Concurrent Monitoring-II Report

Monitoring & Evaluation (M&E) for
Project on Climate Resilient Agriculture (PoCRA)
in Rest of Project Area Maharashtra

Nanaji Deshmukh Krushi Sanjeevani Prakalp

(Project of Government of Maharashtra in Partnership with the World Bank)

PREPARED BY

NABARD Consultancy Services Pvt. Ltd.

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List of Abbreviations

AA	Agriculture Assistant
ABPS	Aadhaar Based Payment System
APMC	Agricultural Produce Market Committee
APY	Area, Production, Yield
ATMA	Agricultural Technology Management Agency
BBF	Broad Bed Furrow
CAPI	Computer Assisted Personal Interviewing
CoC	Cost of Cultivation
CCT	Continuous Contour Trenches
CM	Concurrent Monitoring
DBT	Direct Benefit Transfer
DPMU	District Project Management Unit
DSAO	District Superintendent Agriculture Officer
DoA	Department of Agriculture
FGDs	Focus Group Discussions
GoM	Government of Maharashtra
GSVA	Gross State Value Added
FGDs	Focus Group Discussions
FIG	Farmers Interest Group
FFS	Farmers' Field School
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
IPM	Integrated Pest Management

K	Kharpan
KIIs	Key Informant Interviews
KVK	Krushi Vigyan Kendra
MLP	Micro-Level Planning
MIS	Management Information system
M&E	Monitoring & Evaluation
NABCONS	NABARD Consultancy Services P Ltd.
PDO	Project Development Objective
PMU	Project Management Unit
PoCRA	Project on Climate Resilient Agriculture
RFID	Results Framework Indicators
SC	Schedule Caste
ST	Schedule Tribe
SDAO	Sub-divisional Agriculture Officer
SHG	Self Help Group
SME	Small & Medium Enterprises
S&WC	Soil & Water Conservation Structures
SWOC	Strengths, Weaknesses, Opportunities & Challenges
TAO	Taluka Agriculture Officer
ToR	Terms of Reference
VCRMC	Village Climate Resilient Management Committee
WB	World Bank

Executive Summary

The strategy for accelerating agricultural growth requires action in terms of bringing technology to the farmers, improving the efficiency of investments, increasing areas under irrigation, increasing systems support and rationalizing subsidies. It also involves diversifying cropping pattern, while protecting food security concerns, and fostering inclusiveness. Through this group approach, small and marginal farmers will get better access to land, credit and skills.

PoCRA is built around a comprehensive multi-sector approach that focuses specifically on building climate resilience in agriculture through scaling up tested technologies and practices, while generating the interdependent solutions. However, to ensure that the investments made under the project lead to desired outcomes, monitoring at regular intervals is essential.

I. Concurrent Monitoring

The main objective of concurrent monitoring is the regular collection and reporting of information to track whether actual results are being achieved as planned. Concurrent Monitoring focuses on systematic and continuous collection and analysis of data for measuring process and progress of the project. A total of 10 concurrent monitoring rounds will be conducted during the 5-year project, once every six months. Concurrent monitoring comprises of process and progress monitoring.

Process monitoring focuses on the interventions being carried out as part of the project, whether and/or how well the activities are being implemented. It also covers the use of resources. It is designed to provide the information needed to continually plan and review work, assess the success of the implementation of the project, identify and deal with problems and challenges, and take advantage of opportunities as they arise.

Progress monitoring on the other hand, intends to assess the changes brought about by a project or programme on a continuous basis. Mostly the changes are measured with a set of indicators targeting the outcome level changes over a period. For PoCRA, the RFID indicators will be measured through concurrent monitoring.

II. Sampling Methodology

Concurrent Monitoring (CM) was conducted on a sample of 32 clusters. For this purpose, all the 320 project clusters were arranged district-wise and, within district, Taluk-wise. From this sorted list a systematic sample of 32 (one-tenth of the) clusters were selected by applying systematic random sampling procedure. From within each selected cluster, one village was selected at random for concurrent monitoring round-II.

For the control group, of the selected 32 project clusters, 16 clusters were selected systematically. Corresponding to each of these 16 project clusters, a matching (in terms of vulnerability index) 16 control clusters were selected preferably from the same districts and Taluks. Next, from each of these 16 selected control cluster, one village was selected at random. Thus, there are 16 control villages that are comparable and adjacent to the selected project villages. In total, there are 48 villages for CM-II, 32 villages from project area and 16 villages from control area.

For each selected project village, a list of individual beneficiaries, community beneficiaries, farmer field school participants and SHGs were obtained from the PMU. The corresponding list for the control villages was obtained by the field team by visiting the villages and enquiring with concerned officials or from their records.

From each selected village, a systematic sample of 3 DBT beneficiaries with pre sanction received and 3 DBT beneficiaries with pre sanction received and paid were selected. Regarding Farmer Field School, a systematic sample of 1 Host farmer and 3 Guest farmers (including 1 women) from each village was selected. In addition, wherever Farmer producer Organizations (FPOs) and SHGs were present, 3 FPO members including the director and 2 SHG members were selected systematically. Furthermore, wherever NRM work was undertaken and community farm pond constructed, a systematic sample of 10 beneficiaries from each was selected. Total 494 beneficiaries in project villages were selected.

In addition, Key Informant Interviews (KIIs) were conducted in project villages for eliciting responses from persons with informed perspective. The information obtained from the key informants was the qualitative information required for the process and progress monitoring for concurrent.

In case of Control Villages, functionaries like Agriculture Officer, Gram Panchayat and Village Watershed Committee were approached and a list of individual and community activities like community farm pond and SHG was obtained. Total 255 beneficiaries have been covered in control villages.

III. Findings from CM-II Survey

Component A: Promoting Climate Resilient Agriculture Systems

Climate Resilience in agricultural production systems is the main component under the project. The objective is to strengthen adaptive capacity of farmers through interventions at farm level, complemented by interventions for increasing access to irrigation. As part of CM-II, data has been collected on relevant parameters under this component and activities.

A1: Participatory Development of Mini Watershed Plans

Findings on Participatory Micro Planning & Project

The foundation for any project is an effective micro planning. Village Climate Resilience Agriculture Management Committee (VCRMC) and female farmer friend (Krushi Tai) play a significant role to ensure effective micro-planning. 89% of the beneficiaries said that they were aware about the project. Out of the total who were aware, 92% said that they got the information about the project from the agriculture department. Further, 60% beneficiaries said that they were aware about the micro-planning process carried out in Phase-I villages.

Findings on VCRMC & Krushi Tai

The VCRMC organizes monthly or fortnightly meetings with beneficiaries after a minimum of 10 to 15 applications are received. VCRMC takes decisions on pending applications. In case of any issues in applications, one of the members of VCRMC discuss it with the beneficiaries on cases to case basis.

Krushi Tai acts as an interface between project officials and the village community and help in mobilization efforts and works in close coordination with the Cluster Assistant. The Cluster Assistant helps beneficiaries in the application process. Once the process is completed, the CA receives the complete list of applications. The CA verifies all the KYC documents and assesses feasibility of the activities. During the committee meetings, the VCRMC members are apprised about the activities. All the applications are discussed by the member's post which one third of the members have to agree and approve the application.

VCRMC organizes meetings to guide farmers and landless about the applications. In the meetings, new guidelines or instructions received about project activities, information regarding project are disseminated through leaflets, pamphlets, messages, WhatsApp messages through Krushi Tai.

The Krushi Tais' awareness about the role of VCRMC was 'good'. As executive member of the VCRMC, Krushi Tai attends all village level meetings and participates in discussions regarding the project, obtains project related updates to share with farmers and focuses on improving participation of women in the project activities

A2: Promoting Climate Resilient Agricultural Systems

Main objective under this component is maximizing productivity through transfer and adoption of climate resilient technologies. Feedback of farmers was obtained on agriculture practices, farmers' field school, and support through DBT activities. A comparison between project and control has also been presented.

PoCRA project has been designed to ensure maximizing productivity with focus on small and marginal farmers. A unique feature is the range of activities that farmers can apply under the project. There is no limit to the number of activities that a farmer can apply.

Findings on Agriculture Practices

Landholding pattern: As per the sample survey, 24.7% of beneficiaries in project were landless. 15.3% in project and 20.9% in control villages were marginal having less than 1 Ha land. Small and medium farmers were the majority of the category in both project and control villages. 42.5% in project and 40.2% in control were small (1-2 Ha land), whereas 41.1% in project and 38.9% in control were medium (2-10 ha land). Large farmers were only 1.1% in project villages. Average landholding was found to be 2.24 ha in project villages and 2.19 ha in control villages.

Cropping pattern: 40% of the farmers in project are growing Cotton during Kharif season as compared to 33.9% in control. Soybean was second major crop with 35.4% farmers in project villages as compared to 39.8% in control villages. Pigeon pea was the third major crop in Kharif season with 18.8% farmers in project and 20.8% farmers in control villages. During Rabi season, Chickpea was the major crop with 65.4% farmers in project and 56.6% farmers in control villages. Wheat was the second major Rabi crop grown by 20.1% farmers in project and 21.3% farmers in control villages.

Area, Production and Yield: yield of Cotton was reported to be 8 Quintal/acre, Soybean 6.2 Quintal/acre, Chickpea 6.2 Quintal/acre and Pigeon pea 3.9 Quintal/acre in project villages. In control villages, the yield was reported to be, Cotton 6.6 Quintal/acre, Soybean 6.0 Quintal/acre, Chickpea 5.9 Quintal/acre and Pigeon pea 5.1 Quintal/acre.

Findings on Farmers' Field School (FFS)

Farmer Field Schools are group-learning activities through which farmers are empowered to solve their issues. It involves experimentation and observation. The sessions are usually organized in planting/sowing season in the field of host farmer while guest farmers (neighbouring farmers) observe and discuss. Famers develop understanding about better cultivation practices, pest management, adoption of resilient varieties and others.

The facilitator initiates the FFS. His/her role is organizing trainings & demonstrations and dissemination of climate resilient technologies. FFS coordinator reviews the trainings and demonstrations organised by Facilitator. Coordinator is also involved in selection of FFS topics in consultation with the SDAO and spreading awareness among farmers regarding benefits of attending FFS.

The crop for which demonstrations is conducted is based on the seasons (Rabi & Kharif). In the topic of demonstration, recurrent issues of the crops selected are dealt with. The process of selection of host farmer is based on project guidelines and parameters such as land holding, irrigation facilities, willingness to adopt technology and caste category. Guest farmers are neighbouring farmers who observe the process and their registration process is App based. Krushi Tai's role is ensure better participation of women and other farmers. Around 25% of women farmers should participate in the FFS. Hence, Krushi Tai informs and reminds participants 3 to 4 days prior to the scheduled date of FFS.

Out of the total beneficiaries selected for FFS, 85% reported attending FFS, while 15% said that they are yet to attend any training/demonstrations. Out of the total surveyed, 75% were guest farmers while 25% were host farmers. Gender wise participation showed that in the host farmer's category, 91% were males and 9% were females, while in guest farmer's category, 82% were males and 18% females.

Majority of the farmers attending FFS reported that they have participated to get information on new farming techniques, as reported by 56% farmers. Since pests and disease are major issues reported, 35% said that they have attended FFS to get information on Pest & disease management.

As part of technologies demonstrated, 48% reported fertilizer dosage application as the main technology, followed by Seed Treatment (41%), Fertigation (38%), control measures for Pests & Diseases (36%), Preparation of Organic Manure (32%), and Sowing Techniques (30%).

91% of the farmers reported that they have found the information provided during FFS relevant. However, when asked whether they have adopted the demonstrated variety, only 31% responded saying they have adopted the technologies in their farmlands.

Majority of the farmers reported that improved germination rate, increased production and pest resistance are the main impacts of planting the new verities demonstrated during FFS. 18% stated that pest infestation has reduced by 10 per cent, 17% stated that the germination rate has improved by around 10 per cent, whereas 11% said plant diseases have reduced by around 10 per cent.

Findings from Kharpan Villages

As part of the CM-II Survey, total 11 Kharpan villages have been covered with total 93 beneficiaries. 55% of the beneficiaries were DBT, while 45% were FFS.

85% of the farmers were aware about the salinity issues. Major issues reported by the farmers were: growth of crops affected leading to decrease productivity, difficulty in cultivation & tillage and irrigation issues, as ground water is saline.

Since some of the farmers are unaware about the salinity problems and how to deal with the issues, it was observed that a large number of applications in Kharpan villages are for FFS (52.7%), which is encouraging as technologies demonstrated for good agriculture practices will be useful in saline affected villages.

Out of the total 42 beneficiaries of FFS in Kharpan villages, 9 were host farmers and 33 were guest farmers. 50% said that they have attended to get information about pests and disease, especially pink bollworm in Cotton. 85% of the farmers reported that the technologies demonstrated were useful for them.

Beneficiaries taking pipe and water pumps as the activity reported that they have benefited from it through better irrigation practices and water saving. Beneficiaries who had applied for sprinkler irrigation reported that the system has been taken for Cotton & Chickpea. 75% of the beneficiaries reported increase in yield and better water management due to the sprinkler system.

As part of the project, special focus has been given to saline/sodic villages and activities taken up by farmers. Out of the total applications, 22% were from Kharpan Villages with 63% in Akola, followed by 55% in Amravati, 20% in Buldhana and 6% in Jalgaon.

Major activities applied by farmers in Kharpan villages were Small Ruminants (21.9%), Farm Mechanization (14.3%), Sprinkler Irrigation (10.6%), pipes (8.6%), Seed production (8.1%), Drip Irrigation (4.2%). Total Rs. 2.83 Cr subsidy has been paid in Kharpan Villages as of Sep 30, 2020.

As per the feedback from SDAO, in Kharpan villages, soil & water conservation activities have to be done after thorough analysis and survey. Farm Ponds can be an effective option to deal with Salinity issues. These activities are planned according to water budgeting done as part of micro-planning, rainfall of the area, soil type, soil depth and slope.

Supporting farmers through DBT

As part of the project, to transfer the approved grants directly to the Aadhaar linked bank account of the beneficiary, PoCRA has adopted the Direct Benefit Transfer (DBT) mechanism. Category wise DBT applications show 61% are from OBC, 15% SC, 11% ST, 11% General category, and 2% were from other categories.

Small Ruminants: As part of the sample DBT applications, 22.4% were for small ruminants. Majority of the applications were from Jalgaon (28%), Akola (23%) and Buldana (19%). As per the findings, it was observed that the activity is helping to generate significant profit from herd of ten goats and one buck for the beneficiaries.

