65	35	87%	3107	2272	37%
	Crop 3	23	21	11%	2214	3946	-44%
<b>Seasonal average</b>		<b>49</b>	<b>38</b>	<b>29%</b>	<b>2738</b>	<b>3013</b>	<b>-9%</b>
Summer	Crop 1	27	27	0%	3174	5747	-45%
	Crop 2	14	22	53%	3340	1733	93%
	Crop 3	31	30	-3%	1744	2350	-26%

<b>Seasonal average</b>	<b>24</b>	<b>26</b>	<b>-8%</b>	<b>2753</b>	<b>3277</b>	<b>-16%</b>
<b>Yearly average</b>	<b>41</b>	<b>38</b>	<b>8%</b>	<b>3449</b>	<b>3623</b>	<b>-5%</b>

The key takeaways from this quantity of produce and price descriptives are, 1) Unless the GAP practices are practiced in a holistic approach, it is difficult to achieve significant improvement in yield, and 2) Treatment farmers and control farmers are selling their produce in the same market, and the GAPs have not translated to sale of produce at premium prices in established market linkage. Unless the market linkages are facilitated, GAP farmers will not have any financial motivation for GAP adoption. The project can further focus on intensifying the GAP practices and to create identity for crop branding. The cost and returns analysis of each of the crop and then at HH level, would have been more valid if the baseline data of treatment farmers was available for comparison.

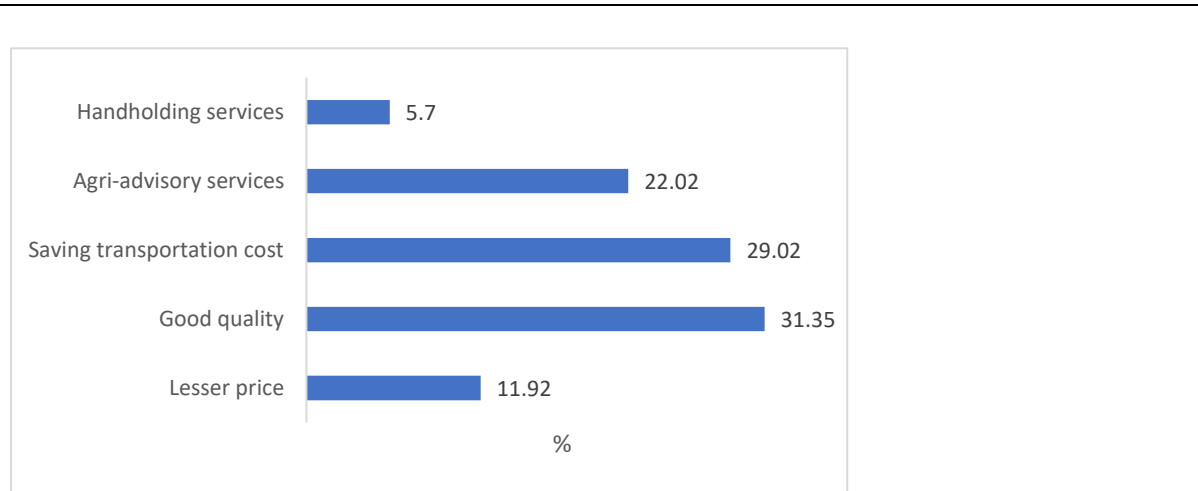
### Sourcing of Agri-Inputs

The major agricultural inputs purchased by farmers include good quality seeds (36%), fertiliser (33%), and pesticides (31%). Around 33% farmers reported that these inputs are readily available in shops run by AFI agri-input dealers. It is important to note that around half of both treatment and control farmers purchase agri-inputs from shops in urban areas. Around 14% treatment farmers reported buying agri-inputs from shops run by agri input-dealers under the AFI program, which is slightly more than 11% control farmers who purchase from AFI input-dealers. This points towards the need to further strengthen the agri-input businesses incubated within the program to make farmers more aware about these shops and build confidence regarding the quality of inputs sold.



*Illustration 66. Source of agri-inputs*

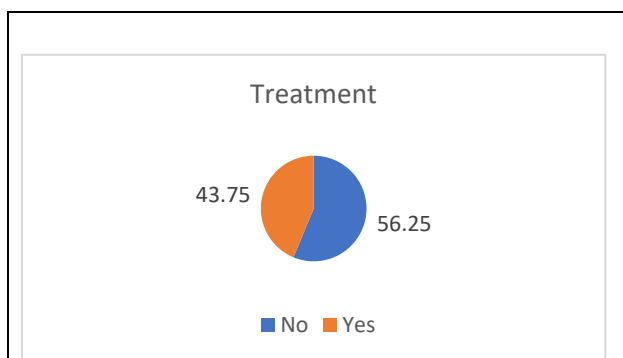
When further enquired about the reasons due to which they prefer to purchase agri-inputs from shops run by AFI-AIDs, 31% farmers said it was because of good quality, while 29% said that it saves them some transportation cost as these shops are located in the same village. Other reasons include agri-advisory services (22%), handholding support (6%), and comparatively lesser prices offered by these shops (12%).



*Illustration 67. Reason for buying from AFI-AIDs*

### Post Harvest Management and Market Linkages

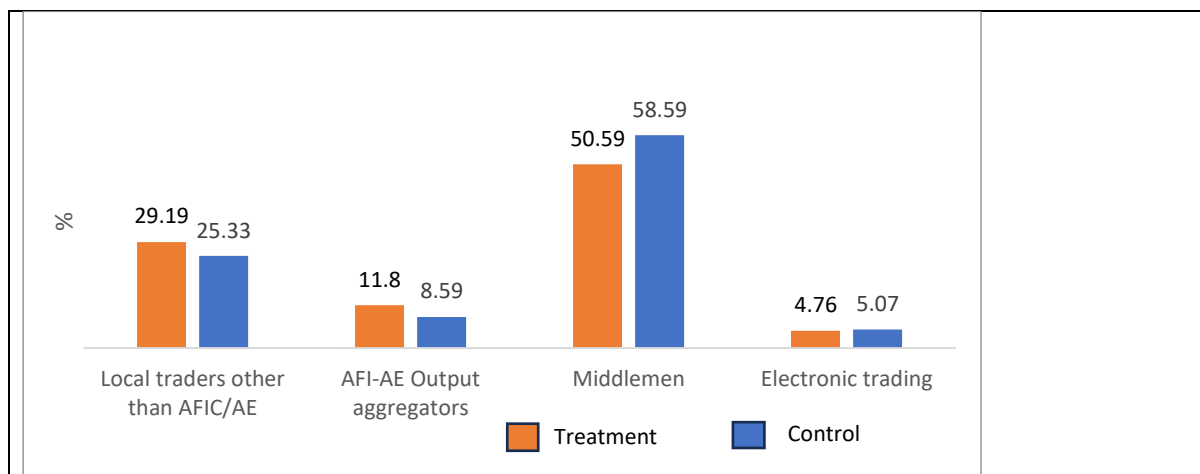
The respondents were also asked about their post-harvest management practices, especially with regard to storage and transportation of harvested crops. Out of the total sample, around 97% farmers sell their produce immediately, while 2% treatment farmers and almost 4% control farmers explore storage options. The most used storage method is in bags kept inside the houses (94% treatment and 83% control). On average, storage facilities are located less than 1 km away from the households. Around 44% of treatment farmers experience loss in storage facilities, which indicates a need for interventions to improve the usage and quality of storage facilities.



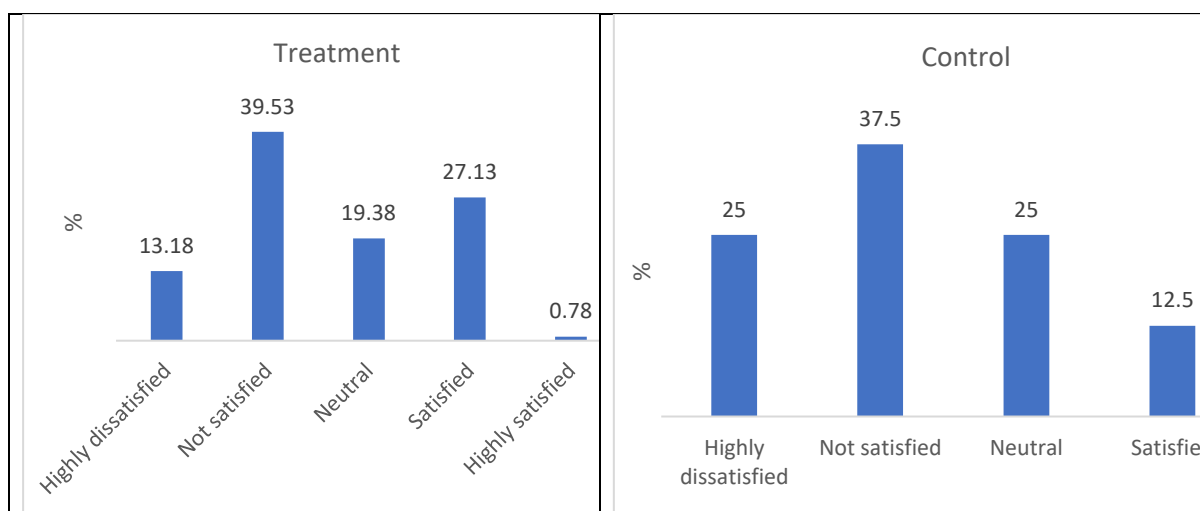
*Illustration 68. Loss in storage*

As one of the tenets of the AFI program is creating and enhancing market linkages, respondents were asked questions related to where they marketed their produce for sale. First, more than half of respondents from both treatment and control groups still rely on middlemen. This is true for the Indian agriculture landscape. Middlemen, however, often pay very low prices to farmers extract the maximum amount from the market/consumers and pocket the difference. The stronghold of middlemen in rural areas is very hard to break and this may be the biggest threat to the sustainability of value chains created under the AFI

program. However, we do note that there is an 8-percentage point lead by the control group. Secondly, while electronic trading was one of the topics taught to the AEs, it is the control group that dominates marginally at a little over 5%. Thirdly, there is an uptake of AFI-AE Output aggregators not only by the treatment group at about 12% but also by the control group at 9%, thereby underlining the inroads made by the AFI program in the post-harvest agriculture landscape. When probed further, however, only 28% of treatment farmers are satisfied with the AE Output shops. More than half of both treatment and control farmers are dissatisfied by them. This is shown in Illustration 70.