FFS Host Farmer Assistance: Out of the sample DBT applications, majority were from Akola, Buldana and Yavatmal districts. No application was there from Jalgaon. 54% of the applications were from Kharpan Villages. Most of the farmers reported that the FFS was helpful for them. Increased Production, Improved Germination& Pest Resistance were some of the perceived impacts from FFS.

Agroforestry/Horticulture: As part of the sample, four beneficiaries were selected for Agroforestry & Horticulture Plantations. Out of the four sample applications, 50% were in pre-sanction stage and 50% were the ones where subsidy was released. Beneficiaries who took plantations mostly included Lemon, orange and custard apple.

Compost: Discussions with beneficiaries revealed that compost and organic manures are in high demand. However, the availability of quality manures and compost is a challenge. Farmers demanded to subsidize the organic inputs for sustainable soil health and increasing demand of organic food.

Shade net House: As part of CM-II, one sample beneficiary was covered under shade net activity in Kharchi Village, Jalgaon district. The beneficiary was given pre-sanction, however couldn't complete the activity due to high initial investment involved.

Status of DBT Applications: For 51.6% DBT cases, subsidy has been released. This shows the effectiveness of the DBT process. The data also shows that once the activity is completed at the farmers' end (purchase of activity); disbursement of subsidy is done after verification. In 28.6% of the cases, the applications were still at the SDAO pre-sanction stage. As revealed during discussions, in most cases this is due to poor financial condition of the farmers. They have not been able to purchase the implements/assets. Non-availability of loans was another factor for financial constraints.

Challenges Faced under DBT: 22.6% said that verification of the activity took time after completion, whereas 22.6% said subsidy was not released on time. 19.4% beneficiaries reported that delay in receiving sanction from SDAO office was a major challenge.

48% said that they could not arrange for funds for purchasing the assets within the timeframe. Some of the respondents also said that they were awaiting further guidance from department after pre-sanction was received.

A3: Promoting efficient and sustainable use of water for agriculture

Access to Irrigation

As per the data received from CM-II survey, 30.6% beneficiaries in project and 28.6% in control villages reported to have irrigation. This indicates that the project activities like sprinkler, drip, pumps and farm ponds are having a positive impact in the PoCRA villages.

Most of these beneficiaries having assured irrigation have applied for activities like sprinkler, drip, water pumps and pipes.

Support through DBT for Water Security

Source of irrigation: 78.1% in project and 78.5% in control villages reported to have dug wells as the major source. 18.3% in project and 8.2% in control reported to have bore wells, while 2.8% in project and 8.2% in control were lifting water from a river. Only 0.8% in project had individual farm ponds. In control, 7% beneficiaries reported having farm ponds.

Status of Community based Soil & Water Conservation Activities

Activities under this include catchment area treatment, drainage treatment, construction of new water harvesting structures, and rejuvenation of existing water harvesting structures as part of NRM and community activities. Most of the activities undertaken under this component are in implementation stage.

Component B: Post-harvest Management and Value Chain Promotion

45.1% in project and 24.7% in control reported to be part of SHGs. Further, 14.4% in project and only 0.4% in control reported to be part of FPOs. This indicates role of PoCRA project in mobilizing farmers into groups.

Findings on FPOs Supported by PoCRA

Total 23 FPCs were surveyed. Three persons per FPO including director were interviewed. 46% of the respondents for the FPOs said that they have received capacity building and training as part of the project. 83% of the beneficiaries interviewed said that they were involved in decision-making as part of their FPOs. 71 % reported that they are keeping books regularly. However, only 6% of the FPOs reported to have digitized bookkeeping.

Business activities were being selected through mutual consultations amongst group members and chairperson. Business activities like seed processing, setting up *Dal* Mills, Neem Oil processing, turmeric processing were taken up by the FPOs that were visited. Some FPOs were also involved in directly marketing their products. *Krushi Mauli FPO was directly selling neem ark to group of farmers at reduced prices at Rs. 650 per litre as compared to the input sellers who sell at Rs.800 per litre.*

Most of the FPOs are still at a nascent stage, training and capacity building for upscaling and sustaining the business is imperative.

Under PoCRA project, the FPOs had mainly taken up activities like Godown construction, seed processing, implement Bank and machinery shed. Applications were submitted by the groups for the activity of their choice (based on discussions with functionaries) for which due

diligence was conducted by PoCRA team, site visits were made, post that pre-sanctions were provided.

Findings on SHGs Supported by PoCRA

Each SHG had around 15 members on an average. Most of the SHGs and FIGs were formed under Umed project and were consolidated on common interests; social financial background of the members was also kept in mind while forming the groups. All the members lived close by which was advantageous to the groups. Regular meetings were held to ensure formation of groups. After the formation of groups, the groups were named. The SHG groups regularly saved small amounts and ensured timely repayments through peer pressure to ensure end use of the loan money.

Capacity building of SHGs is an important component to enhance their skills. 34% in project villages and 21% in control villages said that they had received training/capacity building. 89% in project and 97% in control said that they were involved in savings as part of the SHG.

The books of records; attendance register, passbooks, savings and loan registers and other registers were maintained by the members. 95% in project and 100% in control reported that they are keeping books regularly as part of the SHGs. However, only 13% in project and 26% in control villages reported to have digitized bookkeeping.

SHGs have an important role in empowerment of the unprivileged and not just provision of credit. Decisions were made through participatory method. The group leader presided the meetings. Meetings were held monthly. Minutes of the meeting and attendance was recorded and maintained. SHG members were asked about the perceived benefits of the project. 75% in project and 76% in control said that economic prosperity is the major benefit from the project. 65% in project and 50% in control said better decision making is one of the perceived benefits from the project. Financial discipline and inclusion were other major perceived benefits, reported by the members.

Under PoCRA project, SHGs had received funding for Godown (Grain), Farm mechanization and Spice Processing Unit. The godowns facilitated storage and in fetching better prices while, availability of farm implements helped in improving productivity.

Supply Chain for Climate-Resilient seeds

As part of the project, an important intervention is promoting the creation of a supply chain of seeds with climate resilience features like short duration, drought-resistance, and salinity tolerance. Feedback was obtained on the current seed practices and use of climate resilient varieties.

Seed production: As part of DBT sample applications, total 14 sample beneficiaries were covered in CM-II. Out of this, 36% were from Kharpan villages. 65% of the applications were from Amravati and Buldhana districts. Seed production needs a collaboration with MSSC ltd. (Mahabeej) for production of seeds.

Major Crops for which seed production was undertaken were Soybean, Pigeon pea, Black gram, Chickpea. Farmers have used climate resilient varieties as part of seed production

Area under certified seeds: The area under certified seeds was Soybean (P-88%, C-85%), Chickpea (P-79%, C-76%) and Pigeonpea (P-71%, C-91%).

Component C: Institutional Development, Knowledge and Policies

In order to achieve climate resilience and ensure the intended results from the activities proposed, it is essential to build the capacity of stakeholders. The component focuses on mainstreaming climate resilience and the coordinated interaction in the field. As part of CM-II, feedback has been taken from various stakeholders on their awareness, capacity building, and understanding of environment safeguards, issues and challenges.

Awareness through IEC

Awareness on project was also seen through the project information boards put up in project villages. These information boards are important part of the IEC as part of the project. During the CM-II survey, it was found that total 19 villages had information boards out of total 32 villages, which is around 59%.

At VCRMC/Grampanchayat level, Grievances boxes have also been installed as seen during the CM-II survey. This is an important aspect as part of the transparency and accountability and safeguards for the project. During the survey, it was observed that 16 villages had grievance boxes, which is around 50% of the total villages. In other areas, work on installing the boxes was in progress.

Environmental Safeguards

PoCRA project is designed as per the Environment, Social Management Framework (ESMF) to ensure all the activities are being carried out in accordance with the framework.

During CM-II Survey, responses were recorded to understand the practices regarding the environmental awareness for crop residue burning and use of insecticides/ pesticides.

As per the responses received, it was observed that awareness on crop residue management and use of organic fertilizers needs to be increased as part of Component C.

95% of the farmers are burning the residue in project villages as compared to 96% in control villages. This shows marginal improvement in project due to awareness interventions.

Findings from KIIs with Functionaries

SDAOs are responsible for overall MLP process, which includes selection of MLP coordinators as per guidelines. Project Assistant and Cluster Assistant are involved in the process under SDAOs' supervision. Complaint register and grievance boxes are maintained by the office while a unit to assist farmers has been set up as well. Farmers can easily lodge complains or address their grievance directly to the functionary at SDAO office.

The DSAO recommends approval of Annual work plan, VDPs and CDPs to district level Committee under the leadership of District Collector. Before recommendation, the Annual work plan, VDPs and CDPs are vetted in consultation with PS-Agri at DSAO office. The process takes one month for approval.

At both, DSAO and SDAO level, meetings with functionaries of the Project are arranged fortnightly and meeting of minutes are recorded to record the points of discussion.

It was reported at DSAOs and SDAOs that one of the key challenges of implementation of the project is dependent on the economic condition of beneficiaries. They face difficulties in making initial investments.

The ATMA office works in coordination with DSAO office. PD-ATMA is involved in the process of approval of budgets and work plan related to capacity building and value chain sustainability. The SDAO apprises PD-ATMA regarding the plans & approvals in the district coordination committee, post which approvals are provided.

Trainings were organized for Agriculture Assistant, Cluster Assistant, FFS-Coordinators, FFS-Facilitators, Krishi Tai, VCRMC members and Host farmers. The Training plans at district level are sanctioned by ATMA office. The sanction is provided within one week of receiving the plan.

Trainings for beneficiaries of horticulture plantations, seed productions and Goat rearing have been arranged. Further, specific trainings on capacity building of villagers especially youth are also included as part of VDP/CDPs.

PS-Procurement is responsible for procurement of items at district level and monitor the expenses incurred at VCRMC level as per the project procurement guidelines. Every purchase in the project is done as per the guidelines. PS-Procurement provides guidance to the SHGs and FPOs for procurement of the items.

The Taluka Office supervises the progress of applications processing at various desks. As per the Taluka Agriculture Officer, motor pumps, pipes, sprinkler sets and horticulture plantations are the activities mostly taken by the farmers and Goat rearing by the landless in the clusters.

IV. RFID Indicators for CM-II

No	Indicator(s)	CM-II Value *(*till Sep 30, 2020)*
1	***Direct project beneficiaries: number of farmers reached with agricultural assets of services*** *Number of farmers reached with agricultural assets or services (% of female)*	**Overall- 3, 70,623 (Females-19%)** • Total DBT Farmers: 24,260 (Females-21%) • Total Host Farmers: 8562 (Females- 10%) • Total Guest Farmers: 1, 97,935 (Females-12%) • Total Participants in trainings/exposure visits: 1, 39,666 (Females-29%)
2	***Farmers adopting improved agricultural technology*** *Farmers adopting improved agricultural technology Promoted (% of female)*	**P-52%, C-75%** *(These results are based on field survey in 32 project & 16 control villages)*
3	***Improved water-use efficiency at farm level*** *Area provided with new/improved irrigation or drainage services (in ha)*	**Total Area- 27,751.8 ha** • Area under Sprinkler: 7823.4 ha • Area under Drip: 5611.4 ha • Area under Water pump & sprinkler: 399 ha • Area under Pipes: 6676 ha • Area under pumps: 7041 ha • Area under farm ponds: 138 ha • Area under well & recharge structure: 63 ha
4	**Improved availability of surface water for agriculture** *Surface water storage capacity from new farm and community ponds (in 1,000 m3)*	**Total Storage Capacity under new & community farm ponds- 475.7 (1000 m^3)** Storage Capacity under New Farm Ponds- 131.75 (1000 m^3) Storage Capacity under Community Farm Ponds- 344 (1000 m^3)
5	***Enhanced Soil Health at farm level*** *Area with GAPs for improved management of saline and sodic soils (in ha)*	**22,778.88 ha**
6	***Seeds supply: Promotion of climate resilient crop varieties*** *Oilseeds (soybean), Pulses (pigeon, chickpea) production area under cultivation w/certified seeds of Improved varieties (share in %)*	**Soybean** P-88%, C-85% **Pigeon pea** P- 71%, C-91% **Chickpea** P-79%, C-76%
7	***Number of approved participatory mini watershed plans implemented***	No. of Approved Participatory mini watershed plans: 68 (Total 687 villages as part of Phase-I)

1. Project Overview

1.1. Project Background

Agriculture is the major occupation of the people in Maharashtra. The share of agriculture and allied activities in the total Gross State Value Added (GSVA) is 11.7 per cent[1]. Even though it shows a decreasing trend, a large population, especially in the rural areas is dependent on the sector for their livelihoods[2]. Reduction in the average landholdings size, increase in small & marginal farmers, monsoon variabilities, water use efficiency and market fluctuations are some of the major challenges for the state. Around 40% of the state falls under drought prone area, having annual average rainfall less than 750 mm (29.5 in). Drought is observed in the state once every 5 years. In Maharashtra, growth in the sector fluctuates heavily and is depending on highly erratic rainfall during any particular year and rainfall variability over time. The distribution of rainfall is highly uneven within the state and ranges from over 4000 mm per annum in coastal areas to less than 400 mm in some of the most arid districts.

Agriculture remains the highest user of freshwater, withdrawing more than 80 per cent of the surface and groundwater ("blue water") available to the state. Since the continuation of the State's strong economic growth performance would have to be supported by higher water availability in all three sectors of the economy, there is a need for Maharashtra to better manage its water resources and in particular to enhance the efficiency of the water used for agriculture and focus on increasing the availability and use by the agriculture sector of "green water" (rainwater stored in the soil as soil moisture). Severe consecutive droughts experienced in large parts of Maharashtra in recent years have considerably affected the state's agricultural performance and social fabric in rural areas and have prompted the highest-level state authorities to declare, "Drought proofing" of agriculture a key development priority of Maharashtra.

Vidarbha is one of the most drought prone area in the state, along with Marathwada. The region lies in the eastern part of Maharashtra comprising 11 districts out of which 7 have been selected as part of the Rest of Project area for PoCRA. The region occupies 31.6% of total area and holds 21.3% of total population of Maharashtra. Most of the crops are rain-fed comprising of cotton, soybean, pigeon peas and chickpeas. According to ministry of Agriculture, cultivation of BT cotton in the region has added to the crisis, since the variety is sensitive to the water shortages.

[1] Economic Survey (ES), 2020-21

[2] Average size of operational holding as per Agriculture Census 2015-16 is 1.34 ha whereas as per Agriculture census 2010-11 it was 1.44 ha. Number of small and marginal operational holdings were 121.55 lakh, which were 79.5 per cent of the total number of operational holdings. (Source: ES, 2020-21)

This has made cotton cultivation a high risk –high cost cultivation system in the region without assured irrigation and irregular rainfall.

According ICRISAT reports, Climate Change has become a reality in Vidarbha region. IPCC states that extreme weather events are on the rise. The AR5 of IPCC says that rainfall will become more erratic, rainy days will reduce and intensity of rainfall will increase.

Given the above challenges, the Agriculture task force constituted by the NITI Aayog along with State govt. has proposed the following objectives for the DoA, GoM:

- Integrated farming approach, which includes Horticulture, Dairy & Animal Husbandry, Poultry, Fishery, Watershed infrastructure etc.
- Increasing production and productivity of crops.
- Timely supply of quality inputs viz. fertilizers, Insecticides, Seed etc. to farmers.
- Dissemination of technology developed in agriculture and allied sector.
- Collection of agriculture and allied data and area, production, productivity through crop cutting experiments and use of collected data for future planning.
- Horticulture development and soil health improvement through Mission.
- Use of micro-irrigation system for increasing area under irrigation and productivity of water.
- Promotion of Agriculture Mechanization to overcome the problems of labour shortage.
- Promotion for Organic Farming.
- Preparing for exploiting global opportunities in fruits & vegetables while emphasizing the dual approach increase in food security.

In the light of above challenges and strategy, a flagship *Project on Climate Resilient Agriculture in Maharashtra (PoCRA)* with the support of the World Bank is being implemented in the drought prone regions of Maharashtra.

1.2. PoCRA Project & Its Significance

The strategy for accelerating agricultural growth requires action in terms of bringing technology to the farmers, improving the efficiency of investments, increasing areas under irrigation, increasing systems support and rationalizing subsidies, diversifying cropping pattern, while protecting food security concerns, and fostering inclusiveness through a group approach, by which the small and marginal farmers will get better access to land, credit and skills.

Enhancing climate-resilience in agriculture involves the integration of adaptation, mitigation, and other practices in agriculture that increase the capacity of the farmer and his/her

production system to respond to various climate-related disturbances by resisting or tolerating the damage and recovering quickly.

To ensure the sustainability of the comprehensive on-farm and off-farm interventions required to build resilience in agriculture, there is a need to strengthen institutions, in particular at the local level, and improve their capacity to plan for adaptation to evolving climatic conditions and induce a change in local farming practices. In addition, the successful adoption of climate-resilient farming practices will largely depend on the farmer's perception of income gains from the new technologies, as profitability remains the most important incentive for change at farm level. To that effect, crop diversification, access to knowledge and farm assets needs to be accompanied by more market opportunities, which can be achieved through improved participation of organized smallholders in the corresponding value chains and the mobilization of private sector (e.g. Farmer Producer Organizations, agri-business SMEs).

1.3. Project Development Objective

The Project Development Objective (PDO) is ***to enhance climate-resilience and profitability of smallholder farming systems in selected districts of Maharashtra***. PoCRA is built around a comprehensive, multi sector approach that focuses specifically on building climate resilience in agriculture through scaling up tested technologies and practices, while generating the following interdependent triple win solutions:

I. **Enhanced water security at farm level** - through the adoption of technologies for a more efficient use of water for agriculture, the increase in water storage capacity (surface and sub-surface) and the improvement in water distribution structures to address on-farm water

II. **Improved soil health** - through the adoption of good agricultural practices to improve soil fertility, soil nutrient management, and promote soil carbon sequestration; and

III. **Increased farm productivity and crop diversification** - through the adoption of climate-resilient seed varieties (short maturity, drought and heat resistant, salt tolerant) and market-oriented crops with a clear potential for income security derived from the integration of farmers in corresponding value-chains.

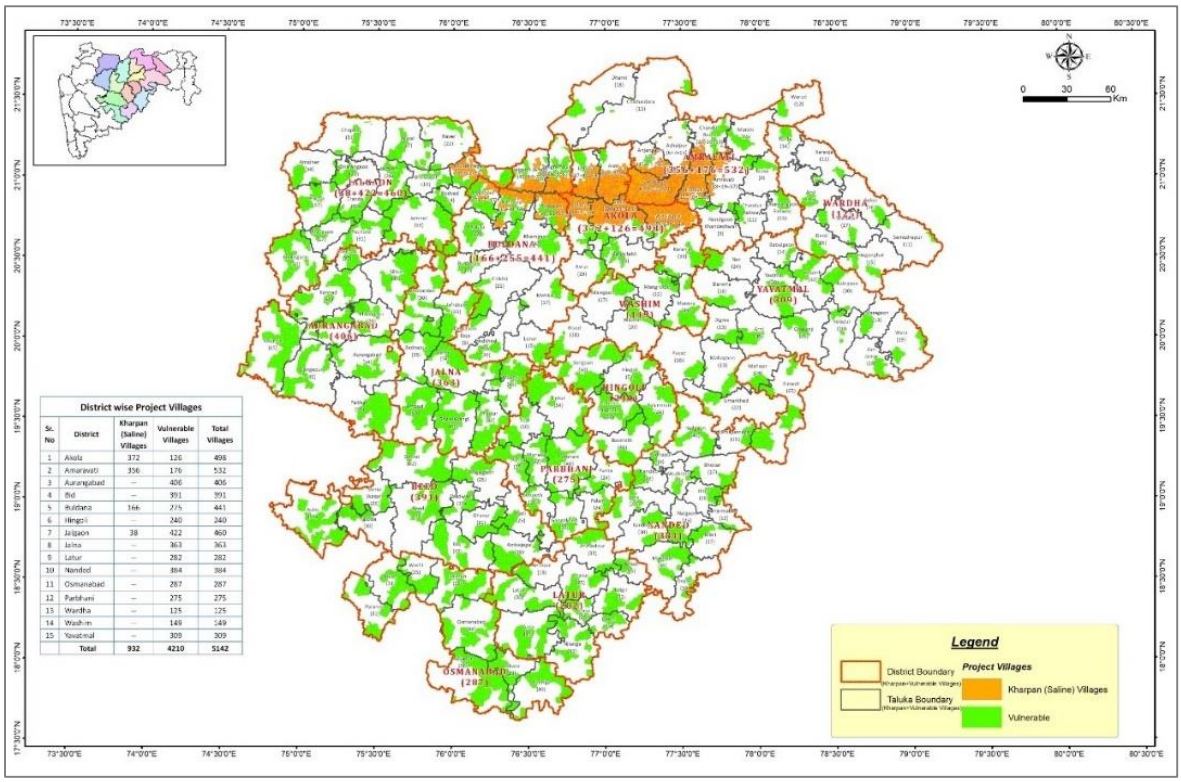


Figure 1: PoCRA Project Area

1.4. Project Components

The project is designed for implementation through the following components and subcomponents:

Comp A: Promoting Climate-resilient Agricultural Systems

- A.1: Participatory development of mini watershed plans.
- A.2: On-farm climate-resilient technologies and agronomic practices.
- A.3: Climate-resilient development of catchment areas

Comp B: Climate-Resilient Post-Harvest Management and Value Chain Promotion

- B.1: Promoting Farmer Producer Companies
- B.2: Strengthening emerging value-chains for climate-resilient commodities
- B.3: Improving the performance of the supply chain for climate-resilient seeds

Comp C: Institutional Development, Knowledge and Policies for a Climate-resilient Agriculture

- C.1: Sustainability and institutional capacity development
- C.2: Maharashtra Climate Innovation Centre
- C.3: Knowledge and policies

1.5. Study Area

CM-II survey was conducted in the rest of the project area, which is the eastern region of Maharashtra with the revenue divisions and districts mentioned below:

i. Amravati division: Amravati, Akola, Buldana, Yavatmal & Washim
ii. Nagpur Division: Wardha
iii. Nashik division: Jalgoan (Khandesh)

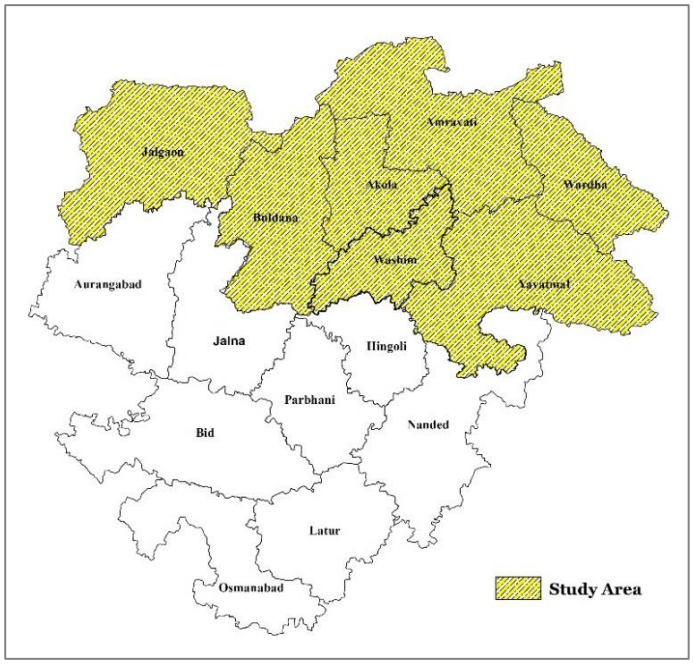


Figure 2: CM-II Study Area

The project area is classified under Agro-ecological sub-region characterized as moist semi-arid ecological sub region with medium deep clayey black soils (shallow loamy to clayey black soils as inclusion). As per the planning commission, the domain districts of the project area *viz.,* Akola, Washim, Buldana, Amravati, Wardha and Yavatmal falls under agro-climatic zone *i.e.* western plateau and hills region. As per the NARP agro climatic zone classification, the project area is classified under Central Vidarbha (AZ- 97) whereas the Jalgaon district falls under Western Plateau and Hills Region (IX) with agro ecological sub region of Deccan plateau, hot semi-arid eco-region (6.3) Western Maharashtra plateau, and hot moist semi-arid eco- sub region.

The major Kharif crops grown in the districts are Cotton, Soybean and Pigeon pea. The area under cereal crops has declined gradually with the induction of cash crops. Major Rabi crops grown in the project area are Chickpea, Wheat and Sorghum. Major area is covered by Chickpea (Gram) followed by Wheat and rabi Sorghum**.**

The rest of the project area also includes a belt of salinity-affected area in the districts viz; Akola, Amravati, Buldana and Jalgoan. Some of the villages in these districts fall under the vertisols of the Purna Valley, which are having saline tract. The term salinity refers to the presence in soil and water of various electrolytic mineral solutes in concentrations those are harmful to many agricultural crops.

2. Approach & Methodology

2.1. Objectives of Concurrent Monitoring

As per the ToR, Concurrent Monitoring focuses on process monitoring for all Components and sub-components of PoCRA. The concurrent monitoring will also look into the compliance with ESMF framework. In addition, values of the RFID indicators have to be also brought out as part of the monitoring.

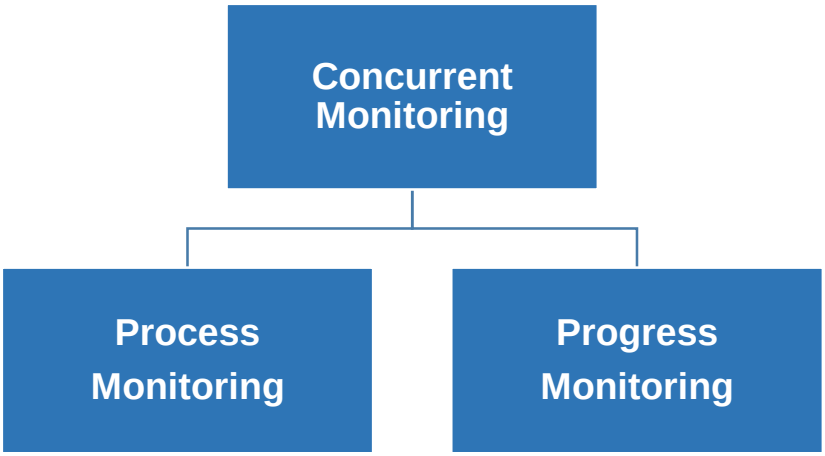
The main objective of concurrent monitoring is the regular collection and reporting of information to track whether actual results are being achieved as planned. Concurrent Monitoring focuses on systematic and continuous collection and analysis of data for measuring process and progress of the project. A total of 10 concurrent monitoring rounds will be conducted during the 5-year project, once every six months.

Purpose of Concurrent Monitoring:

- Providing PMU staff and other stakeholders with information on the progress being made towards intended outputs and outcomes (RFID indicators)
- Providing information that enables approaches and strategies to be changed in response to evolving situations
- Identifying whether there is a need to change goals, objectives, plans or budgets over time
- Identifying the need for further information or research required if any
- Providing information that enhances ongoing learning, both within and outside the project

2.2. Monitoring Framework

A mixed methods approach was used collecting both quantitative and qualitative data for process and progress monitoring as part of CM-II in the Rest of Project area.



Process monitoring focuses on the interventions being carried out as part of the project, whether and/or how well the activities are being implemented. It also covers the use of resources. It is designed to provide the information needed to continually plan and review work, assess the success of the implementation of the project, identify and deal with problems and challenges, and take advantage of opportunities as they arise.

Progress monitoring on the other hand, intends to assess the changes brought about by a project or programme on a continuous basis. Mostly the changes are measured with a set of indicators targeting the outcome level changes over a period. For PoCRA, the RFID indicators will be measured through concurrent monitoring.

The designed study tools focused on required information for the above parameters. To ensure that the monitoring is participatory, survey team had a detailed discussion at various stages of implementation with beneficiaries as well as in the form of Key Informant Interviews (KIIs).