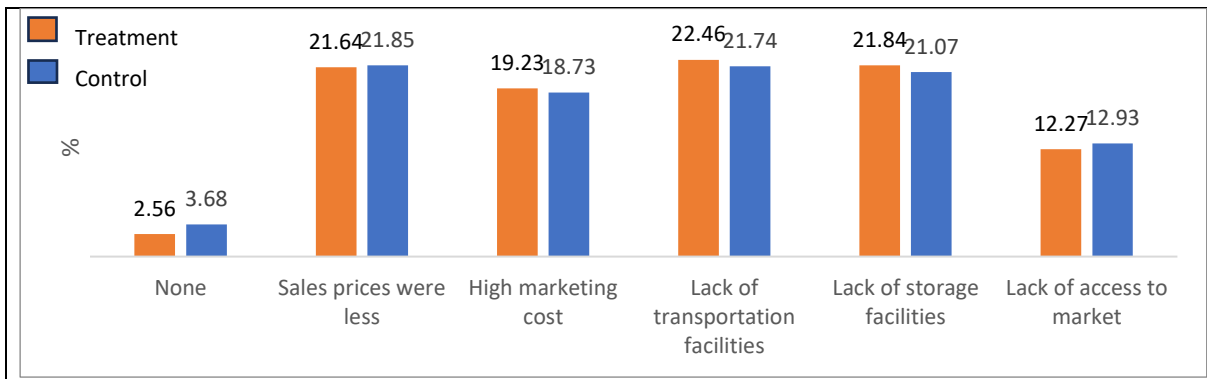


*Illustration 69. Sources of marketing of produce*



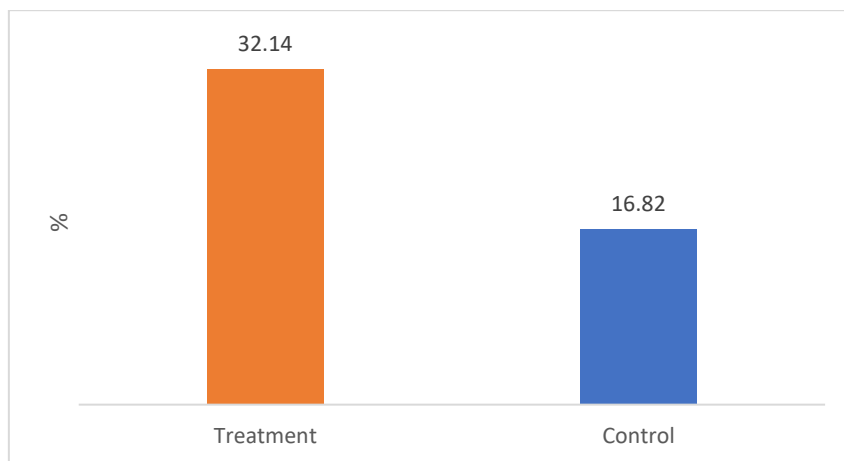
*Illustration 70. Satisfaction of selling output via AFI-AE*

Furthermore, the challenges faced by farmers points to the lack of adequate post-harvest facilities, with about 22% treatment farmers citing a lack of transportation and lack of storage facilities. In terms of marketing their produce, about 20% also faced high marketing prices and low sales prices and 12% pointed to lack of access to market.

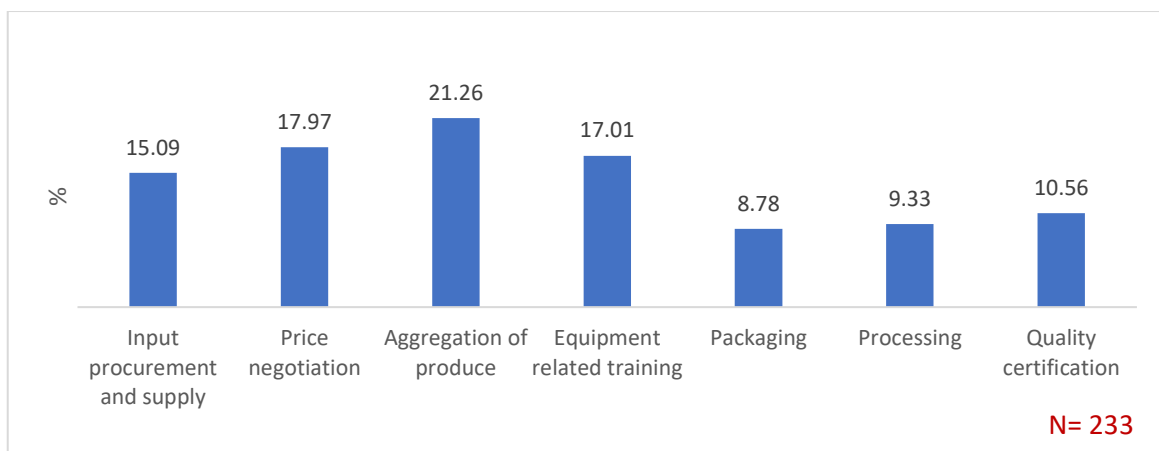


*Illustration 71. Challenges in marketing*

Around 32% treatment farmers have received training on market linkages and agri-entrepreneurship, which is substantially more than 17% control farmers who have received training in these areas. The topics covered in the AFI trainings include aggregation of produce (21%), price negotiation (18%), equipment-related training (17%), input procurement and supply (15%), quality certification (11%), processing (9%), and packaging (9%).

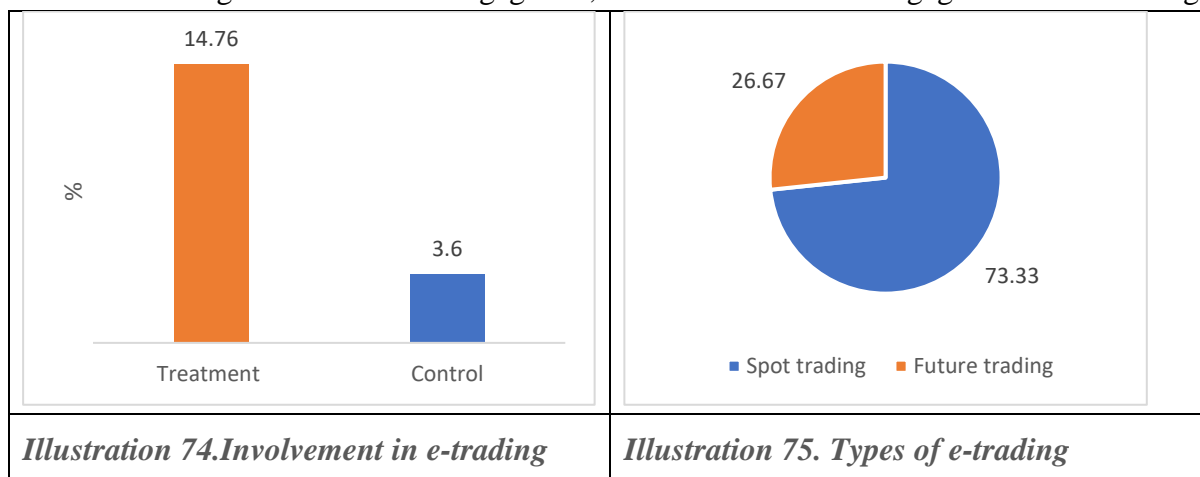


*Illustration 72. Training received on marketing and entrepreneurship*

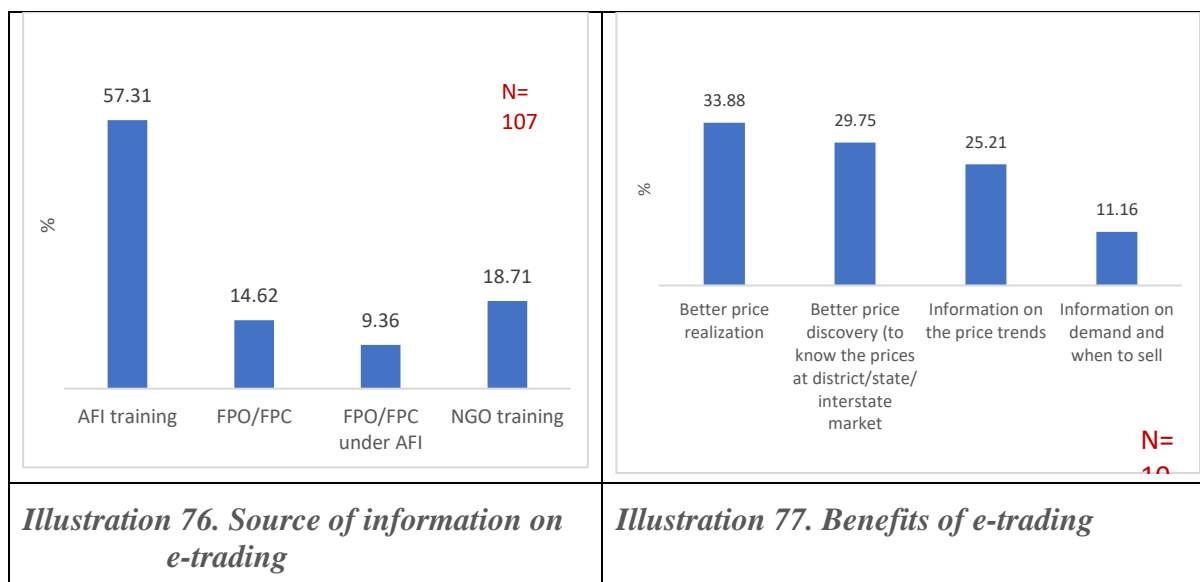


**Illustration 73. Topics covered in market linkage training**

Since e-trading is one of the areas of intervention for the AFI program, farmers were asked about their involvement in e-trading of produce. Although the overall numbers are low, it has emerged that a higher percentage of treatment farmers are pursuing e-trading (15%) as compared to control farmers (4%). The main crops for which e-trading is practiced include paddy (65%), maize (25%), and wheat (10%). Spot trading (73%) is the main form of electronic trading that farmers are engaged in, while about 27% are engaged in future trading.



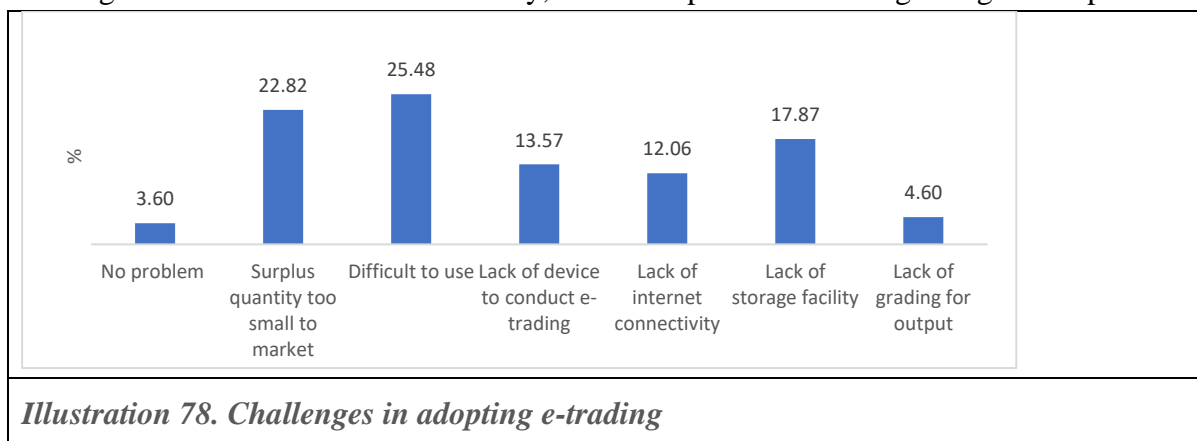
Around 57% treatment farmers reported that they learnt about e-trading from training sessions conducted under the AFI program. Other sources of information on e-trading include FPOs/FPCs (15%), AFI program-led FPOs/FPCs (9%), and trainings conducted by other NGOs (19%).