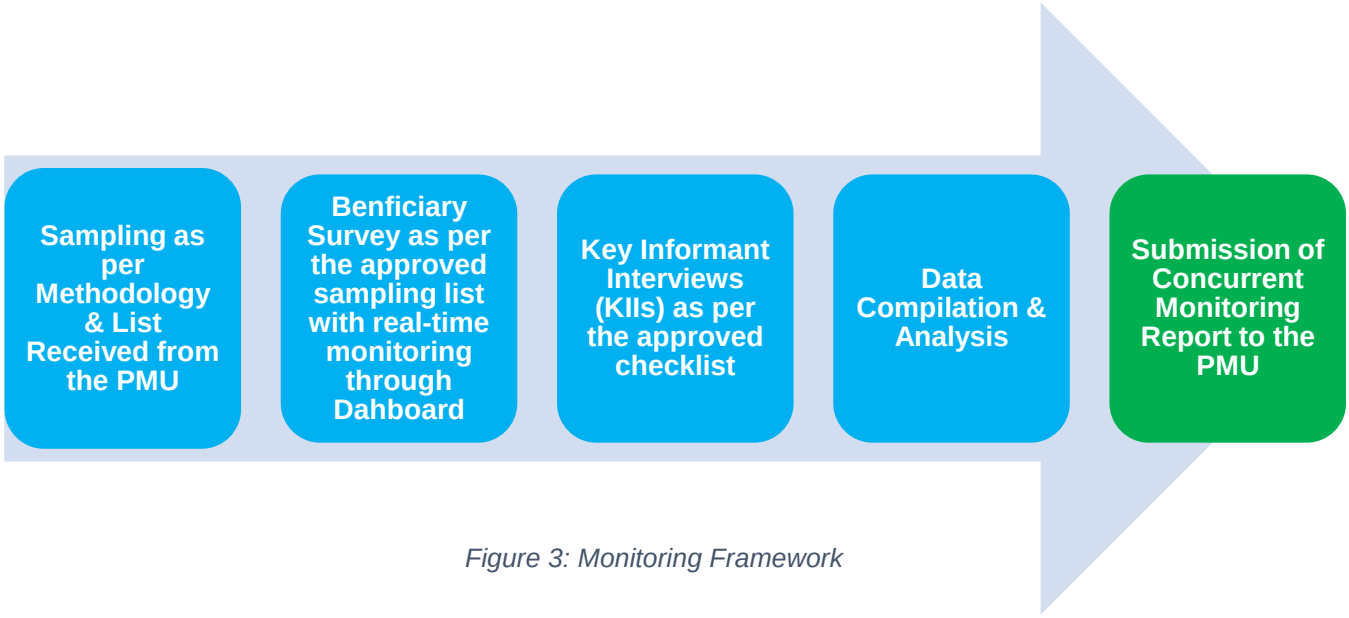


Figure 3: Monitoring Framework

2.3. Sampling Methodology

As per the ToR (Table below), the Concurrent Monitoring (CM) was conducted on a sample of 32 clusters. For this purpose, all the 320 project clusters were arranged district-wise and, within district, Taluk-wise. From this sorted list a systematic sample of 32 (one-tenth of the) clusters were selected by applying systematic random sampling procedure. From within each selected cluster, one village was selected at random for CM- II.

Table 1: Sample Size as per ToR

Concurrent Progress Monitoring	No. of clusters in which the monitoring is to be conducted	No. of villages for treatment group (1 village per cluster)	No. of villages for control group
Concurrent 1	32	32	16
Concurrent 2	32	32	16
Concurrent 3	32	32	16
Concurrent 4	32	32	16
Concurrent 5	32	32	16
Concurrent 6	32	32	16
Concurrent 7	32	32	16
Concurrent 8	32	32	16
Concurrent 9	32	32	16
Concurrent 10	32	32	16
Total	**320**	**320**	**160**

For the control group, of the selected 32 project clusters, 16 clusters were selected systematically. Corresponding to each of these 16 project clusters, a matching (in terms of vulnerability index) 16 control clusters were selected preferably from the same districts and Taluks. Next, from each of these 16 selected control cluster, one village was selected at random. Thus, there are 16 control villages that are comparable and adjacent to the selected project villages. In total, there are 48 villages for CM-II, 32 villages from project area and 16 villages from control area.

Selection of Beneficiaries (for individual activities)

For each selected project village, a list of individual beneficiaries, community beneficiaries, farmer field school participants and SHGs were obtained from the PMU. The corresponding list for the control villages was obtained by the field team by visiting the villages and enquiring with concerned officials or from their records.

- Beneficiaries covered under the POCRA project up till 30th September 2020 were the target group for CM-II.
- The list of individual DBT beneficiaries along with the benefits applied for (Pre sanctioned received & paid separately), Farmer Field School (FFS) participants was obtained from the PMU.
- Similarly, for Farmer Field School (FFS), both Host Farmers and Guest Farmers were obtained.

2.4. Selection of Beneficiaries

For selection of beneficiaries, from each selected village, 3 DBT beneficiaries with pre sanction received and 3 DBT beneficiaries with Pre sanction received and paid. Regarding Farmer Field School, the sample was 1 Host farmer and 3 Guest farmers (including 1 women) from each selected village. Thus, there would be 10 individual beneficiaries from each village.

In addition, wherever Farmer producer companies (FPCs) and SHGs, 3 FPC members including the Director and 2 SHG members need to be selected. Thus there would be 5 community beneficiaries. Furthermore, wherever NRM work was undertaken and Community farm pond constructed, the sample was 10 beneficiaries from each such activity. Accordingly, samples were drawn from the beneficiary list provided by the PMU.

Selection of DBT & FFS Beneficiaries

First, all the beneficiaries who were paid subsidy (as per PMU list) were sorted village-wise and repetition of names if any were discarded. The list was further sorted by sex of the beneficiary. From the sorted list, a maximum of systematic sample of 3 beneficiaries per village with at least one female beneficiary (if any), were selected. However, if the number of beneficiaries in a village was less than 3 then all the beneficiaries were selected and the remaining required beneficiaries were selected from villages with very large number of beneficiaries.

Secondly, the list of beneficiaries received for pre-sanction were sorted village-wise and repetition of names were excluded. Further, from this list, beneficiaries if any were already selected under paid category were also excluded. From the shorted list, a systematic sample of 3 beneficiaries per village with at least one female beneficiary, if any, were selected. However, if the number of beneficiaries in a village was less than 3 then all the beneficiaries were selected and the remaining required beneficiaries were selected from villages with very large number of beneficiaries.

The same procedure was applied in respect of selection of host farmers and guest farmers.

Selection of FPC & SHG Beneficiaries

For FPC & SHG beneficiaries, a list of such institutions was supplied by the PMU and so a sample of institutions from the list was selected. During the field survey, the investigators were instructed to visit the selected sample institutions (FPCs & SHGs) and to obtain the list of members in them. From the list made in this way, systematic sample of 3 members including director was selected for FPCs. For SHG, systematic sample of 2 members including the president was selected for interviews.

The Sampling Size for each of the beneficiary type is provided in the table below.

Table 2: Sample Size Selected for CM-II

Beneficiary Type	Sample Size (considered till 30.09.20)
DBT	**192**
Subsidy Disbursed	96
Pre Sanctioned Received	96
FFS	**128**
Host Farmers	32
Guest Farmers (female)	32
Guest Farmers (male)	64
NRM Work	**30**
Community Farm pond	**10**
FPCs (Per FPC 3 members, Including director)	**69**
SHG members (Selected Villages _VCRMC member)	**64**
VCRMC member (such as Progressive farmers)	**32**

Control Village Beneficiary Selection

- In case of Control Villages, we have approached the functionaries like Agriculture Officer, Gram Panchayat and Village Watershed Committee and sought the list of individual beneficiaries and community activities like community farm pond and SHGs.
- From the list obtained, systematic sample of 15 beneficiaries was selected from each village
- In few villages, the list of beneficiaries was not available. In this case, investigators identified the beneficiaries through 'Snowball Sampling' method and interviewing the beneficiaries in that particular village.

2.5. Study Tools

An overview of the Survey Tools is shown in the table below

Table 3: Snapshot of Survey Tool for Concurrent Monitoring

S No	Target Respondent(s)	Sample Size	Sampling Tool
1	Direct Beneficiary Transfer/ Individual Beneficiaries	192 Total (96 pre sanctioned received & 96 pre sanctioned received and paid) as per the list obtained from PMU	Beneficiary Questionnaire
2	FFS (Host & Guest Farmers)	1 Host farmer per village 3 Guest Farmers per village (2 male & 1 female)	Beneficiary Questionnaire
3	NRM Work	10 per village	Beneficiary Questionnaire
4	Community Beneficiaries	5 beneficiaries per activity, total 10	Beneficiary Questionnaire
5	SHG/FPO/FPC/FIG	3 per FPC including director & 2 per SHG	Beneficiary Questionnaire & KII Checklist
6	FGDs with VCRMC	1 per selected village	Beneficiary Questionnaire & KII Checklist
7	Krushi Tai	1 per selected village	Key Informant Interview (KII) Checklist
8	FFS Facilitators/ Coordinators	1 per cluster	Key Informant Interview (KII) Checklist
9	Agriculture Assistant/Cluster Assistant/Agri Supervisor	1 per cluster	Key Informant Interview (KII) Checklist
10	Sub-division Agriculture Officer (SDAO)	1 per sub-division	Key Informant Interview (KII) Checklist
11	District Superintendent Agriculture Officer (DSAO)	In all 7 Districts	Key Informant Interview (KII) Checklist

Beneficiary Questionnaire

A beneficiary questionnaire was administered to the selected sample beneficiaries as described above having the following information:

Part-A	Basic Information
Part-B	Agriculture Related Information
Part-C	Awareness of the Project
Part-D	Farmer Field School (FFS) & Adoption of Climate Resilient Technologies
Part-E	Soil Health Improvement
Part-F	Protective Cultivation
Part-G	Integrated Farming Systems
Part-H	Agro-Forestry and Horticulture Plantations
PART-I	Efficient & Sustainable use of Water for Agriculture
Part-J	SHG's/FPC's/FPO's
Part-K	Seed Production (Individual)
Part-L	Training
Part-M	Agrometeorological Information/Advisory Services
Part-N	Access to Institutional Support
Part-O	Democratic Governance & Beneficiary Feedback

Key Informant Interviews (KIIs)

Key Informant Interviews were conducted for eliciting responses from persons with informed perspective. The information obtained from the key informants was the qualitative information required for the process and progress monitoring for concurrent. Following KIIs were conducted as per the following checklists

- Checklist for Krushi Tai: Krushi Tai in the selected villages was identified and interviewed regarding their background, training obtained, activities in the field, number of farmers benefitted by type of benefit, opinion about cooperation from farmers, opinion about his/her role, and so on.
- Checklist for VCRMC: FGDs were conducted with the VCRMC to assess their membership, involvement of members, frequency of meeting, activities undertaken including selection and recommendation of beneficiaries for obtaining benefits, etc.
- FFS Facilitators/Coordinators
- Checklist for Agriculture Assistant/Cluster Assistant/Agri Supervisor

- Checklist for SDAO
- Checklist for Functionaries (DSAO/PD-ATMA, PS-Agri/PS-Agribusiness, PS Procurement & PS-HRD)
- SHG and FPO/FPC/FIG were interviewed using checklists as well as beneficiary questionnaire. Checklists was used in eliciting qualitative information on the perceived impacts, issues and challenges faced by them.

2.6. Data Collection Methodology

- Detailed questionnaires were prepared for beneficiaries, discussed and finalized with the PMU after the comments and suggestions
- KII Checklists were prepared and shared with the PMU for review
- In the next step, the questionnaires and checklist were refined based on the comments from PMU
- After finalization and approval from the PMU, they were field tested, refined and digitized into a computer assisted personal interview (CAPI) application. Post field-testing, the beneficiary questionnaire and checklists were modified, wherever required and finalized in consultation with the PMU.
- Simultaneously, required number of field investigators and supervisors with minimum graduate qualification and belonging to farmer-households in the project area were appointed.
- The investigators and supervisors were provided training & orientation before initiating the actual survey in the project area. The training was conducted using the finalized survey tool in the App.
- Rigorous training of supervisors and enumerators was conducted bi-weekly so that they were well versed with the roles & responsibilities of different functionaries, structure of project implementation, purpose of interviewing the functionaries, method of filling datasheets and preparation of qualitative reports.
- The dashboard for real time survey monitoring was created and shared with PMU

2.7. Quality Assurance Mechanism

- Continuous monitoring and field checking of the investigators were done by the supervisors through a dashboard created with login IDs
- The field supervisor team and the key experts were involved in the training of investigators and the field orientation. The local team from the project area with an experience in watershed management activities are present

- Field supervisors (one in each district) were engaged in the study for supervising data collection on a daily basis and checking for correctness and completeness of the data collected by the field enumerators during the field survey
- Additionally, the supervisors were in liaison with district officials, conducting Key Informant Interviews (KIIs) using the approved checklists and prepared summary report of the discussion points during KIIs
- Once the survey was completed, the data were checked for correctness, completeness, consistency and errors if any were corrected to the extent possible.
- After the data were checked and cleaned, required tables were generated in consultation with the subject experts, and appropriate indices were derived besides generating final tables and charts
- Simultaneously, drafting the concurrent monitoring report was taken-up by the subject experts and a combined report was finalized and submitted

3. Sample Coverage

As per the ToR, 32 clusters were selected for project area and matching 16 clusters were selected in control area. One village in each project and control cluster was selected as shown in the table below.

Table 4: Sample Coverage-Project Villages

Sample Coverage-Project Villages				
District	**Taluka**	**Clusters**	**Villages**	**Beneficiaries**
AKOLA	4	5	5	72
AMRAVATI	4	5	5	59
BULDANA	6	7	7	108
JALGAON	6	7	7	102
WARDHA	3	3	3	66
WASHIM	2	2	2	45
YEVATMAL	3	3	3	42
Total	**28**	**32**	**32**	**494**

Table 5: Sample Coverage- Control Villages

Sample Coverage-Control Villages				
District	**Taluka**	**Clusters**	**Villages**	**Beneficiaries**
AKOLA	2	2	2	33
AMRAVATI	3	3	3	49
BULDANA	3	3	3	48
JALGAON	3	3	3	50
WARDHA	2	2	2	30
WASHIM	1	1	1	15
YEVATMAL	2	2	2	30
Total	**16**	**16**	**16**	**255**

3.1. Beneficiary Sample Coverage in Project Villages

Total six categories have been covered as part of project beneficiaries: Direct Benefit Transfer (DBT), Farmer Field School (FFS), Community based Natural Resource Management (NRM) activities, Farmer Producer Organizations (FPOs) and Self Help Groups (SHGs). Total 494 beneficiaries were covered as part of CM-II. 39% of the respondents as part of CAPI application were DBT beneficiaries, followed by 26% FFS. NRM and Community based NRM comprised 6% and 2% of the beneficiaries respectively. 14% were part of FPOs and 13% SHG under the project.

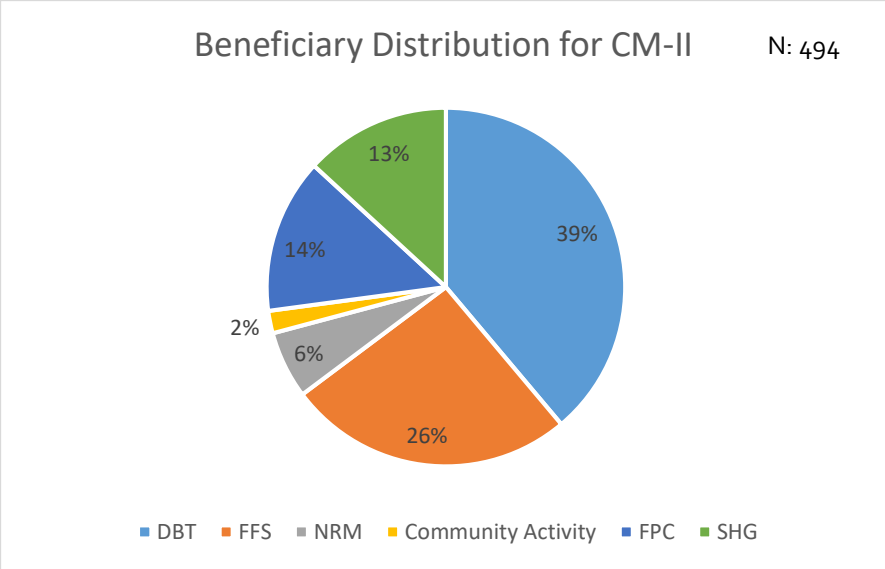


Figure 5: Beneficiary Distribution for CM-II Sample

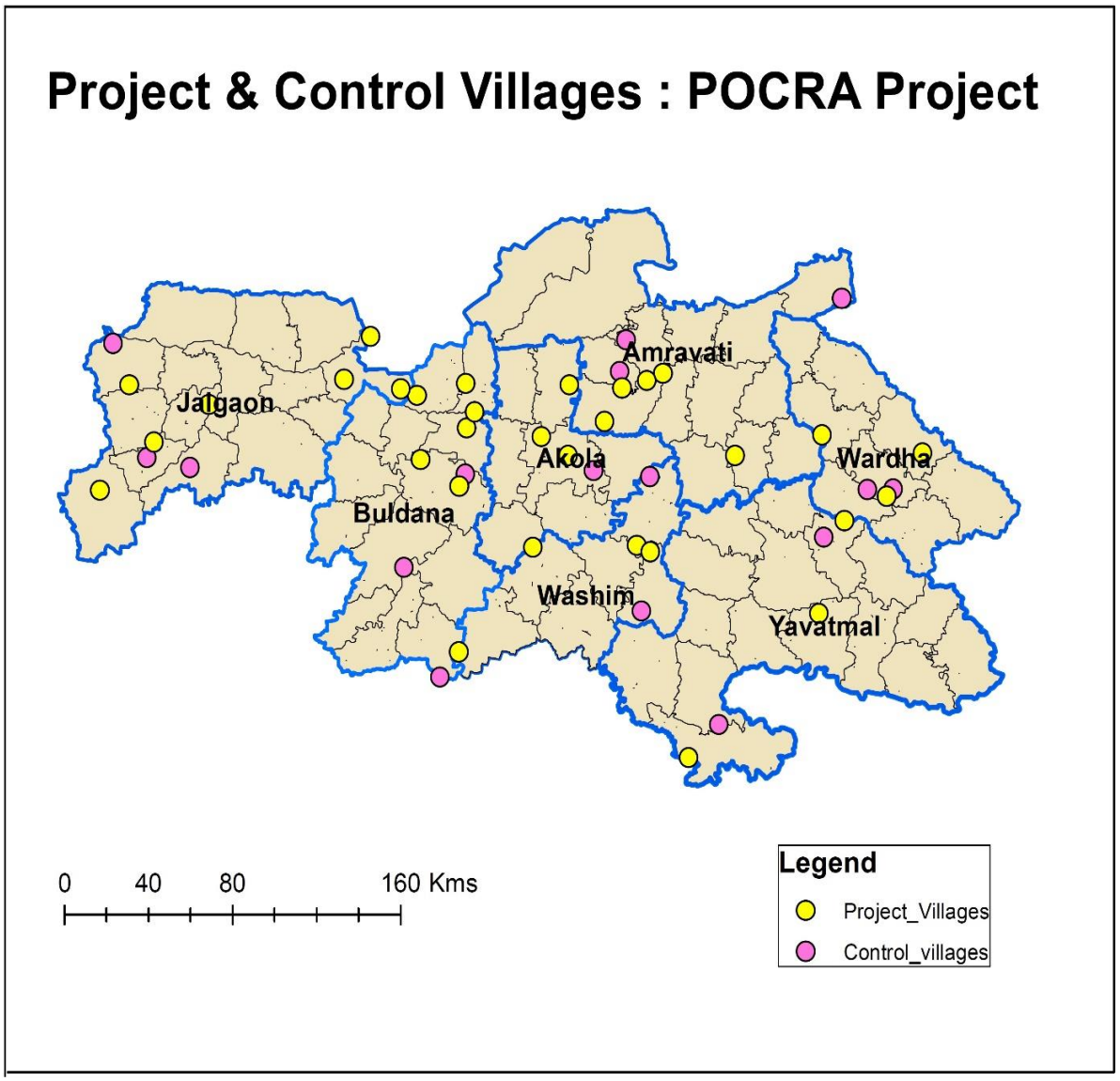


Figure 4: Project & Control Villages Selected for CM-II

Table 6: Sample Coverage of Beneficiaries in Project Villages

District/ Activity	AKOLA	AMRAVATI	BULDANA	JALGAON	WARDHA	WASHIM	YAVATMAL	Total
DBT	23	30	37	51	18	14	19	192
FFS	19	21	31	22	13	8	14	128
NRM	0	0	10	10	10	0	0	30
Community Activity	0	0	0	10	0	0	0	10
FPC	6	6	21	3	3	21	9	69
SHG	24	2	9	6	22	2	0	65
Total	**72**	**59**	**108**	**102**	**66**	**45**	**42**	**494**

Beneficiary Sample Coverage in Control Villages

For control villages, total of 255 beneficiaries were covered under Individual activity like Sprinkler Irrigation, Drip Sets, Water Pumps, etc.; Community Activity like farm ponds, soil & water conservation structures; activities taken up by SHGs.

Table 7: Sample coverage of Beneficiaries in Control Villages

District/ Activity	AKOLA	AMRAVATI	BULDANA	JALGAON	WARDHA	WASHIM	YAVATMAL	Total
Individual Activity	29	43	39	40	26	11	24	212
Community Activity			1		4			5
SHG	4	6	8	10		4	6	38
Total	**33**	**49**	**48**	**50**	**30**	**15**	**30**	**255**

4. Findings from CM-II Survey

Component A: Promoting Climate Resilient Agriculture Systems

Climate Resilience in agricultural production systems is the main component under the project. The objective is to strengthen adaptive capacity of farmers through interventions at farm level, complemented by interventions for increasing access to irrigation.

The activities identified under this component have been prioritized through participatory micro planning. Farmers Field School (FFS) is one of the main activity under this component. The component also supports farmers through a range of agri-based activities through matching grants. Direct Benefit Transfer (DBT) technology is being used to ensure transparency and accountability.

As part of CM-II, data has been collected on relevant parameters under this component and activities. Participatory micro planning, FFS and DBT effectiveness has been covered under this component part of three sub-components: *A1: Participatory Development of Mini Watershed Plans; A2: Climate-Smart Agriculture and Resilient Farming Systems and; A3: Promoting efficient and sustainable use of water for agriculture.* Feedback on activities, support through PoCRA, benefits, issues and challenges has been recorded and presented in this section.

A1: Participatory Development of Mini Watershed Plans

The foundation for any project is an effective Micro-Planning Process (MLP). The component supports the community to plan the adoption strategy at the village level. SDAO are responsible for overall MLP process. Village Climate Resilience Agriculture Management Committee (VCRMC) and female farmer friend (Krushi Tai) actively participation and facilitate to ensure effective micro planning. As part of the survey, feedback has been obtained from farmers, VCRMC & Krushi Tai on the awareness, functioning, issues and challenges.

Salient Features of Micro Plans

Micro planning has been completed in Phase-I villages. Some of the parameters included in micro plans are presented in the table below. Based on these parameters, activities are decided and it is ensured that maximum benefit is for the socio-economic vulnerable groups.

Table 8: Salient Features of MLPs

S No	Parameters	Description
1	Village/Cluster Profile	Profiling of village/ cluster with respect to socio economic conditions, geo-physical characteristics, agriculture scenario, livestock status, infrastructure status and existing knowledge-extension services and ongoing scheme/programmes/ projects
2	Resource analysis	An account of natural resources existing in the village/ cluster with strength, weakness, opportunity and challenges.
3	Constraint analysis	Identification and analysis of constraints with respect to climate variability, surface & ground water status, soil health, crop productivity, post-harvest infrastructure & marketing, social and gender aspects
4	Causal analysis	Causes for the constraints identified in relation to - (a) Gaps in the yields of field crops, vegetable crops and fruit crops in the village (b) Gaps in development of the value chain of major commodities in the village.
5	Water Balance	Computation of water balance using the mobile application developed by the project. Description about the water balance of the village/ cluster considering the existing water harvesting structures and potential soil & water conservation treatments. Mapping of the proposed soil and water conservation structures along with crop planning based on water balance.
6	Opportunity mapping	An account of special needs of marginal and small holders, women, scheduled caste and tribe, and vulnerable category like differently abled etc.
7	Training Need Analysis	Description about the training needs including skills to be imparted to farmers, VCRMC members, women, youth and farmer/ women groups
8	Proposed interventions	Description of the interventions aiming at enhancing water security, soil health, crop production, agribusiness, mechanization, alternate and sustainable livelihood. Interventions to strengthen commodity value chains, infrastructure, better mobilization of farmers, imparting knowledge services
9	Livelihood and Agribusiness Plan	Plan for potential sustainable livelihood, agro-based enterprises, value chain development for the village/ cluster. The plan also takes into account the needs of the SHGs/FIGs/FPOs in the village/cluster
10	Environment and Social safeguards	Environment Screening checklist and compliance to social inclusiveness

Awareness on Participatory Micro Planning & Project

As part of the CM Survey, beneficiaries were asked about the awareness on the project. 89% of the beneficiaries said that they were aware of the project. Out of the total who were aware, 92% said that they got the information about the project from the agriculture department. 8% reported that they got the information from fellow farmers benefitting from the project.

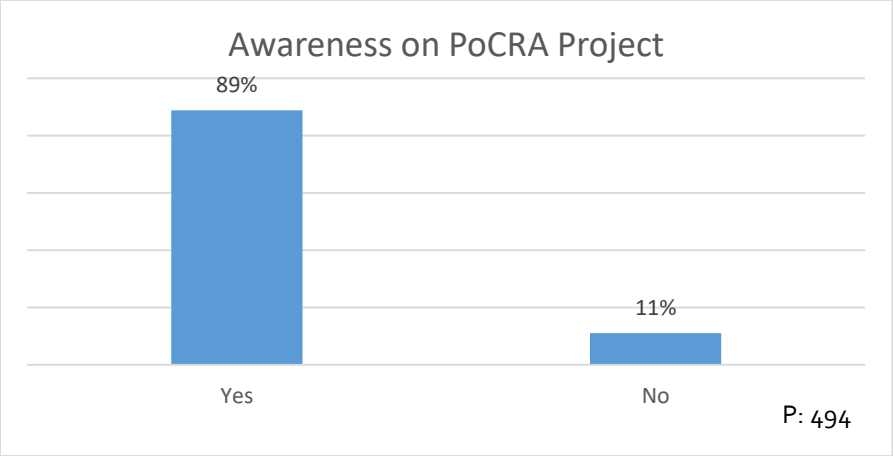


Figure 6: Awareness on PoCRA project

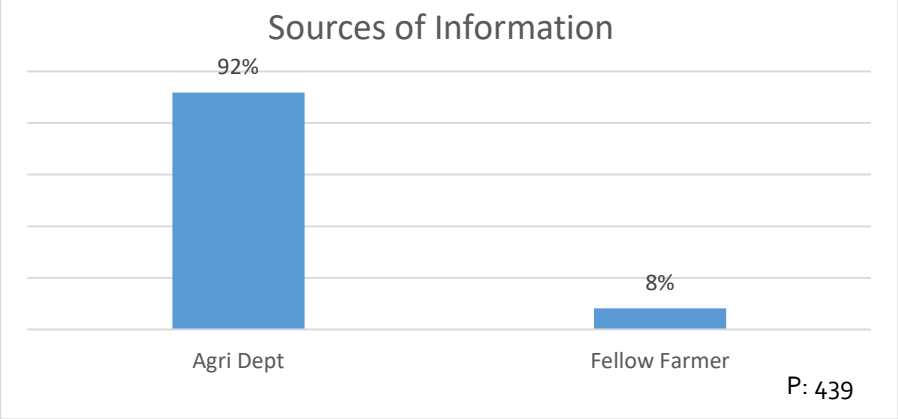


Figure 7: Information about Project

The beneficiaries were also asked about the motivation for applying under the project. 56.9% reported that they were self-motivated to apply for various activities. 30.6% said that they got motivated by agriculture department. 9.2% were influenced by fellow farmers and 1.5% by friends and family members.

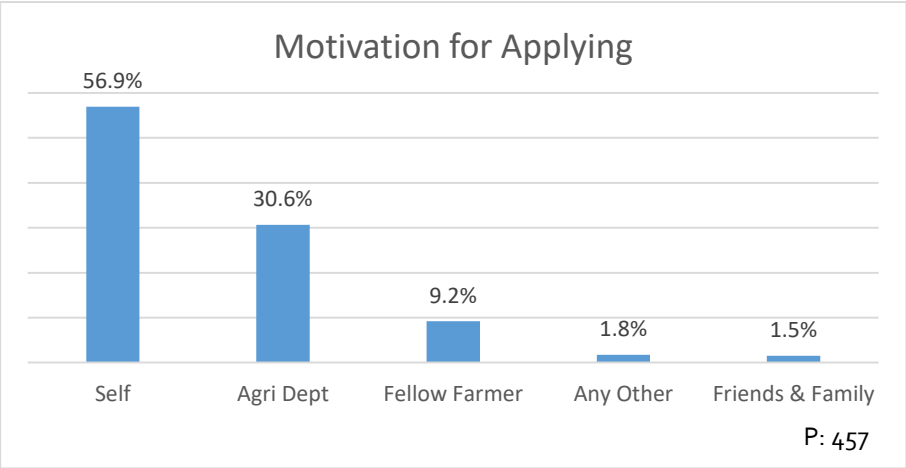


Figure 8: Motivation for Applying

Further, 60% beneficiaries said that they were aware about the micro-planning process carried out in Phase-I villages. As part of awareness, 21% said that their family was part of micro planning process carried out.