Around 94% farmers who are engaged in e-trading have reported that they have benefitted from the practice. As shown in Illustration 77, the benefits include better price realisation (34%), information on pricing trends (25%), and demand-related information (11%). Around 30% farmers also reported that e-trading has enabled them to learn about the prevailing prices

at district, state or interstate markets, which has helped them command better prices for their produce.

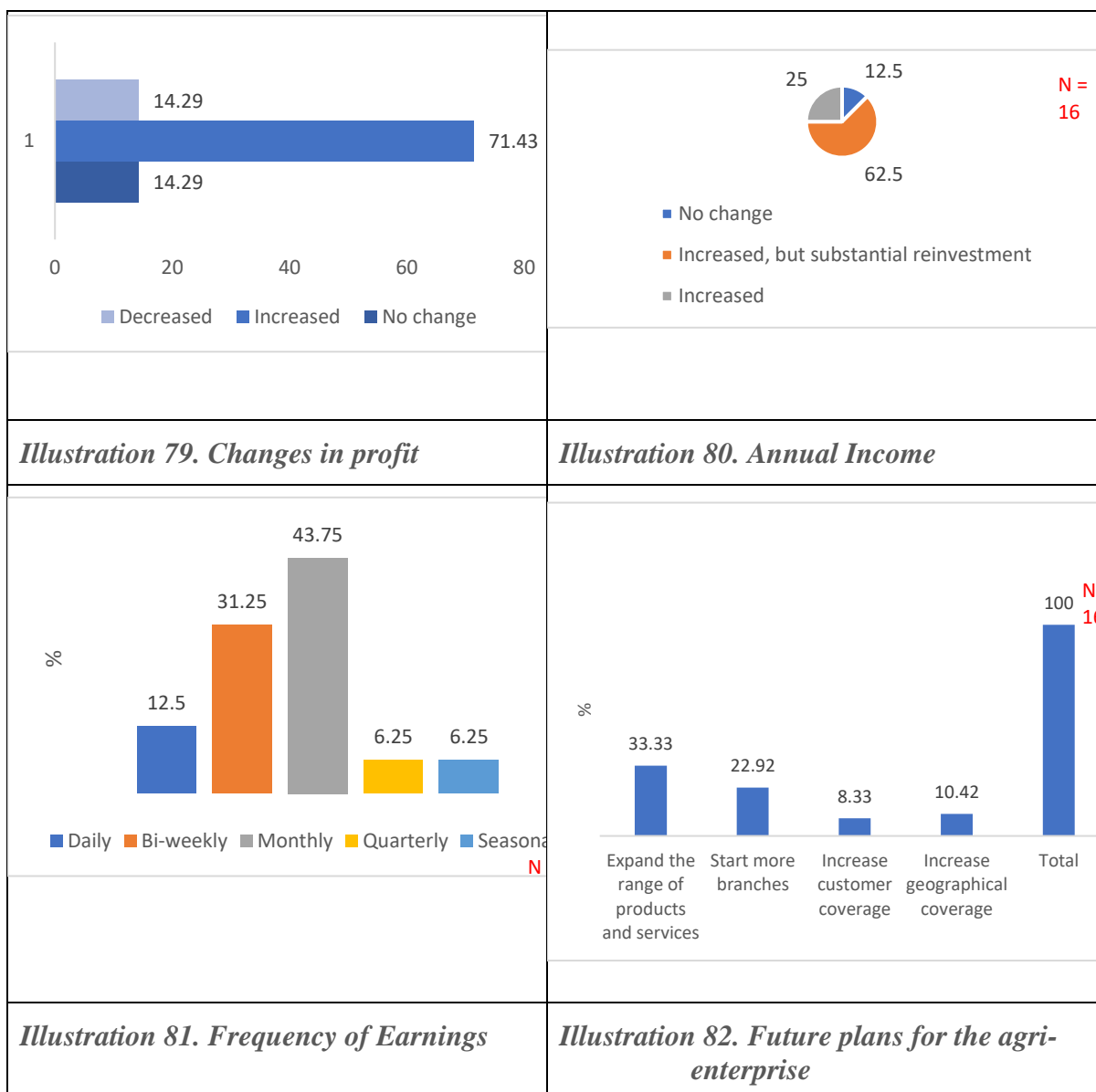
Farmers also face certain challenges in shifting to e-trading (Illustration 78). While around 4% farmers reported that they do not face any problems, 25% reported that e-trading platforms are difficult to use, 23% do not produce enough surplus quantity of produce to be marketed, 18% lack storage facilities that are necessary for e-trading, 14% reported the lack of electronic devices such as smartphones or tablets to conduct e-trading, 12% face challenges related to internet connectivity, and 5% reported a lack of grading for output.



## Impact on rural agri entrepreneurs

The project facilitated the creation of 667 rural agri-entrepreneurs. This involved a systematic process of selecting youth and women from the target geographies using a set of criteria (Annexure 1). Subsequently, they were screened for their suitability through a written exam and an interview. Those who were selected were trained on key agricultural and agribusiness aspects, communication skills, and other relevant topics for 45 days through a virtual format (Zoom). Those who maintained a more than 75% attendance rate and successfully passed the final exam received a certificate issued by a reputable organization established by the Government of India – the National Institute of Agricultural Marketing (NIAM). This made them eligible for seed and fertilizer licenses, irrespective of their educational background. For many young farmers, this recognition has been a life-changing achievement. This intervention has opened up several new livelihood opportunities and allowed them to provide a service to their fellow farmers by setting up locally relevant agribusinesses. Those who established such businesses reported improved social recognition in their respective villages. As the project focused on socio-economically disadvantaged communities, this intervention is an important achievement. More than 75% of these 667 rural agri-entrepreneurs belong to a Backward Caste, Scheduled Caste, or Scheduled Tribe or are women.

Endline study documented that the AFICs have a mean monthly income of INR 14,438 with the minimum income being INR 5000 and maximum being INR 50,000. 71% of the AEs reported an increase in profits because of their entrepreneurial activities while 14% reported a decrease. The reason for the decrease in profits needs further investigation.



With respect to annual income, 87% reported an increase in annual income. However, 63% of these respondents chose the option increased income but substantial reinvestment required. The remaining 12.5% reported no change in annual income.

When asked about fluctuation in income, a high 88% reported fluctuation. This could be attributed to systemic reasons such as the seasonality of agriculture and/or be related to the business model. A conclusion may be drawn only after further investigation. The flow of earnings is dominated by monthly payment (44%) and bi-weekly payments (31%). This is shown in illustration 81.

The AEs were also asked about the credit source and utilization as financial concerns reigned supreme in both adoption of GAPs and starting and sustaining a business. As seen above, most of the AEs run small shops with a small customer base. They also underlined the need for reinvestment to keep the business up and running with profits.

Only about 57% AEs reported availing of credit for their businesses. Three-fourths (75%) of these AEs turned to informal sources of credit, a scenario typical to Indian agriculture. 88% of AEs have availed schemes for loans or subsidies for their businesses. Among these, 75% availed schemes related to youth entrepreneurship and 25% availed MUDRA<sup>1</sup> loans.

With respect to future plans for AE enterprise, as shown in Illustration 82: 33% want to expand the range of products and services, 25% want to expand their business in scale and size, 23% want to start more branches and the rest want to increase customer base and geographical coverage.

**Box 11.** Sarita and Lavanya are young women who spend most of their time on household chores and are confined to a small village, Gudur in Rangareddy district. However, they nurtured an interest in doing something useful with their lives. When Rukmini, an AFI Field Monitoring Officer, visited their village during a campaign on the AFI Champion intervention, the women were excited. Both enrolled, participated in the training, and passed with good attendance and high scores on the exam. Subsequently, they set up an agro-input shop, as there was no such facility in their village, forcing farmers to visit a nearby town to purchase any agricultural inputs.



This business, normally a man's domain, has not only boosted their social status, but also helped them earn additional income for their families. Since February, they have served 316 farmers, with a total transaction value of INR 657,547 (U.S. \$8,500). They visit fields, identify any problems, and advise farmers on ways to address those problems. Farmers in their village appreciate the support and show preference by purchasing inputs from their shop, as the women have earned their trust.



**Box 12.** Pavan, from Tankara village in Mahabubnagar district, has set up a soil testing lab after receiving training and mentorship from the AFI project. He became aware of the importance of soil testing during the training and began to understand his previous mistakes in the indiscriminate use of fertilizers without understanding the soil conditions. He now educates his fellow farmers about the importance of soil testing and recommends the fertilizers required for different crops. In the past month, he has served over 300 farmers and earned INR 75,000 (U.S. \$1,000). His clients are very happy to receive the report on their soil conditions and the support to use fertilizers in the necessary quantities, thus reducing the cost of cultivation.

<sup>1</sup> MUDRA loans are provided at lower interest costs to small businesses. It is a scheme of the Govt, of India

**Box 13.** Farmers in the peri-urban target geography of the project face a serious challenge with a labor shortage for agriculture. Venkatrami Reddy, from Lakshmidhev Palli, saw this as an opportunity for his agribusiness. After being mentored to become an AFI Champion, Venkatrami took on the responsibility for promoting improved agricultural practices in his village. He also leased harvesters from the neighboring state of Tamilnadu and began providing agrimachinery leasing services to his fellow farmers. While demonstrating improved vegetable cultivation in tomato, he earned INR 75,000 (U.S. \$1,000) more than his normal wage. With his machinery leasing services, he has supported 300 farmers to have access to agrimachinery and earned INR 150,000 (U.S. \$1,500) from one crop season. Venkatrami is happy that he diversified his livelihood, while supporting his fellow farmers who appreciate his help.

**Box 14.** Anil, from Pamireddipalli village, grew 16 types of vegetables through the safe vegetable production intervention of the AFI project. His family had previously only cultivated tomato and eggplant. Anil is very happy to have gained knowledge on cultivating multiple vegetables, including pest and disease management with the least quantity of chemicals, and harvesting the seeds for next season. This intervention improved the availability of vegetables at his home, resulting in more vegetable consumption by all family members. Anil also sold surplus vegetables in his village market and realized higher prices, as some varieties had a low sunlight requirement and he could grow them during the off season. Motivated by this, Anil accepted the help of the project team in procuring photo-insensitive bean seeds from the Indian Institute of Horticulture Research (IIHR) and cultivated these in his main field.