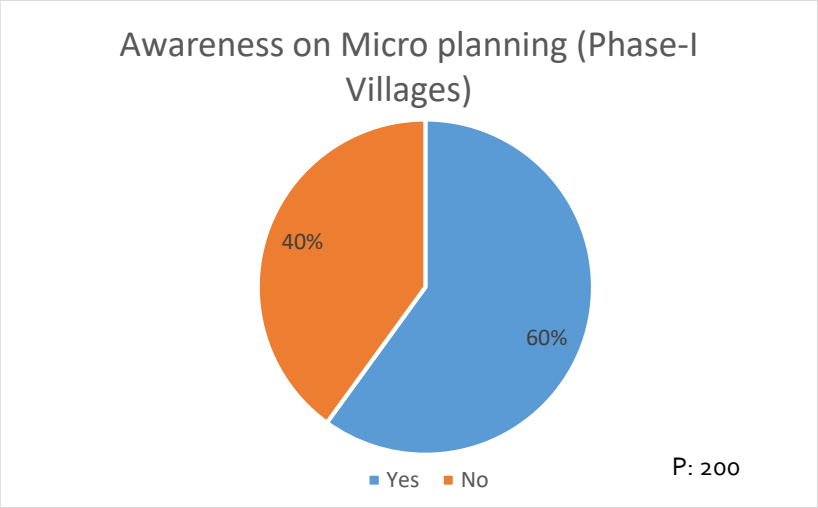


Figure 9: Awareness on Micro-planning process

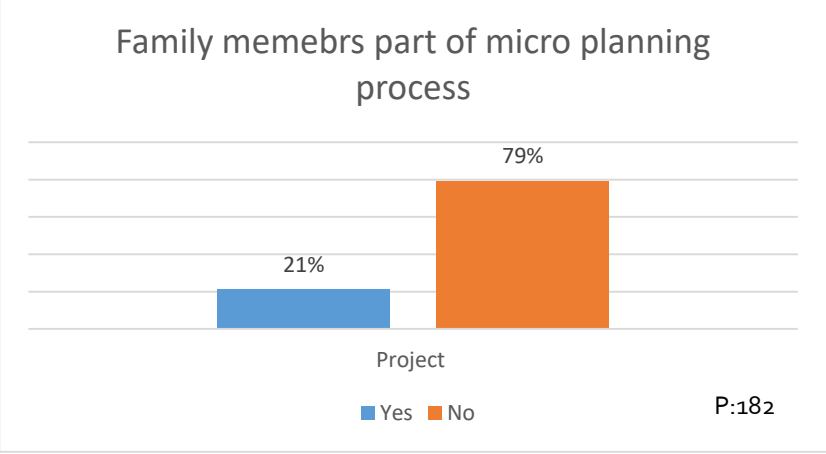


Figure 10: Family Members part of micro planning process

Beneficiaries were also asked about the priority criteria awareness as part of participatory micro planning. 29% said that they were aware, while 71% said that they were not aware about the priority criteria. Further, they were asked about their understanding about priority criteria. The ones that were aware said that as per the criteria, preference is given to SC/ST category, women and farmers with landholdings less than 5 Ha. In addition, the landholdings should be in the PoCRA project villages only.

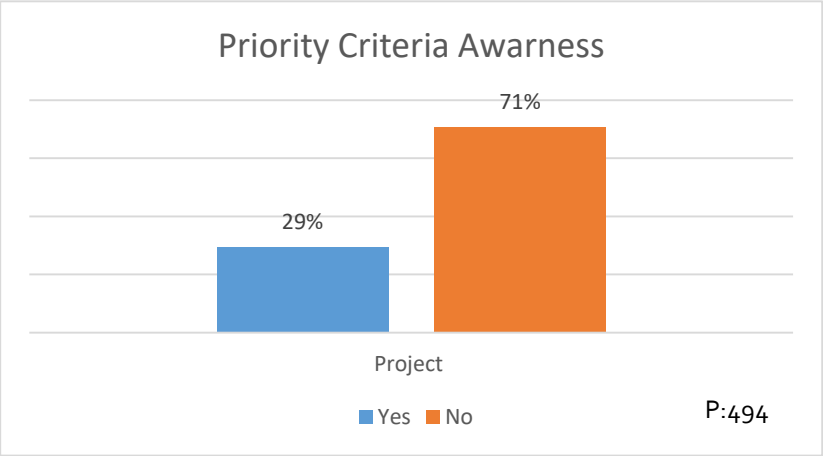


Figure 11: Priority Criteria Awareness

Beneficiaries were also asked about the awareness on VCRMC in the village as part of the project. 71% said that they were aware of the presence of VCRMC in their villages.

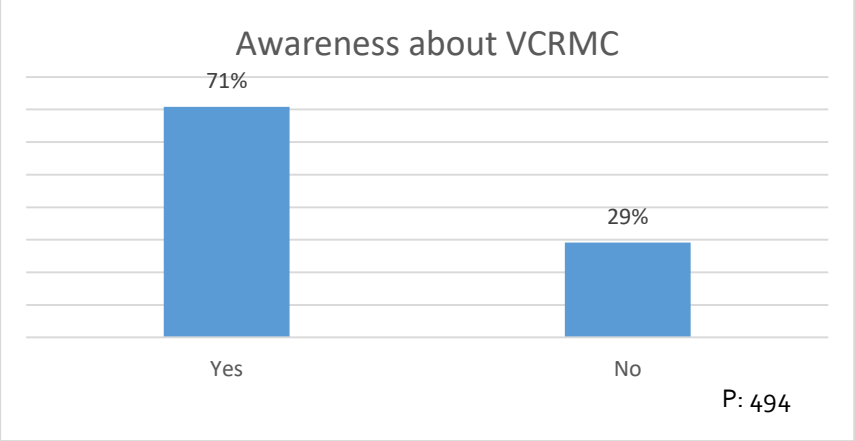


Figure 12: Awareness about VCRMC

Findings from KIIs with VCRMC members

Governance and Structure

As part of CM-II survey, 27 VCRMCs have been interviewed. It is an important institution as part of the project and plays an integral role for project implementation at village/Gram

Panchayat level. The committee acts as a development committee and includes 13 executive members. Out of the total members, 50% are women, which means that women' representation is adequate. There are also representatives from SC/ST category.

The committee was constituted as per the guidelines of the project. During the Gram Sabha meetings, the members were informed about the formation of VCRMC. After regular meetings and discussions, the VCRMC was formed. The total committee consisted of 17 members, out of which 13 are executive members while 4 are non-executive members. This statutory body is expected to conduct meetings once in a month to resolve the issues and concerns of the beneficiaries selected for the project. Monthly meetings are conducted at the village level and minutes are recorded for each meeting.

The committee had broad representation. The VCRMC consisted of Sarpanch as the Chairman, Deputy Sarpanch as a member, Gram Panchayat Members (1 male and 1 female), 2 progressive male farmers, 3 women farmers, 1 FPO/FPC representative, 1 Women SHG *(Mahila Bachat Gat)* representative, and 2 Agri & Allied Activity Entrepreneurs as executive members. The non-executive members consisted of 1 Agriculture Assistant, 1 Gram Sevak/Village Development Officer, 1 Cluster Assistant and 1 Farmer Friend (Krishi Mitra/Krushi Tai).

Training of VCRMC Members

The VCRMC members had attended online training conducted Project Management Unit [PMU]. The members were made aware about the roles and responsibility of VCRMC and its members, types of activities covered under PoCRA project, eligibility criterion for selection of beneficiaries, applicability of subsidy for beneficiaries.

Functioning of VCRMC

VCRMC was involved in preparation & finalization of VDPs, conducting monthly meeting, selection of beneficiaries, scrutiny of applications, recommendations of the applications, conducting meeting with beneficiaries and implementation of activities as per VDP.

- The applications of beneficiaries are uploaded by the Cluster Assistants.
- VCRMC members scrutinize bills & other documents of the beneficiaries as per the criteria.
- Agriculture Assistant conduct spot verification of the implemented activities. Post verification, the CA uploads the bills and documents for DBT process.

Decision Making Aspect

VCRMC meetings are generally held monthly. However, if the committee receives more applications, meetings are held at an interval of 15 days. The date of meeting is decided by the Sarpanch in consultation with Agricultural Assistant, Cluster Assistant and other members. Meetings are held at Gram Panchayat or temple premises in the morning hours (between 10 to 11 AM). Usually, the meetings are attended by about 50 to 60% of members. During the meetings, the status of applications, issues faced and any other topics were discussed. The Cluster Assistant recorded the attendance and minutes of meeting.

Krushi Tai acts as an interface between project officials and the village community and help in mobilization efforts and works in close coordination with the Cluster Assistant. The Cluster Assistant helps beneficiaries in the application process. Once the process is completed, the CA receives the complete list of applications. The CA verifies all the KYC documents and assesses feasibility of the activities. During the committee meetings, the VCRMC members are apprised about the activities. All the applications are discussed by the member's post which one third of the members have to agree and approve the application.

Finance and Management in VCRMC

A separate bank account was opened in the name of the committee through which transactions were made for the project. The signatories of the account transactions were Sarpanch and Agriculture Assistant. Gram Krishi Sanjeevani Samiti is involved in mainiting account records. Agriculture Assistants are update and maintain the ledger book and other account records & updated the information to VCRMC. Cluster Assistant takes up the remaining record keeping and maintaining.

The Accounts Officer at SDAO office provides information and training to the Agriculture Assistant on maintain account. All expenses were being incurred as per the guidelines, VCRMC members are well aware about the norms of the expenditure.

VCRMCs had received Rs. 25,000 for office maintenance and for paying remunerations to Krushi Tai. In phase I villages, expenses were made for purchase of chairs, stationary, registers, books and Krushi Tai remunerations. Across some of the villages covered in phase II no such amount had been received.

In total 12 books have been provided to VCRMC for maintaining records. The books maintained were stock register, water collection register, cheque distribution register, inward book, outward Book, advance register book, cheque entry book, cashbook, ledger book, grievance book, account book and project component wise book.

Beneficiary Interactions

The VCRMC organizes monthly or fortnightly meetings with beneficiaries after a minimum of 10 to 15 applications are received. VCRMC takes decisions on pending applications. In case of any issues in applications, one of the members of VCRMC discuss it with the beneficiaries on cases to case basis.

VCRMC organizes meetings guide farmers and landless villagers about the applications. In the meetings, new guidelines or instructions received about project activities. Information regarding project is disseminated through leaflets, pamphlets, messages, WhatsApp messages through Krishi Tai & Krishi Mittra. The cluster assistants and agriculture assistants play an important role in information dissemination and facilitating the application process.

Krushi Tai is responsible for improving the participation of farmers and women. They interact with the community members on day-to-day basis.

Issues and Challenges Faced

Due to Covid-19, the committee was finding it challenging to organize meetings since the mobility of project officials was limited and they were not allowed to visit villages. As a result, the process of application processing, on-spot verification had been affected.

Findings from KIIs with Krushi Tai

As part of the CM-II survey, total 29 Krushi Tai's have been interviewed. Key highlights are presented below.

Roles & Responsibilities

- Inform the beneficiaries about various initiatives & decisions taken or new instructions about project activities
- Facilitate applicants in the registration process
- Take up site verification for activity implementation
- Dissemination of information to the farmers about various trainings & demonstration to be conducted
- Mobilization of farmers group in activity participation
- To motivate women to participate in committee meetings
- Attend all the meetings of VCRMC

Familiarity with the history of the community, its cultural practices, gender relations

Since *Krushi Tais* appointed reside in the village from where appointed, they were well aware about the cultural practices and gender relations. She explained that women are work in the farms as agricultural labour and lack opportunities of livelihood. They also lack confidence due to lack of skills.

Awareness about the role of VCRMC

The Krushi Tais' awareness about the role of VCRMC was 'good'. As executive member of the VCRMC, Krushi Tai attends all village level meetings and participates in discussions regarding the project, obtains project related updates to share with farmers and focuses on improving participation of women in the project activities.

Role in Mobilization of Farmers

Krushi Tai interacts with farmers, especially women, on a regular basis. Since she resided in the villages, she was able to interact with the community on daily basis and it was convenient for her to remind them about the upcoming events like FFS trainings, demonstration schedules, meetings etc. She also provided farmers information on the benefits of attending the FFS and demonstration, how it may affect the production and yield.

Impact on participation of women in FFS/group activities

Due to consolidated efforts of Krushi Tai, Cluster Assistant and Agriculture Assistant, participation of farmers and women have improved. Earlier, the number of women participating was negligible. Now, at least three women participate.

Role in organizing or participation in SHG meetings, mahila mandal/ village level institutions

Krushi Tai also attends monthly meetings of the SHGs wherein she assesses the saving corpus, performance of the SHG, and suggests them activities that may be suitable for them. She also provides handholding and support to them in the process of applying for bank loans.

Training Programme/Capacity Building Attended

Three days training programme was organized by District Agriculture Office for the Krushi Tai. Most of them had attended it. In the training program, information regarding PoCRA project, roles and responsibility of Krushi Tai, impact of climate change impact on crops etc. They also regular guidance regarding PoCRA project from Agriculture Assistant and Agri. Supervisor.

They indicated that the three-day programme was beneficial to them; however, it may be organized regularly. They also indicated that due to re-election of VCRMC in some of the

villages, new Krushi Tai were appointed in those villages. Regular trainings may be beneficial to the new appointees.

Strategy adopted for better implementation of the project

Krushi Tai indicated that they plan activities in consultation with VCRMC members and regularly interact with farmers, farmer groups, women and SHGs for better involvement of community.

Issues Faced

Krushi Tai highlighted the following issues:

- It was indicated that due to re-election of VCRMC in some of the villages, new Krushi Tai were appointed in those villages. Newly appointees faced challenges in understanding project related aspects. Regular training may be conducted for the new appointees.
- As per the discussions, Krushi Tai in 18 villages indicated that they had not received their remuneration from VCRMC.

A2: Promoting Climate Resilient Agriculture

Main objective under this component is maximizing productivity through transfer and adoption of climate resilient technologies. Feedback of farmers was obtained on agriculture practices, farmers' field school, and support through DBT activities. A comparison between project and control has also been presented.

Activities for Climate Resilient Agriculture Systems

PoCRA project has been designed to ensure maximizing productivity with focus on small and marginal farmers. A unique feature under the project is the range of activities that farmers can apply under the project. There is no limit to the number of activities, which can be seen from the figure. It can be clearly observed from the figure that in project villages, farmers have applied to various activities, which shows the importance of integrated farming systems. However, in control villages, major activity was sprinkler irrigation with 40.1% beneficiaries and 20.8% for drip irrigation.