## Impact on the Community

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The AFI project's main approach is to build local leadership through creation of rural agri-entrepreneurs in the target geography. These local leaders disseminate information on improved agricultural practices and ensure access to inputs so these improved practices can be adopted by the beneficiary farmers. These members of the farming communities were also empowered to support their fellow farmers to have necessary market linkages for purchasing quality inputs and for selling their marketable surplus at the right time in the right market. This intervention has started to yield community-level impacts. The project created 667 local leaders in 324 villages in Telangana. Each of these local leaders is helping people in their respective locality to have access to good quality inputs, agricultural support services, and market linkages. These people are connected through WhatsApp groups to exchange information and motivate each other on adopting new interventions that will benefit their respective communities.

The AFI Champions who started agro-input shops in 60 villages not only are providing quality inputs to the villagers, but also are educating farmers on crop problems and the appropriate solutions. These entrepreneurs are keeping their margins low while selling quality products, thus helping farmers to reduce their cost of cultivation. Similarly, 110 agri-entrepreneurs are leasing agricultural equipment to their fellow farmers in order to address the labor shortage. Small-scale nurseries have been established by 19 agri-entrepreneurs who are helping vegetable growers to access quality seedlings at affordable prices. The AFI Champions who established seven soil testing labs have performed more than 1,000 soil tests

in the past three months, supported judicious use of fertilizers by their fellow farmers. Drone pilots have begun to serve their fellow farmers in spraying pesticides in paddy and cotton fields at a reasonable rate, thus aiding the farming communities in reducing the cost of cultivation and applying appropriate chemicals in a timely manner.

Aruna Kaslabad in Rangareddy district used to find it difficult to prepare sufficient quantities of vegetables for her family members. The problem was more acute during the rainy season, when only a few vegetables are available in the market and the prices are higher. The project's intervention on safe vegetable production helped her and 30 others from her village to produce 16 different types of vegetables on a small piece of land. Now these people have access to



diverse vegetables throughout the year as well as knowledge about growing these vegetables without the use of chemicals and harvesting the seed for next season. These farmers sell their excess produce in the local market, facilitating access to a variety of vegetables for people in the community.

The project has helped 30 FPOs, with members spread across 213 villages, gain knowledge on scientific storage and electronic trading. The project facilitated access to working capital for these FPOs by connecting them to financial experts. The project helped 12 of these FPOs to establish vegetable collection centers, so that their members can pool vegetables and sell to large buyers. These FPOs were also connected to buyers and supermarkets. These interventions are expected to help the communities improve their income from agriculture by selling to the right buyer and at the right time.

## Challenges

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The project team faced several challenges.

The rural agri-entrepreneurs created by the project needed financial support to start businesses and to expand, as the project focused on poor and socio-economically disadvantaged communities, who often do not have the good financial/credit history required by financial institutions to provide loans. When approached by the project team, these financial institutions sought some guarantees from the project to issue loans. When the project team members could not provide such assurances, the financial institutions asked for at least one year of continued project support to these entrepreneurs to gain confidence on repayment. Since the project was not scheduled to continue for that length of time, these entrepreneurs could not obtain a loan to start a business or to expand their business. Several AFI Champions personally called the project team to express their disappointment in not receiving support in this crucial aspect of operating an agribusiness.

The project team made extensive efforts to link beneficiary farmers to markets to ensure better prices for the marketable surplus. Village-level aggregators were created, stakeholder meetings were organized with different value chain actors, and village-level aggregators were

linked to the end buyers, such as processing units. However, at the time of harvesting, several traders, sometimes from distant places, arrived in the project locations with price and payment offers that the farmers could not refuse due to an anticipated shortfall of grains later this year. The project team witnessed cases where some traders purchased unharvested crops on the fields by offering ready cash, which is unprecedented in the area. This situation allowed only a few village-level aggregators to compete with such traders and purchase from farmers. Most of the village-level aggregators could not implement their plans due to a lack of finance and no initiative to move quickly and aggregate aggressively.

The project team struggled to encourage FPOs to operationalize the vegetable collection centers. FPO staff lacked motivation and incentive to implement this new initiative. Most of the FPO staff did not have the necessary qualifications or skills to operate a business. They had gotten into their role through non-merit pathways, such as recommendations. Most do not have regular salaries and are focused on finding other jobs that pay better. In this context, when the project team members approached the FPO staff, they did not cooperate, despite the non-governmental organization (NGO) heads who were promoting the FPOs asking for their support. Since the project did not have much time left, the project staff were allocated to different collection centers to take the lead in initiating the transactions. It was expected that, once these centers became profitable, the FPO staff would be motivated and perhaps could receive regular payments from the profits. However, the FPO functionaries did not exhibit an interest in taking the intervention from the project staff forward. Whenever the project staff could not go to the center, buying-selling transactions stalled. This indicates that these FPOs need a dedicated and exclusive intervention for a longer period to build their capacity to operate the business.

The safe storage and electronic trading intervention with 30 FPOs did not proceed as per the plan. After the training, the project team asked the FPOs to submit relevant documents to enroll in an electronic trading platform. Most of the FPOs did not show an interest in this. They delayed sharing documents, requiring the project staff to spend a lot of time following up on the collection of these documents. The FPOs did not show an interest in aggregating the produce and storing it, indicating a lack of working capital as the reason. Based on this, the project team organized a meeting with several financial institutions and banking experts to provide knowledge and practical tips on securing working capital. Despite gaining access to working capital, these FPOs did nothing to aggregate produce, suggesting a lack of motivation and business skills.

## Successes

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One successful aspect of the project was the creation of 667 rural agri-entrepreneurs. These rural resource persons have been mentored to operate agribusinesses and provide services to their fellow farmers. They have been taught not just how to operate a business, but also to consider it a social venture. Of the 667 agri-entrepreneurs trained, 342 have already established businesses and have begun serving their fellow farmers. Notably, these people are incorporating creative ways of doing business. For instance, those who established agro-input shops have been visiting other farmers' fields to identify any problems, educate the farmers, and offer appropriate solutions. Those who started soil testing labs have been organizing meetings to educate their fellow farmers on the importance of soil tests for determining

optimal fertilizer use. One of the main reasons for the success of these rural agri-entrepreneurs is the project's partnership with Syngenta Foundation India (SFI) and Agri-Entrepreneur Growth Foundation (AEGF). These expert organizations have the required skills, knowledge, and the network for mentoring agri-entrepreneurs.

Another project success involved building the capacities of 30 FPOs on scientific storage and electronic trading. This important intervention enabled the FPOs, with over 16,000 member farmers, to ensure better price for the marketable surplus. The partnership with NCML has played a crucial role in making this intervention a success. The NCML team conducted a needs assessment and designed a training based on the results. Senior experts were deployed in the project area to deliver a series of trainings over a short period of time to cover all 30 FPOs.

The project team supported 12 FPOs to establish vegetable collection centers. This required mapping villages from where vegetables could be aggregated at a central place, motivating farmers to send their vegetables to the collection centers, meeting with traders and supermarkets to facilitate direct purchase from these centers, and securing necessary approvals and vendor codes. Since the FPOs were not capable of performing all these activities, AFI staff were allocated to different centers to lead the process. Six of these FPOs received solar vegetable dryers from Raheja Group, with a buyback arrangement for purchasing the dried vegetables. This was made possible through the project team's relentless follow-up with the FPOs and the other stakeholders.

## Collaborative Partners

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Collaborations and partnerships with organizations that have complementary expertise go a long way in ensuring success. Such collaborations prevent duplication of efforts and avoid creating parallel interventions. When properly facilitated, these collaborations leverage both organization's resources and networks for implementing large-scale interventions in shorter timeframes.

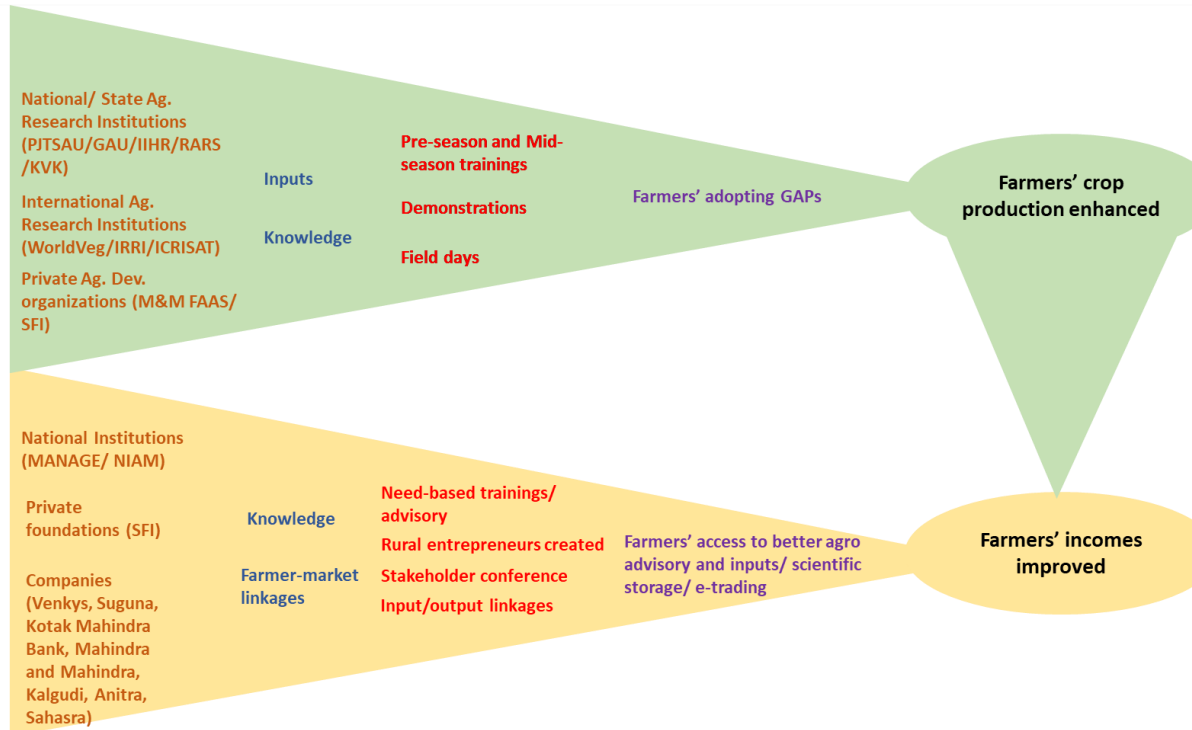
The project team built collaborations and partnerships with a large number of diverse stakeholders. The project team followed the due process in establishing these partnerships. These collaborations helped in having a much larger pool of personnel with diverse backgrounds for implementing the project interventions.

SFI and its network partner AEGF were extremely useful to the project in creating AFI Champions. They had the knowledge, skills, and experience in creating rural agri entrepreneurs. The training program they created was accredited by a reputed organization, NIAM, which issues a certificate to those successfully completing the training that automatically enables them to obtain seed and fertilizer licenses. They have expert trainers who are specially trained in virtual formats. They also have expert staff, deployed in the target geography, to mentor AFI project staff and AFI Champions. Their domain experts in agro-inputs, market linkages, credit linkages, operations, communication, and MEL contributed to the AFI Champion mentoring. They played a crucial role in creating 667 AFI Champions and mentoring over 300 of them to set up agri businesses.