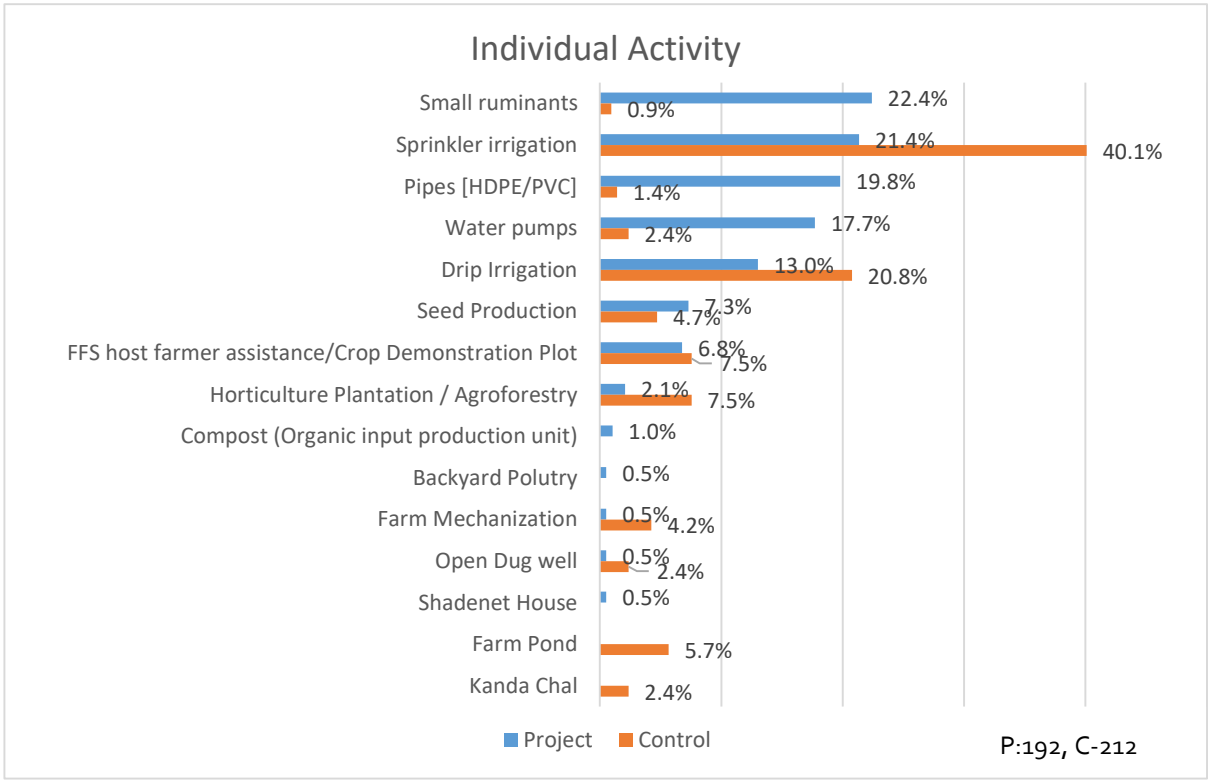


Figure 13: Activities for Climate Resilient Agri Systems

Feedback on Agriculture Practices

Landholding Pattern

Landholding pattern was recorded as part of the beneficiary questionnaire. 15.3% in project and 20.9% in control villages were marginal having less than 1 Ha land. Small and medium farmers were the majority of the category in both project and control villages. 42.5% in project and 40.2% in control villages were small (1-2 Ha land), whereas 41.1% in project and 38.9% in control were medium, (2-10 ha land). Large farmers were only 1.1% in project villages. 24.7% in project villages and 6.3% respondents in control villages were landless.

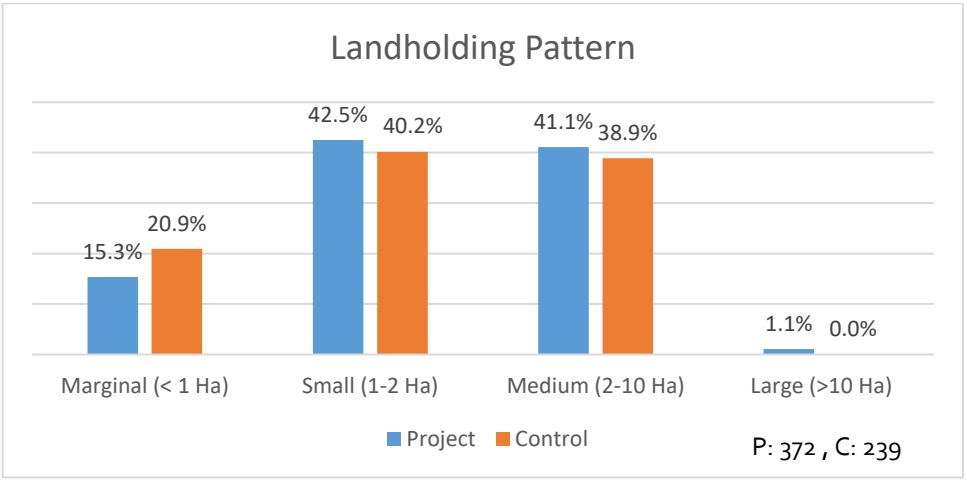


Figure 14: Landholding Pattern

Average Landholding

Average landholding was found to be 2.24 ha in project villages and 2.19 ha in control villages.

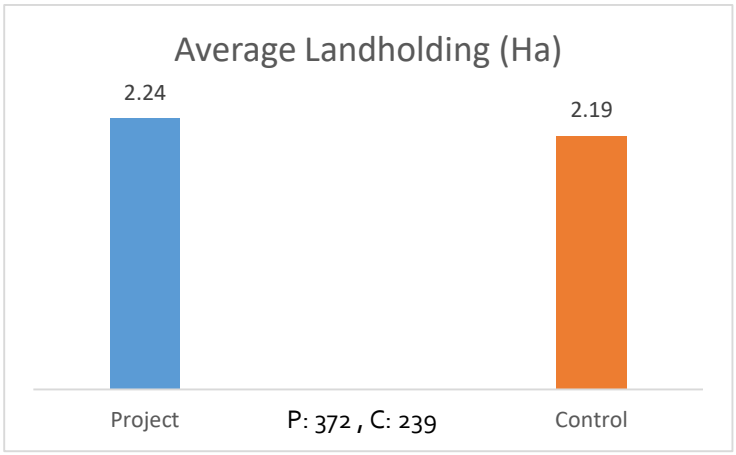


Figure 15: Average Landholding (ha)

Cropping Pattern

Cropping pattern in project and control villages revealed, 60.2% of the farmers in project villages are growing Cotton during Kharif season as compared to 51.4% in control villages. Soybean was second major crop with 53.2% farmers in project villages as compared to 60.4% in control villages. Pigeon pea was the third major crop in Kharif season with 28.2% farmers in project and 31.6% farmers in control villages.

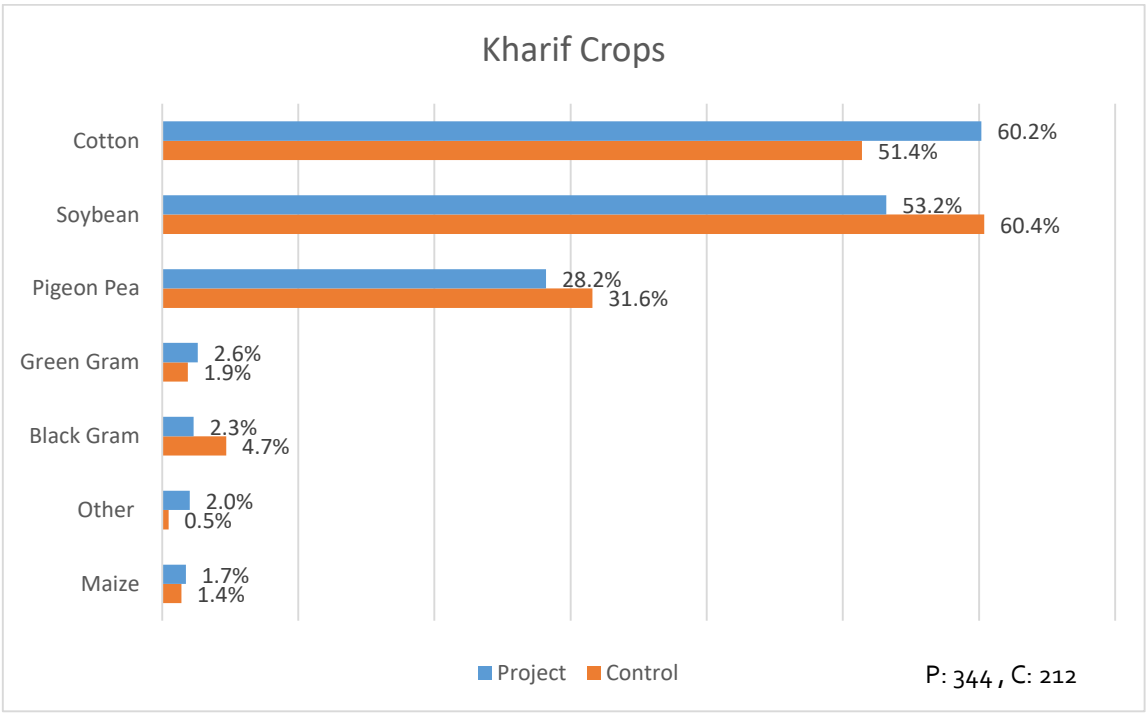


Figure 16: Kharif Crops

During Rabi season, Chickpea was the major crop with 75% farmers in project and 68.3% farmers in control villages. Wheat was the second major Rabi crop grown by 23.1% farmers in project and 25.7% farmers in control villages.

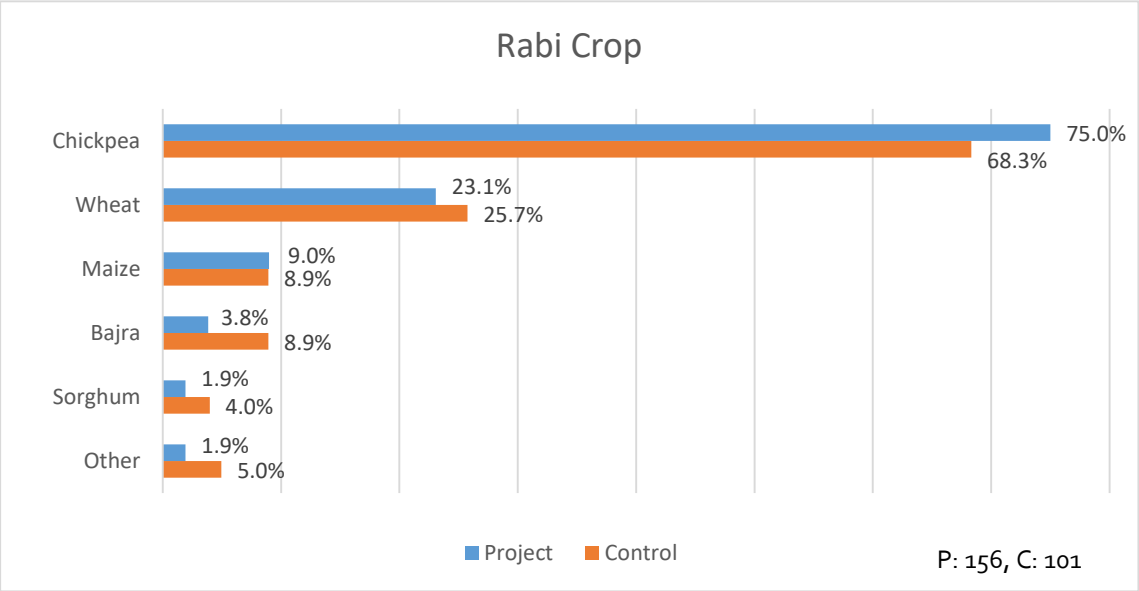


Figure 17: Rabi Crops

Area, Production & Yield of Major Crops

Area, Production and Yield of major crops recorded in project and control villages is shown in the table below. Yield of Cotton was reported to be 8 Quintal/acre, Soybean 6.2 Quintal/acre, Chickpea 6.2 Quintal/acre and Pigeon pea 3.9 Quintal/acre in project villages.

In control villages, the yield was reported to be Cotton- 6.6 Quintal/acre, Soybean-6.0 Quintal/acre, Chickpea-5.9 Quintal/acre and Pigeon pea-5.1 Quintal/acre.

Table 9: Area, Production and Yield of Major Crops Reported during CM-II

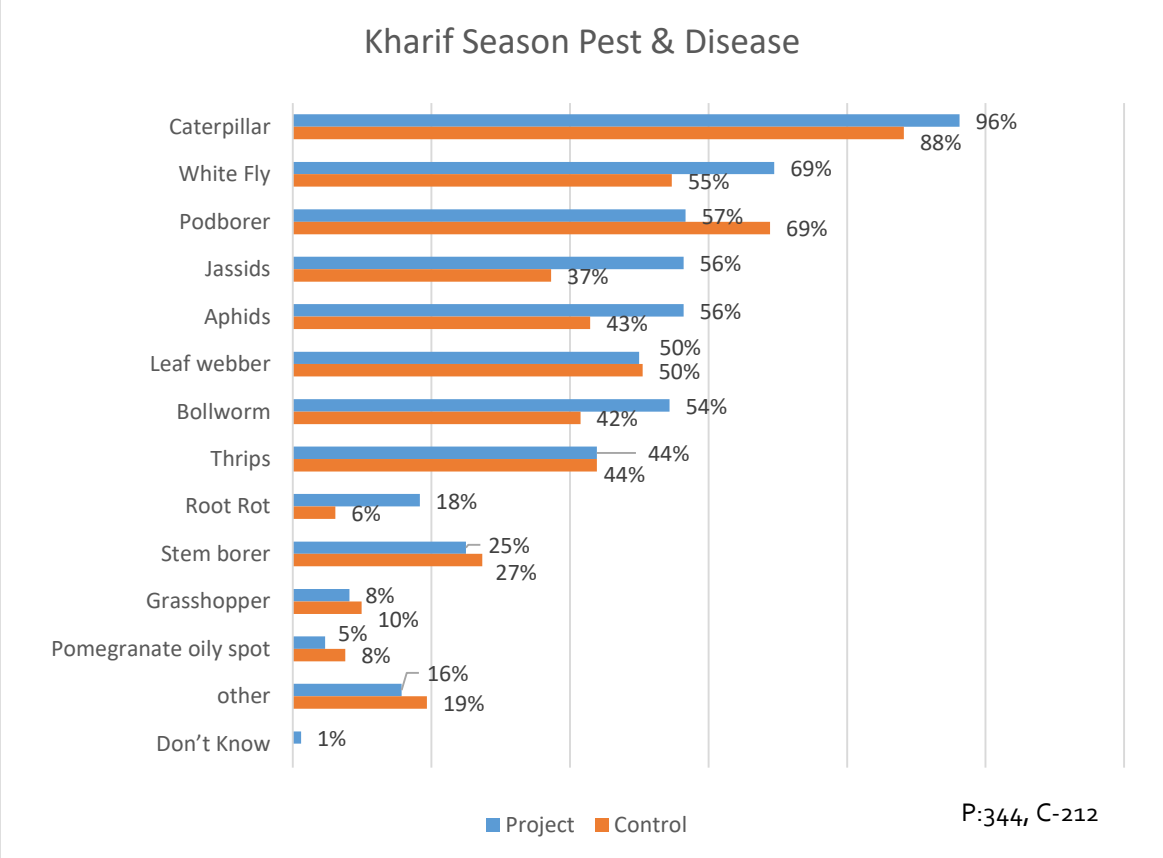
		Project				Control			
SN	**Crop Name**	**Count**	**Avg. Area (Acre)**	**Avg. Production (Q)**	**Avg. yield (Q/acre)**	**Count**	**Avg. Area (Acre)**	**Avg. Production (Q)**	**Avg. yield (Q/acre)**
				Kharif Crops					
1	Cotton	207	4.29	33.99	8.02	109	4.75	27.97	6.60
2	Soybean	183	4.52	27.91	6.20	128	4.12	22.96	6.00
3	Pigeon Pea	97	4.51	16.71	3.91	67	3.74	15.32	5.09
4	Green Gram	9	4.11	15.11	3.28	4	0.69	11.25	14.00
5	Black Gram	8	5.59	21.25	4.56	10	1.78	9.30	6.00
6	Maize	6	4.67	41.67	14.58	3	7.82	44.00	5.70