**Diverse partnerships built during Year 3**

Collaboration with WorldVeg helped in implementing the safe vegetable intervention through vegetable garden kits. A vegetable grafting training for AFI Champions was also created as part of this collaboration. Senior experts from WorldVeg contributed by designing the vegetable garden kits, delivering trainings, conducting monitoring visits, and sharing their network for making these interventions possible. During the project period, they completed the training of 290 beneficiaries on vegetable grafting and provided support to benefit over 6,389 people on vegetable gardening.



**Partnerships/collaborations leading to the project outcomes**

MANAGE mobilized an expert and a coordinator for delivering trainings to agro-input dealers. The organization designed the training modules and mobilized six NTIs for gathering

subject matter experts, enrolling agro-input dealers from respective areas, and organizing trainings. They have completed training of 192 agro-input dealers.

NCML conducted a needs assessment survey by meeting representatives of 30 FPOs and developed a training module based on the survey results. They have allocated experts and are currently scheduling trainings for the 30 FPOs on scientific storage and electronic trading.

PJTSAU experts participated in the pre-season trainings for demonstration farmers and shared their local knowledge. They were also invited for field days and crop-cutting experiments. PJTSAU units have supported the project by making available quality seeds for demonstrations.

ICRISAT and International Rice Research Institute (IRRI) supported the project by sharing their subject matter expertise in planning interventions. They also connected the project team to experts for implementing the project activities. For instance, ICRISAT connected the project team to an expert at Gujarat Agricultural University (GAU) for planning the high-oil groundnut intervention. IRRI connected the project team to a rice expert for planning the paddy interventions. Some of the private companies that agreed to share their agricultural knowledge and resources were Mahindra Agribusiness, Syngenta, and Sahasra Organics. These companies participated in farmer field demonstrations of their popular crop varieties, crop care products, and agricultural machinery. Experts from Venkateshwara Hatcheries and Suguna Chicken agreed to visit the project villages to educate farmers on maize quality requirements and package of practices to ensure good quality produce.

Telangana State Agricultural Extension Department has been extremely useful for the project in the target geography. Most of the trainings and events are held in their *Rythu Vedika* (a platform for farmers) buildings. Their block-level and district-level officers have participated in all the major events, providing much-needed visibility for the project.

Other collaborations with private companies and research organizations have been useful in securing necessary inputs and market linkages.

- Suguna, Venkys, and Sneha are the major poultry and fish feed manufacturers in the region. The project partnered with them to facilitate farmers selling their maize directly, without being exploited by the middlemen.
- Befach and Deccan Mudra are premium paddy sellers in the market. The project partnered with them to facilitate sales of premium paddy (Telangana Sona, a low glycemic index variety being promoted by the Telangana Government) by farmers.

- Ninjakart is an important fruit and vegetable seller in the B2B and B2C space in the target geography. The project collaborated with the company to find an assured buyer for the beneficiary farmers. The project invited the Ninjakart team to interact with AFI Champions who are interested in serving as village-level aggregators and some FPOs.



*Ninjakart's top executive for Telangana interacts with AFI Champions who are interested in becoming village-level aggregators*

Apart from the institutional buyers, the project team interacted with a large number of traders in the local markets, supermarket chains such as Vijetha, More, and Reliance Fresh, preeminent hotel chains such as Marriott, and cold-press oil extraction services, exploring opportunities to sell farmers' produce.

# Donor Recognition

The donor's contribution to the project and its interventions have been regularly highlighted in all the meetings. When possible, the local media was invited to these meetings. Local media has regularly reported on the project activities, giving valuable publicity to the interventions and highlighting the donor contribution. The project team's approach to involving local leaders and government organizations in all key events helped in wider acknowledgement of the donor support provided to this important project.

<h3>వ్యవసాయంలో గ్రామీణ యువ రైతుల పాత్ర కీలకం</h3>  <p>మెక్ ట్యాగ్ అగ్రికల్ 131 ముఖ్య విద్యార్థులకు యువ రైతుల గ్రామీణ యువ రైతుల పాత్ర కీలకం. వ్యవసాయంలో గ్రామీణ యువ రైతుల పాత్ర కీలకం. వ్యవసాయంలో గ్రామీణ యువ రైతుల పాత్ర కీలకం.</p>	<h3>గ్రామీణ యువ రైతులకు అవగాహన సదస్సు డీలర్స్ పట్టణ అధ్యక్షులు మూర్ల రామకృష్ణ</h3>  <p>మెక్ జనం అవగాహన ప్రతినిధి : రైతు అవగాహన సదస్సు కోసం... అంకణాధికారి ఎవరు అధ్యక్షులు నన్ను వ్యవసాయ శాఖ అధ్యక్షులు మూర్ల రామకృష్ణ డీలర్స్ సమావేశం ఏర్పాటు చేయడం అంగీకరించింది. ఇక్కడ సమావేశంలో డీలర్స్ పట్టణ అధ్యక్షులు మూర్ల రామకృష్ణ మాట్లాడారు... ఏ ఎఫ్ ఐ గ్రామీణ యువ రైతులకు అవగాహన సదస్సు ఏర్పాటు చేయడం అంగీకరించింది. ఏ.ఈ. సంగమ్, డి.ఎస్.ఎస్. ప్రతినిధులు, శంకర్ గారు ముఖ్య అతిథులు పాల్గొన్నారు.</p>	<h3>వ్యాపారాత్మక ప్రణాళికల రైతు వేదిక సమావేశం</h3>  <p>మన తెలంగాణ/రామాంబేట: రామాంబేట మున్సిపల్ కలెక్షనలో గుండ్లపాటి రైతు వేదిక సమావేశంలో 40 మంది గ్రామీణ యువ రైతులకు మూర్ల రామకృష్ణ అధ్యక్షతన కార్యక్రమం జరిగింది. ఈ సందర్భంగా ముందర వ్యవసాయ అభివృద్ధి కార్యక్రమాలపై ప్రతినిధులు ఆసక్తికరమైన వివరాలు తెలిపారు. ఈ సమావేశంలో 45 రోజులపాటు అభ్యర్థనలపై ముందర వ్యవసాయ శాఖ అధ్యక్షులు మూర్ల రామకృష్ణ ప్రసంగాలు చేశారు. ఈ సమావేశంలో గ్రామీణ యువ రైతులకు అవగాహన సదస్సు ఏర్పాటు చేయడం అంగీకరించింది. ఏ.ఈ. సంగమ్, డి.ఎస్.ఎస్. ప్రతినిధులు, శంకర్ గారు ముఖ్య అతిథులు పాల్గొన్నారు.</p>
<h3>నేలలో సేంద్రీయ కరచర్మ పదార్థం పెంచాలి</h3>  <p>తొల్లూ ముఖ్య శాస్త్రవేత్త డాక్టర్ శ్రీధర్ సేంద్రీయ కరచర్మ పదార్థం పెంచాలి. నేలలో సేంద్రీయ కరచర్మ పదార్థం పెంచాలి. నేలలో సేంద్రీయ కరచర్మ పదార్థం పెంచాలి.</p>	<h3>నూతన సాగు పద్ధతులు పాటించాలి</h3> <p>నూతన సాగు పద్ధతులు పాటించాలి. నూతన సాగు పద్ధతులు పాటించాలి. నూతన సాగు పద్ధతులు పాటించాలి.</p>	<h3>సూర్య సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన</h3>  <p>సూర్య సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన. సూర్య సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన.</p>
<h3>సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన</h3>  <p>సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన. సహజపద్ధతులతో వరిలో పురుగుల నిర్మూలన.</p>	<h3>కెవిక క్షేత్రాన్ని సందర్శించిన రైతు</h3>  <p>కెవిక క్షేత్రాన్ని సందర్శించిన రైతు. కెవిక క్షేత్రాన్ని సందర్శించిన రైతు.</p>	<h3>యువ రైతులకు వ్యవసాయ ఉపాధి మార్గాలపై శిక్షణ</h3>  <p>యువ రైతులకు వ్యవసాయ ఉపాధి మార్గాలపై శిక్షణ. యువ రైతులకు వ్యవసాయ ఉపాధి మార్గాలపై శిక్షణ.</p>
	<h3>రైతు వేదికలో 60 మంది రైతు</h3>  <p>రైతు వేదికలో 60 మంది రైతు. రైతు వేదికలో 60 మంది రైతు.</p>	<h3>గూడూరులో మహిళా రైతులకు అంట్లు కట్టే విధానంలో శిక్షణ</h3>  <p>గూడూరులో మహిళా రైతులకు అంట్లు కట్టే విధానంలో శిక్షణ. గూడూరులో మహిళా రైతులకు అంట్లు కట్టే విధానంలో శిక్షణ.</p>





## Annexures

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### Annexure 1. Criteria for Selecting Farmers to Mentor as AFI Champions (Agri-Entrepreneurs):

- Educational Qualifications: Completion of 10th standard or equivalent.
- Age: Between 25 to 40 years.
- Farming Background: Sons or daughters of farmers, with a background in farming.
- Community Commitment: Willingness to stay in their village, establish a business, and contribute to the community's growth and development.
- Access to Digital Device: Possession of a digital device, such as a mobile phone, with a basic level of operational knowledge.
- Gender Inclusivity: Both males and females are encouraged and eligible to enroll in the program.
- Exam: Must take a 25-question exam and answer at least 13 correctly.
- Personal Interview: Used to assess knowledge of agriculture, family background, economic status, and willingness to start an agriculture-related business in the villages.
- Must work with a minimum of 50 farmers in their villages.

## Annexure 2. Details of farmers serviced by AFI Champions until September 2023

Archetypes Names	Farmers Served Till April 2023	Farmers Served in May 2023	Farmers Served in June 2023	Farmers Served in July 2023	Farmers Served in August 2023	Farmers Served in Sep 2023	Total
<b>Agri-Input Shop</b>	10486	1921	5615	6284	5293	5352	<b>34951</b>
<b>Milk Collection Center</b>	603	311	241	396	437	405	<b>2393</b>
<b>Market Linkage</b>	856	390	283	449	287	155	<b>2420</b>
<b>Digital Banking</b>	1503	859	982	1225	615	478	<b>5662</b>
<b>Farm Mechanization</b>	2212	1476	1449	1460	547	614	<b>7758</b>
<b>Vermicompost</b>	20	40	20	0	50	65	<b>195</b>
<b>Dairy</b>	16	0	0	0	0	0	<b>16</b>
<b>Poultry</b>	0	0	0	5	0	10	<b>15</b>
<b>Goatery</b>	0	0	0	0	0	0	<b>0</b>
<b>Nursery</b>	70	0	0	0	0	20	<b>90</b>
<b>Crop Advisory</b>	0	0	0	0	0	0	<b>0</b>
<b>Irrigation Services</b>	0	0	0	21	7	8	<b>36</b>
<b>Mushroom</b>	0	0	0	0	0	0	<b>0</b>
<b>Animal Feed</b>	230	97	117	93	80	66	<b>683</b>
<b>Small Scale processing</b>	149	35	0	0	0	0	<b>184</b>
<b>Soil Testing</b>	18	58	232	145	130	80	<b>663</b>
<b>Drone</b>	0	0	0	0	0	0	<b>0</b>
<b>Solar Dryer</b>	0	0	0	0	36	10	<b>46</b>
<b>Polyhouse</b>	0	0	0	0	0	0	<b>0</b>
<b>Vegetable Collection Centre</b>	0	0	0	0	0	0	<b>0</b>
<b>Others</b>	0	0	0	0	0	0	<b>0</b>
<b>Secondary businesses</b>	24	85	0	12	97	378	<b>596</b>
<b>Total</b>	<b>16187</b>	<b>5272</b>	<b>8939</b>	<b>10090</b>	<b>7579</b>	<b>7641</b>	<b>55708</b>

### Annexure 3. Details of AFI Champions servicing fellow farmers until September 2023

Archetypes Names	Total Transactions (Jan 2023)	Total Transactions (Feb 2023)	Total Transactions (March 2023)	Total Transactions (April 2023)	Total Transactions (May 2023)	Total Transactions (June 2023)	Total Transactions (July 2023)	Total Transactions (Aug 2023)	Total Transactions (Sep 2023)
Agri-Input Shop	9539500	10903600	6234450	2288200	2990940	11568700	15409250	11790120	19021970
Milk Collection Center	1066000	1041000	1065300	1233500	1324520	1439500	1916380	2265900	2491100
Market Linkage	617000	12625000	10586300	2784790	2124820	789500	2036250	1039100	1198000
Digital Banking	2635000	2937500	2299500	3176000	3231500	3120000	4935300	3407310	1964300
Farm Mechanization	2989750	1513600	930800	1311700	4206100	3954950	4181330	1651700	1196650
Vermicompost	25000	0	0	0	105000	55000	20000	97500	147000
Dairy	10500	10500	11000	10500	0	0	0	0	0
Poultry	0	0	0	0	0	0	33000	0	25000
Goatery	0	0	0	0	0	0	0	0	0
Nursery	32500	45000	9000	8100	0	0	0	0	29000
Irrigation Services	0	0	0	0	0	0	245000	231000	34250
Animal Feed	270000	391500	438750	526400	241900	243500	26400	312000	291600
Small Scale processing	250	3000	2500	7500	4500	0	0	0	0
Soil Testing	60000	50000	0	0	37000	122300	125000	140000	45000
Drone	0	0	0	0	0	0	0	0	0
Solar Dryer	0	0	0	0	0	0	0	41000	24000
<b>Total</b>	<b>17245500</b>	<b>29520700</b>	<b>21577600</b>	<b>11346690</b>	<b>14266280</b>	<b>21293450</b>	<b>28927910</b>	<b>20975630</b>	<b>26467870</b>

## Annexure 4. Details of FPO trainings on safe storage practices and electronic trading

S.No.	FPO/FPC name	Training Groups	Targeted Participants	Attended Participants total	Confirmed Training Date	Training Location	No of Villages covered	Major Villages operated	Mandal	District (RR/MM/MK)
1	Ralla FPCL	Group-1	10	10	11-08-2022	AvanCha Raithu vedika	5	RC Thanda,	Thimmajipeta	Nagarkurnool
2	Ammapally FPCL		10	10			6	Ammapalli	Thimmajipeta	Nagarkurnool
3	Ippalapally FPCL		10	10			7	Ippalapally	Thimmajipeta	Nagarkurnool
4	Navapeta	Group-3	30	37	11-10-2022	Kakarlapahad raithuvedika	10	Navapeta	Navabeta	Mahabubnagar
5	Nagarkurnool FPCL	Group-4	15	20	11-10-2022	Nagarkurnool Raithuvedika	5	Rallacheruvu and Nasoorlabad Tanda	Nagarkurnool	Nagarkurnool
6	Yetmatapur FPCL		15	23			7	Nawabpet	Tadoor	Nagarkurnool
7	Midzil FPCL		15	12			6	Kothapalli,Vasupala and Donur	Midzil	Mahabubnagar
8	Jadcherla FPCL	Group-5	15	16	11-09-2022	Jadcherla Raithuvedika	6	Ammapalli & Alwangpally	Jadcherla	Mahabubnagar
9	Thimmayapally Tanda FPCL		15	18			5	Addakula,Thimmayypalli Thanda & Thimmayypalli	Addakula	Mahabubnagar
10	Wanaparthy FPCL	Group-6	15	14	11-11-2022	Palem Raithuvedika	13	Wanaparthy	Wanaparthy	Wanaparthy
11	Duppalli FPCL	Group-7	10	11	14/11/2022	Pamreddipalli Raithuvedika	4	Duppally,Ampapur and Kurumurthy	Madanapuram	Mahabubnagar
12	Amarchinta FPCL		10	10			5	Amarachinta, Khanapur,Mastipur,Pamureddyipalli and Mullamalki	Amarachinta	Wanaparthy
13	Sarlasagar FPCL		10	12			8	Madanapuram,Ajakullu,Nelividi,Thimmayypally,Ramanapadu,A	Madanapuram	Mahabubnagar
14	NambiguruSwamy FPCL	Group-8	15	25	17/11/2022	Nawabpeta Raithuvedika	5	Thimmarreddypalli	Navabeta	Rangareddy
15	Kesavapally FPCL		15	15			4	Kesavaipalli	Navabeta	Rangareddy
16	Samishti FPCL	Group-9	15	18	17/11/2022	Velchal Raithuvedika	8	Mouminpeta,Durgamcheruvu,Venchal and Enkathala	Mouminpeta	SangaReddy
17	Ekambareshwari FPCL		15	22			9	Navabpeta,enkamamidi,enkathala,vattimamidipally	Navabeta	SangaReddy
18	Siripuram FPCL	Group-10	15	22	18/11/2022	Siripuram raithuvedika	3	Siripuram,Indrapally and Idulapuram	Marupally	Rangareddy
19	Kothalapuram FPCL		15	13			7	Tirumalapuram	Tirumalapuram	Rangareddy
20	Surakasha FPCL	Group-11	30	30	16/11/2022	Mulugu raithuvedika	8	Narsampalli	Mulugu	Siddipeta
21	PALAMURU RAITHULA PCL	Group-12	10	16	15/11/2022	Mallaiipalli Raithuvedika	20	Kanchiraopalli,Mallaiipalli Ertladinne Kambhalapoor Srirangapoor	PEBBAIR	Wanaparthy
22	Chinnambavi FPO		10	14			4	Chinnam bavi		
23	PEBBAIR FPCL		10	10			3	Gummadam,Ayyaveripalli,Patthapalli	PEBBAIR	Wanaparthy
24	KASIMNAGAR FPCL	Group-13	15	13	16/11/2022	Madanapuram KVK	3	Kasemnagar,Anjanagiri,Nagammathanda	WANAPARTHY	Wanaparthy
25	MADANAPOOR FPCL		15	10			5	Kothapalli,Duppalli,karvena,Gopanpeta,	MADANAPOOR	Wanaparthy
26	Balanagar FPO	Group-14	15	15	14/11/2022	Nawabpeta Raithuvedika	12	Balanagar	Navabeta	Mahabubnagar
27	Nawabpeta FPCL		15	29			10	Nawabpet	Nawabpet	Mahabubnagar
28	Hanwada FPCL		10	12			8	Hanwada	Hanwada	Mahabubnagar
29	Koilkondla FPCL	Group-15	10	10	15/11/2022	Hanwada raithuvedika	9	Koilkondla	Koilkondla	Mahabubnagar
30	Mahabubnagar FPCL		10	8			8	Nencherla,	Gandeed	Mahabubnagar
			420	485						

## Annexure 5. Walmart Foundation Evaluation Matrix

Goals	Outputs*			Outcomes**		
	Target & Actual Performance	Unexpected Performance	Comments	Actual Performance	Unexpected Performance	Comments
<b>Please state each of the program’s goals as described in your grant proposal.</b>	<b>Please document the target (if applicable) and actual outputs for the reporting period.</b>	<b>Please provide information about any unexpected output(s).</b>	<b>Provide thoughts or commentary about the unexpected outputs, if applicable.</b>	<b>Please document your major outcomes. Outcomes answer the question: “what happened as a result of the program?”</b>	<b>If applicable, provide information about any unexpected outcome (s).</b>	<b>Provide additional thoughts or commentary about your program outputs.</b>
<p>The <b>goal</b> is to increase productive employment in agriculture and related enterprises through creation of competitive but sustainable markets for stakeholders in the value chain involving agribusiness inputs, outputs, and technologies. The specific objectives are:</p> <ol style="list-style-type: none"> <li>1. Accelerating farming incomes through productive technologies, focusing on soil health, seed materials, and integrated approaches on water management, i.e., an integrated soil-seed-water approach, to ensure sustainable outcomes for rice and rice-based cropping systems in semi-arid regions of Telangana State. This will be done by strengthening technology transfer through farmer-based</li> </ol>	<p><u>Target:</u> A total of 30,000 farmers will be mentored to practice improved technology, good agricultural practices (GAPs), and post-harvest handling. Of these 15,000, 20%, or 6,000, will be women farmers.</p> <p><u>Actual:</u></p> <ul style="list-style-type: none"> <li>○ 30 farmer producer organizations (FPOs) with 16,042 members were trained on scientific storage and electronic trading.</li> <li>○ 12 FPOs were supported to establish vegetable collection centers. Of the total 6,087 members, 3,600 utilized the services. Vegetables worth Rs. 37,55,000 were sold through these collection centers.</li> <li>○ 22,584 unique beneficiary farmers, whose data was digitized by respective AFI Champions (AFICs), are being mentored to practice improved technologies/GAPs; 16% of these are women farmers.</li> <li>○ A total of 667 AFICs have been created and are expected to serve 33,450 farmers @ 50 farmers per AFIC.</li> <li>○ 160 out of 669 (24%) are women AFICs.</li> <li>○ During January to September 2023, a total of 55,708 farmers were served by 342 AFICs who have started an agribusiness. The total value of transactions was for Rs. 191,621,630 (over U.S. \$2 million).</li> <li>○ A total of 6,389 farmers are practicing</li> </ul>			<p>While the GAP dissemination to the beneficiary farmers and farmer-market linkage facilitation began during the last two quarters of the reporting period, the actual outcomes (number of hectares under GAPs, income enhancement, etc.) will be established as part of the Monitoring, Evaluation, and Learning (MEL) plan in the coming months.</p>		

Goals	Outputs*			Outcomes**		
	Target & Actual Performance	Unexpected Performance	Comments	Actual Performance	Unexpected Performance	Comments
<p>organizations or individual farmers and extensive consultations and advocacy campaigns through public extension and private firms imparting new and efficient products and delivery mechanisms.</p> <p>2. Building thriving markets through commercial orientation to farming toward promoting peri-urban agriculture in Telangana State.</p>	<p>safe vegetable production; 31% of these are women beneficiaries.</p> <ul style="list-style-type: none"> <li>A total of 1530 farmers used soil testing facilities established by AFICs and are practicing optimal fertilizer recommendations from these soil tests.</li> </ul> <p><u>Target:</u> 18 stakeholder seminars linking farmers with market actors will be organized. The seminars will be organized to improve the farmers' market knowledge and their access to market information and the market. Farmers who are playing a leadership role in their communities, along with market actors (agri-entrepreneurs), extension officials, NGO officials, and media representatives, will attend.</p> <p><u>Actual:</u> A total of 8 stakeholder seminars were organized, with 320 stakeholder representatives, including FPOs, Agricultural Extension Department, Telangana State Agricultural University, Society for Elimination of Rural Poverty (SERP), Agricultural Technology Management Agency (ATMA), traders, processing units, marketing agency, etc.</p>			<ul style="list-style-type: none"> <li>FPOs are better informed about market actors' needs and quality requirements.</li> <li>Poultry feed manufacturers are purchasing produce from the beneficiary farmers directly.</li> </ul>	<p>These events helped the project team members build networks with key stakeholder organizations and promote the project interventions.</p>	
	<p><u>Target:</u> 450 technology demonstrations for vegetables/high-value crops targeting farmers. Improved technology demonstrations initiated during the growing season to allow the "seeing is believing" approach to create awareness and achieve knowledge transfer.</p> <p><u>Actual:</u> A total of 1,459 farmer field demonstrations were organized on various topics, including application of drones in crop protection and GAPs</p>		<p>As part of the project approach to disseminate GAPs through farmer field-based trainings, large numbers of demonstrations were organized. The AFICs took the lead in organizing these demonstrations.</p>	<ul style="list-style-type: none"> <li>Farmers in the demonstration villages gained a practical understanding of the GAPs.</li> <li>Private companies came forward to participate in these demonstrations, at their own expense.</li> </ul>		

Goals	Outputs*			Outcomes**		
	Target & Actual Performance	Unexpected Performance	Comments	Actual Performance	Unexpected Performance	Comments
	in vegetables, cereals, pulses, and oilseeds.					
	<u>Target:</u> 180 agro-input dealers trained on efficient agri-advisory delivery in the target geography. <u>Result:</u> 192 agro-input dealers were trained on needs-based topics identified in consultation with knowledge partner organizations.		The partnership with the National Institute of Agricultural Extension Management (MANAGE) helped in accomplishing this challenging task of convening busy business people for a needs-based training.	The trained agro-input dealers have begun working with the trained AFICs for timely delivery of quality inputs for farmers during the upcoming crop season.		
	<u>Target:</u> Development/dissemination of technology transfer and promotion materials. Technology education and promotion materials to be developed and disseminated to farmers, private sector dealers, staff of the Department of Agricultural Extension (DAE), and women-owned/managed product supply shops. <u>Actual:</u> A total of 14 technology transfer and promotional products have been designed, produced, and disseminated to the beneficiary farmers.		Along with the technical experts in the project, partner organization, experts from the World Vegetable Center (WorldVeg), National Commodities Management Services Limited, etc., contributed to developing technology transfer and promotional materials.	The beneficiary farmers have improved access to information on improved agricultural practices.		

## Annexure 6. Soil Testing: A story of transformation in Palem village, Telangana

Soil tests are crucial for farmers to optimize fertilizer use and achieve higher yields. Soil tests reduce unnecessary fertilizer use and thus reduce the cost of cultivation.

Around 90% of the farmers in the area are growing crops without checking the nutrient status of their fields and not knowing the types of fertilizers required. They often end-up spending a lot on fertilizer application but get lower yields. Indiscriminate fertilizer use is also contributing to environmental problems.



In the verdant fields of Palem village, nestled within Kothakota Mandal of Vanaparthy district, a silent crisis loomed over the farming community. Many farmers, unaware of the nutrient values essential for their crops, grappled with heavy losses due to low yields and indiscriminate use of chemical fertilizers.



## Outcomes of the project

1. Knowing the nutrient strength of the soil is benefitting the farmers as they're informed about the crops that are profitable in their respective lands.
2. Balaraju is explaining the farmers about the levels of Phosphorus and Potassium, instantly based on the tests.
3. Through soil testing farmers are able to supplement the nutrients which are lacking in the soil and reducing the expenses on nutrients.

the area, he remained undeterred in his quest for knowledge.

Under the auspices of IFDC's Accelerating Farm Incomes (AFI) project, Balaraju and 60 other participants underwent comprehensive training on operating soil testing units. Equipped with newfound skills and knowledge, Balaraju emerged as a beacon of hope for the farming community.

Harnessing the power of online training provided by AFI in collaboration with IFDC, Balaraju established his own soil testing unit. Farmers from across Palem village and beyond flocked to his center, eager to unlock the secrets hidden beneath their soil.

With meticulous care and precision, Balaraju conducted soil tests, unraveling the nature, characteristics, and nutrient levels of the soil. Armed with this invaluable information, he embarked on a mission to educate farmers on the optimal fertilizer application for each crop. Thanks to Balaraju's initiative, Palem farmers witnessed a remarkable turnaround in their agricultural fortunes. Armed with knowledge and guided by Balaraju's expertise, they were

able to make informed decisions about crop selection and fertilizer usage, leading to reduced losses and increased yields.

In the fertile fields of Palem village, Balaraju's story stands as a testament to the transformative power of education and community-driven solutions. With the support of IFDC's AFI project, he continues to pave the way towards a more prosperous and sustainable future for farmers..

## Annexure 7. Young farmer's vision brings agricultural renaissance to drought-stricken Telangana village.

In the parched landscapes of Medak district, where rainfall is a rare blessing and water scarcity looms large, farmers face an uphill battle against the elements. Among them is M. Raju, a determined young farmer who refused to be deterred by the daunting challenge of cultivating crops in such adverse conditions.

Driven by a vision to revolutionize farming practices and mitigate the impact of water scarcity, Raju embarked on a journey of innovation and resilience. Recognizing the potential of cultivating drought-resistant crops, he conceived the idea of establishing a nursery—a beacon of hope amid the arid fields of his village.

"Through determination and perseverance, we can overcome any obstacle," says Raju, reflecting on his journey.

With unwavering determination, Raju sought support from the International Fertilizer Development Center (IFDC), enrolling in their transformative Accelerating Farm Incomes (AFI) project. Through 40 days of intensive training, Raju honed his skills and gained invaluable insights into sustainable agriculture practices.





"Raju's initiative is a shining example of how local innovation can drive agricultural transformation," says a member of the AFI project team, emphasizing the project's commitment to empowering farmers and fostering sustainable practices.

Empowered by IFDC's support, Raju transformed his vision into reality, establishing the Rajarajeshwari nursery within his own field. Here, he meticulously nurtures seedlings of various drought-resistant vegetables, offering a lifeline to farmers grappling with water scarcity.

"Not only are we cultivating crops, but we are also sowing the seeds of hope for a better future," remarks Raju, his eyes shining with determination.

Not content with merely providing seedlings, Raju goes above and beyond, educating fellow farmers on the intricacies of cultivating water-efficient crops. Through his tireless efforts, Raju's nursery becomes a symbol of resilience and community empowerment.

Thanks to Raju's initiative, Shamnapur farmers witness a remarkable transformation in their agricultural endeavors. The cultivation of drought-resistant vegetables not only reduces losses but also enhances their resilience in the face of water scarcity.

In the heart of Telangana's drought-stricken landscape, Raju's story stands as a testament to the power of innovation and community-driven solutions. With IFDC's support and Raju's unwavering dedication, the village of Shamnapur embarks on a journey towards agricultural prosperity, one seedling at a time.

## Annexure 8. Empowering Chilli farmers: IFDC's journey in Mamidipalli village.

In the picturesque village of Mamidipalli, nestled within the verdant landscapes of Amarachinta Mandal in Vanaparthy district, Telangana, agriculture reigns supreme. Here, farmers toil tirelessly on their fields, primarily cultivating chilli crops and a variety of vegetables. However, despite their hard work and dedication, they often found themselves at the mercy of local traders who offered paltry prices for their produce.

Damodar, a seasoned farmer with a passion for agriculture, faced this predicament firsthand. Last year, after laboring tirelessly on his 5-acre farm, he harvested an impressive 50 quintals of chilli. However, when local traders swooped in and offered a meager Rs 16,000 per quintal, Damodar was left disheartened. Reluctantly, he parted with his hard-earned produce, grappling with the reality of meager returns on his investment.

Enter IFDC, the beacon of hope for farmers like Damodar. Recognizing the plight of chilli farmers in Mamidipalli, IFDC took proactive steps to address the issue. They facilitated a groundbreaking initiative by inviting traders from the bustling Hyderabad Mirchi Market to the tranquil village. Gathering the farmers and traders together, IFDC orchestrated a meeting aimed at bridging the gap between the two parties.





During these meetings, IFDC imparted invaluable knowledge on fair trading practices and the importance of securing reasonable prices for agricultural produce. Farmers like Damodar were empowered with the necessary information to negotiate effectively with traders. Witnessing the potential of this collaborative effort, Hyderabad traders extended a generous offer of Rs 25,500 per quintal for quality chilli produce.

The impact was immediate and profound. Damodar, along with his fellow farmers, rejoiced at the newfound opportunity to earn a fair price for their hard work. “IFDC worked like a bridge between farmers and traders, helping us earn a profit of Rs 5,500 per quintal,” expressed Damodar, his face beaming with gratitude. With IFDC’s guidance and support, farmers like Damodar no longer fell victim to local traders’ exploitation.

Uday, IFDC’s dedicated field monitoring officer in Vanaparthi, witnessed the transformative impact firsthand. “With the efforts of IFDC, Damodar got Rs 2,75,000 for his crop produce this time,” he remarked, his eyes reflecting pride in the positive change brought about by IFDC’s intervention. Encouraged by the success story in Mamidipalli, farmers embraced the shift towards approaching wholesale traders recommended by IFDC, ensuring sustainable income and prosperity for years to come



### Impact of IFDC:

1. Increased farmer income by Rs 5,500 per quintal, translating to a significant boost in revenue for agricultural households.
2. Empowered farmers to negotiate fair prices and bypass exploitation by local traders, fostering a sense of independence and resilience within the farming community.
3. Catalyzed a shift towards sustainable agricultural practices, as farmers embraced the guidance and support provided by IFDC, ensuring long-term prosperity for themselves and future generations.

## Annexure 9. IFDC empowers farmers with crop advisory center in Telangana village.

In the heart of Bunyadpur village in Peberu Mandal of Vanaparathi district in Telangana, a transformative tale unfolds. Suryakala, a determined villager, who despite facing the challenges of widowhood, found solace and purpose in the fields alongside her parents. With an unwavering commitment to uplift her community, she engaged with various NGOs devoted to rural development.

Driven by a desire to make a tangible impact in the agricultural sector, Suryakala seized the opportunity presented by the International Fertilizer Development Center's (IFDC) Accelerating Farm Incomes (AFI) project.

After undergoing intensive training for 40 days, she emerged equipped with knowledge and empowered to effect change.

“The IFDC training gave me the tools and confidence to make a difference in our village,” remarked Suryakala. “I am grateful for the opportunity to serve my community and contribute to its agricultural prosperity.”





Inspired by her newfound skills, Suryakala envisioned a beacon of hope for her village a Crop Advisory Center. Taking decisive action, she established the center, a guiding light for farmers in Bunyadpur and its surroundings. Armed with her expertise, she embarked on farm visits, meticulously assessing soil health and crop conditions. With each interaction, she dispensed invaluable advice on optimal fertilizer and pesticide usage, steering farmers towards bountiful harvests.

As Suryakala continues her tireless efforts, the ripple effects of the AFI project extend far beyond her village. Vulnerable communities across Telangana find newfound resilience and prosperity in the agricultural sector. Truly, the Crop Advisory Center stands as a testament to IFDC's commitment to empowering farmers and fostering sustainable agricultural practices.

## Annexure 10. Financial empowerment blossoms in Samnapur: Patnam Raju's journey.

Patnam Raju, a graduate from Samnapur in Medak district, found himself without suitable employment options matching his qualifications, so he turned to agriculture.

Witnessing the financial struggles of fellow farmers, he observed a significant challenge: the absence of an ATM or bank in his village. This forced farmers to travel approximately 10 kilometers to access their funds, resulting in lost work hours.

With the support of IFDC's AFI program, Raju received training in digital banking and agricultural equipment operation. Empowered by this knowledge, he established the Durga Bhavani Digital Banking Services Centre to assist farmers in need of financial assistance.

Samnapur villagers express their gratitude, stating, "After receiving training from IFDC, Raju began aiding farmers in financial need. While becoming self-sufficient, he is also helping farmers acquire tractors and weeders for agricultural purposes, effectively addressing our village's agricultural needs."





### Impact of IFDC:

1. Reduction in farmers' travel costs: With the establishment of the Durga Bhavani Digital Banking Services Centre, farmers no longer have to travel long distances to access banking services, saving them time and money.
2. Improved access to financial resources during emergencies: Farmers now have easier access to funds for agricultural purposes, even during emergencies, enabling them to address urgent needs such as purchasing seeds, fertilizers, or repairing equipment.
3. Economic empowerment of Patnam Raju: Through his initiative, Patnam Raju is generating a decent income by providing digital banking services and assisting farmers in acquiring agricultural equipment, contributing to his financial stability and growth.
4. Fulfillment of banking needs for villagers: The establishment of the digital banking center addresses the banking needs of the villagers, providing them with a convenient and accessible way to manage their finances.

## Annexure 11. Custom Hiring Center (CHC): Ravinder reddy's success story.

Gorre Ravinder Reddy, a resident of Muddemguda village in Shabad mandal of Rangareddy district, has emerged as a beacon of hope for local farmers by establishing a Custom Hiring Centre (CHC) in his village, following his training under IFDC's AFI project. Despite completing his education up to the 10th class level, Ravinder Reddy recognized the agricultural potential of his village, which is home to around 1500 inhabitants, predominantly farmers cultivating various crops including cotton, maize, carrots, chilli, paddy, tomato, and pulses.

Equipped with knowledge gained from IFDC's agricultural business training, Ravinder Reddy successfully launched his CHC, aimed at providing essential farm machinery, implements, and equipment to small, marginal, and economically disadvantaged farmers at subsidized rates. His initiative has significantly alleviated the financial burden on local farmers while facilitating access to crucial farming resources.

Ravinder Reddy's dedication to supporting his fellow farmers extends beyond the provision of equipment. He actively engages with farmers, offering expert advice on soil health improvement and crop management. Services such as deep ploughing and rotavation provided by his CHC have played a pivotal role in enhancing crop yields and overall agricultural productivity in the village.





The impact of Ravinder Reddy's CHC initiative is palpable, with farmers like Siva Kumar and Laxmi Narayana attesting to the benefits they have derived from his services, witnessing improved yields and agricultural outcomes. As a result of his efforts, the local farming community has experienced enhanced financial stability and increased agricultural prosperity.

### **Impact of IFDC:**

1. Access to subsidized farm machinery and equipment has reduced financial constraints for small and marginal farmers.
2. Expert advice and services provided by the CHC have led to improvements in soil health and crop yields.
3. Ravinder Reddy's initiative has fostered a sense of community empowerment and collaboration among local farmers, driving agricultural growth and sustainability.

## Annexure 12. Empowering agriculture: Srinivas's feed retail shop revolutionizes farming in Parvatipur village.

Srinivas, a resident of Parvatipur village in Kondurgu mandal of Rangareddy district, Telangana, embarked on a journey of empowerment through agriculture.

After receiving training in IFDC's AFI project in April 2023, Srinivas, a graduate who previously served as a Village Revenue Assistant (VRA), recognized the needs of farmers in his community. Motivated by his family's agricultural background and his desire to support fellow farmers, he established a feed retail shop in his village.

With approximately 700 farmers in Parvatipur, many of whom are involved in dairy farming, Srinivas's shop plays a crucial role in supplying essential feed products. Chakali Venkataiah, one of the beneficiaries, expressed his appreciation, stating, "I am saving money by purchasing wheat powder from Srinivas's shop at a reasonable price. Previously, I had to travel to other towns to buy feed products."

Collaborating with fellow farmer Narasimhulu, Srinivas operates the shop from his own house, providing convenience and accessibility to the farming community.

Reflecting on his journey, Srinivas shared, "The IFDC training opened my eyes to the agricultural needs of our village. Establishing this retail shop has not only been fulfilling for me but has also made a positive impact on the farming community."





### **Impact of IFDC:**

1. **Enhanced Accessibility:** Srinivas's feed retail shop has significantly improved access to essential feed products for farmers in Parvatipur village. By establishing the shop within the village, farmers no longer have to endure long journeys to neighboring towns, saving time and resources.
2. **Cost Savings:** Farmers like Chakali Venkataiah have benefited from the competitive prices offered by Srinivas's shop. By purchasing feed products locally at reasonable rates, farmers can save on transportation costs and obtain quality products without compromising on their budget.
3. **Community Empowerment:** Srinivas's initiative has empowered the farming community by providing a reliable source of agricultural inputs. Through collaboration with fellow farmer Narasimhulu and the operation of the shop from his own house, Srinivas has fostered a sense of community spirit and cooperation, further strengthening the fabric of village life.

### **Annexure 13. Transforming agriculture: Suresh’s journey to success.**

Suresh, a resident of Papireddy Guda village in Kesampet mandal of Rangareddy district, embarked on a remarkable journey of transformation through IFDC’s AFI project training. Joining the first batch of the project in 2023, Suresh, a graduate, ventured into farming on his five-acre land, focusing on paddy cultivation. With a keen interest in mechanization, he invested in a tractor to meet his agricultural needs.

Under the guidance of IFDC’s training program, Suresh honed his skills in handling agricultural machinery and subsequently acquired a baler machine, which compresses harvested crops into compact bales for easy transportation and storage. Leveraging his newfound expertise, Suresh began offering his services to his village and neighboring areas for cutting paddy crops, providing seasonal employment opportunities.

Today, he boasts a customer base of 250 farmers and earns an impressive income of 4 lakhs annually from this venture alone.

Reflecting on Suresh’s journey, a villager remarked, “Suresh’s dedication and willingness to embrace modern agricultural practices have truly transformed our village.”





Commenting on Suresh's enthusiasm for mechanization, an IFDC trainer noted, "Suresh's keen interest in mechanization was evident from the outset. His determination to enhance his skills and apply them to improve agricultural practices is commendable."

Despite receiving a job offer in Vijayawada, Andhra Pradesh, based on his drone usage skills, Suresh opted to remain in his hometown, prioritizing his commitment to helping farmers in Rangareddy. He expressed his intention to soon start offering drone services for agricultural purposes in the local area, further demonstrating his dedication to serving his community.

#### **Impact of IFDC:**

1. **Economic Empowerment:** Suresh's success story highlights the economic empowerment brought about by IFDC's AFI project. By providing training and access to modern agricultural techniques, the project enables individuals like Suresh to generate significant income through farming and related services.
2. **Skill Development:** The project's focus on skill development equips participants with the necessary knowledge and expertise to adopt mechanized farming methods, leading to increased efficiency and productivity in agriculture.
3. **Community Engagement:** Suresh's decision to remain in his hometown and utilize his skills for the benefit of local farmers underscores the importance of community engagement fostered by the project. By staying connected to his roots and contributing to the agricultural development of his village, Suresh exemplifies the spirit of community service and empowerment.

## Annexure 14. Bheemiah's drip irrigation initiative transforms farming practices in Rangareddy district.

In the heart of Padmarao village, nestled within Choudarygudem mandal of Rangareddy district, Bheemaiah emerges as a beacon of agricultural innovation, catalyzing a paradigm shift through his pioneering drip irrigation services.

Amidst the verdant fields and bustling activity of the mandal, Bheemaiah's journey began with his participation in IFDC's AFI project training in December 2023. Delving into the nuances of modern agricultural practices, Bheemaiah seized upon the transformative potential of drip irrigation, recognizing its ability to revolutionize crop cultivation and water management.

Armed with newfound knowledge and unwavering determination, Bheemaiah embarked on his mission to propagate drip irrigation techniques across the agricultural heartlands of Kondurgu and Shabad mandals. Venturing beyond the confines of his village, he traversed vast expanses of farmland, extending his invaluable services to farmers in neighboring villages.

Drawing inspiration from the training, Bheemaiah procured the requisite drip irrigation equipment from a trusted Mahindra dealership, laying the foundation for his burgeoning enterprise. As word of his expertise spread like wildfire, farmers flocked to him, seeking guidance and assistance in implementing drip irrigation systems in their vegetable-laden fields.

With each passing season, the tangible benefits of Bheemaiah's intervention became increasingly apparent. Farmers marveled at the bountiful yields and water savings afforded by drip irrigation, underscoring its pivotal role in enhancing agricultural productivity and sustainability.





Reflecting on the profound impact of Bheemaiah’s endeavors, an IFDC member remarked, “Bheemaiah’s exemplary dedication and success have served as a source of inspiration for his fellow trainees. His unwavering commitment to harnessing modern agricultural techniques epitomizes the transformative potential of the AFI project.”

For Bheemaiah, a graduate with a familial legacy rooted in agriculture, the journey has been nothing short of fulfilling. From humble beginnings to becoming a catalyst for change in the agrarian landscape, his story stands as a testament to the power of knowledge, innovation, and perseverance in fostering agricultural prosperity

#### Impact of IFDC:

1. **Enhanced Crop Yields:** Bheemaiah’s drip irrigation services have led to significant improvements in crop yields, ensuring a more abundant harvest for farmers.
2. **Water Conservation:** The adoption of drip irrigation has resulted in efficient water usage, contributing to sustainable farming practices and conservation of precious water resources.
3. **Economic Empowerment:** By optimizing farming techniques and boosting productivity, Bheemaiah has empowered local farmers economically, paving the way for greater financial stability and prosperity within the community.