					Rabi Crops				
1	Chickpea	117	4.27	26.71	6.21	69	3.52	19.54	5.88
2	Wheat	36	2.64	22.08	9.49	26	3.64	24.12	7.66
3	Maize	14	4.41	43.43	12.37	9	5.84	31.00	5.74
4	Bajra	6	4.90	20.83	5.28	9	4.68	20.11	4.52
5	Sorghum	4	3.03	28.25	10.26	4	5.83	25.50	5.91

Incidence of Pests & Diseases Reported

Farmers were also asked about the types of pests and diseases in both project and control villages as a multiple response question. The data has been analysed season wise to understand the type of pests and diseases in each season.

The major pests reported were caterpillar, white fly, podborder, Jassids, Aphids, leaf webber and bollworm.



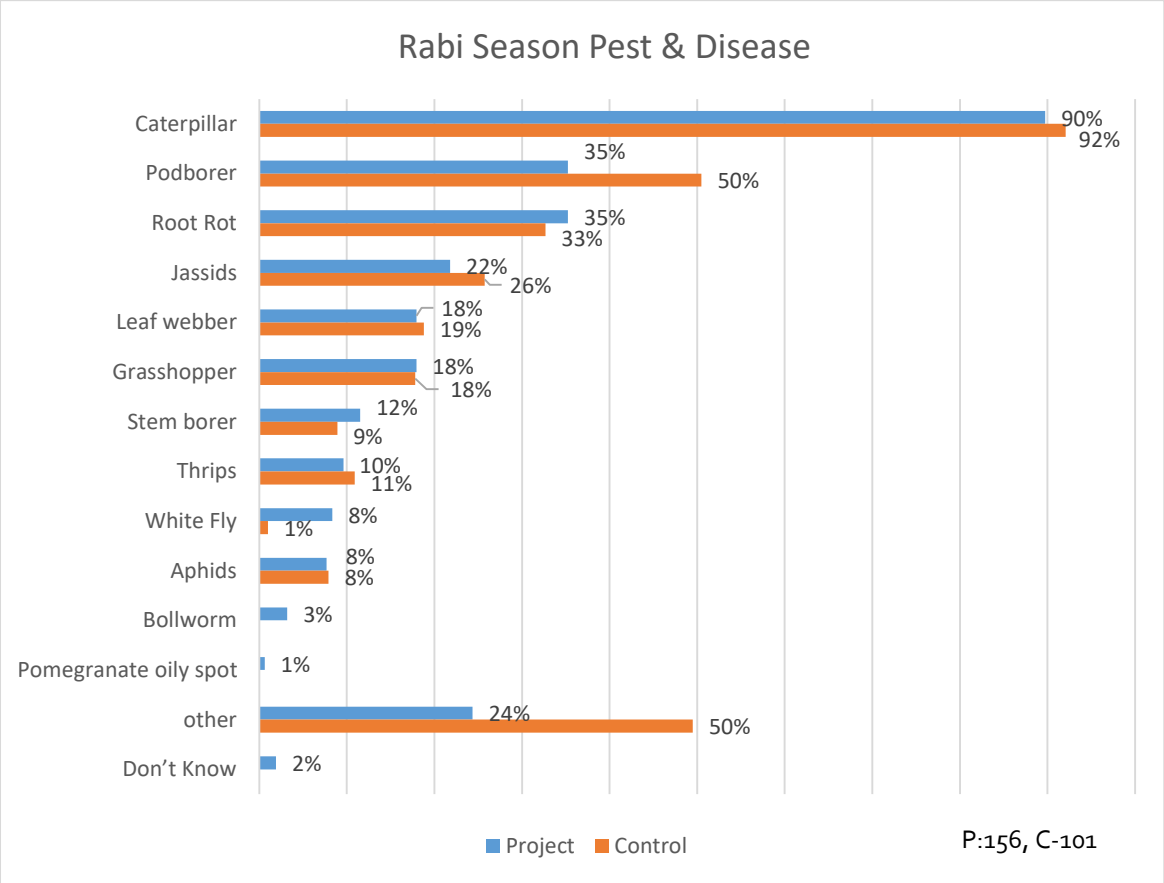


Figure 18: Types of Pests & Diseases

Cost of Cultivation of Major Crops

The cost of cultivation is calculated for major kharif crops viz; cotton, soybean, pigeonpea, blackgram, greengram and major rabi crop (chickpea). The responses received from the CM-II survey were calculated for estimating the Cost A1, Cost A2, Cost B and Cost C for each of the crop by averaging the responses received (Table 10).

In both project and control villages, cost A1 was calculated which includes the cost from land preparation to other charges+ Interest on working capital @6%+ Depreciation on fixed cost whereas the cost A2 (COST A1+ Rent paid for leased in land) for cotton, soybean pigeon pea, black gram, green gram. Cost B was obtained based on A2 and rent, interest (Cost B: Cost A2+Rental value of own land + Interest on owned fixed capital@10%per annum)

In project villages the total cost of cultivation i.e. Cost C was calculated using the formula (COST B+ Family labour per acre) and was found maximum for cotton crop (Rs.24993/-) followed by chickpea (Rs. 20814/-), soybean (Rs. 18460/-), black gram (Rs. 17708/-), pigeon pea (Rs. 15921/-), and green gram (Rs. 13482/-). Similar trend of results was obtained in the control villages also. The estimates of both project and control village revealed that the cost of cultivation was found highest for cotton followed by chickpea, soybean, black gram, pigeon pea and green gram.

Table 10: Cost of Cultivation of Major Crop

Village Type	4.1 Main Crop Name	Cotton	Soybean	Pigeon Pea	Black Gram	Green Gram	Chickpea
Project Village	Responses	207	183	97	8	9	117
	Average of Working Capital (Rs.)	13572	11530	5721	9300	8540	11641
	Average of COST A1 (Land preparation to Other charges+ Interest on working capital @6%+ Depreciation on fixed cost*) (Rs.)	15320	12851	6859	10405	9454	13053
	Average of COST A2 (COST A1+ Rent paid for leased in land*) (Rs.)	15419	12851	6859	10405	9454	13053
	Average of COST B (Cost A2+Rental value of own land*+ Interest on owned fixed capital) (Rs.)	23989	17768	15411	17145	13104	20238
	Average of COST C (COST B+ Family labour) (Rs.)	**24993**	**18460**	**15921**	**17708**	**13482**	**20814**
Control Village	Responses	109	128	67	10	4	69
	Average of Working Capital(Rs.)	12669	11720	6092	9020	10350	11752
	Average of COST A1 (Land preparation to Other charges+ Interest on working capital @6%+ Depreciation on fixed cost*) (Rs.)	14363	13052	7252	10108	11373	13171
	Average of COST A2 (COST A1+ Rent paid for leased in land*) (Rs.)	14363	13052	7252	10108	11373	13171
	Average of COST B (Cost A2+Rental value of own land* + Interest on owned fixed capital) (Rs.)	23036	17969	15784	16848	15023	20356
	Average of COST C (COST B+ Family labour) (Rs.)	**24202**	**18737**	**16331**	**17388**	**15023**	**21030**

**Source: Department of Agricultural Economics, Agriculture Prices Scheme, Dr.PDKV, Akola for year 2019-20*

Machinery Used

Beneficiaries' were asked about the machineries used as a multiple-choice response. Majority of the respondents in both project and control villages reported using tractors, threshers, sprayers, electric pump set and power tiller as the main machinery.

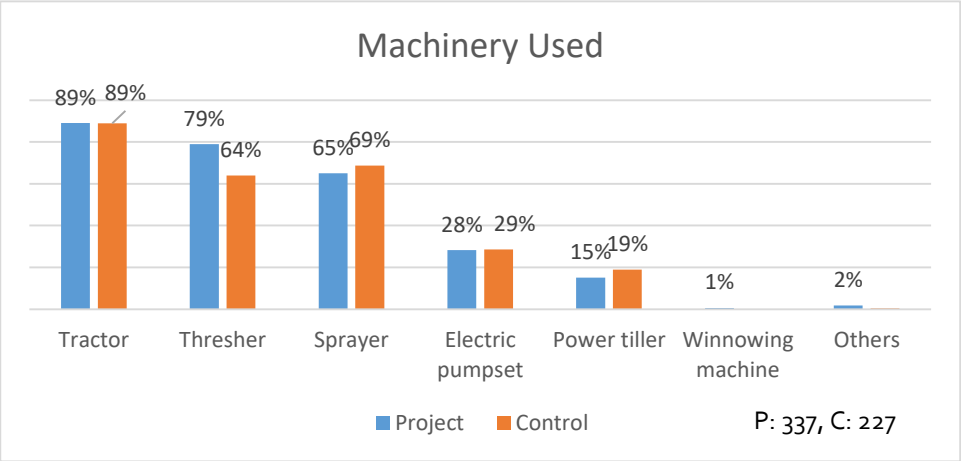


Figure 19: Machinery Used

Access to Market

Access to Market is an important parameter as part of the value chain. As per the data, 78% of the beneficiaries in project and 70% in control villages are selling their produce in APMC main/sub-market. 46% in project and 45% in control are selling their produce in village market/rural haats.

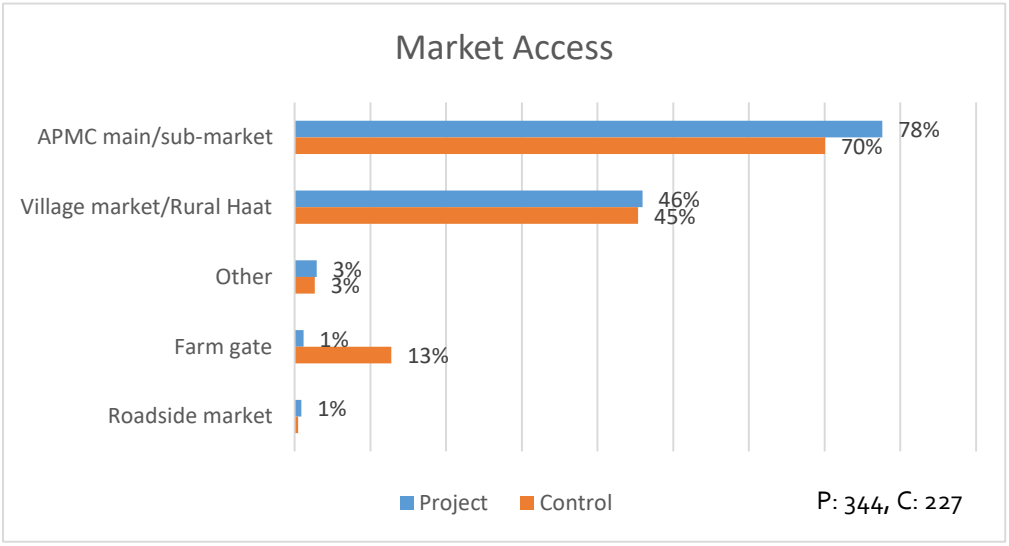


Figure 20: Access to Market

The beneficiaries were also asked about the selling time of the produce. This was a multiple-choice response and 75.9% in project and 78% in control said that they sell their produce when the prices are favourable. 41% in project and 40.5% in control reported to have sold

their produce immediately after harvest, indicating a need for crating storage structures. 65% of the beneficiaries in project villages and 64% in control villages said that they preserve the produce for future sale. However, 94% in project and 90% in control villages said that they are storing the produce at home for future sale.

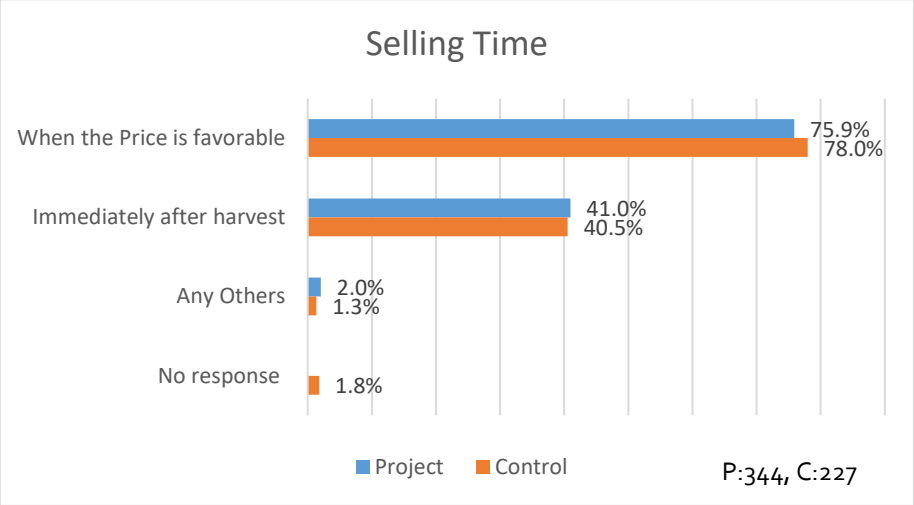


Figure 21: Selling Time

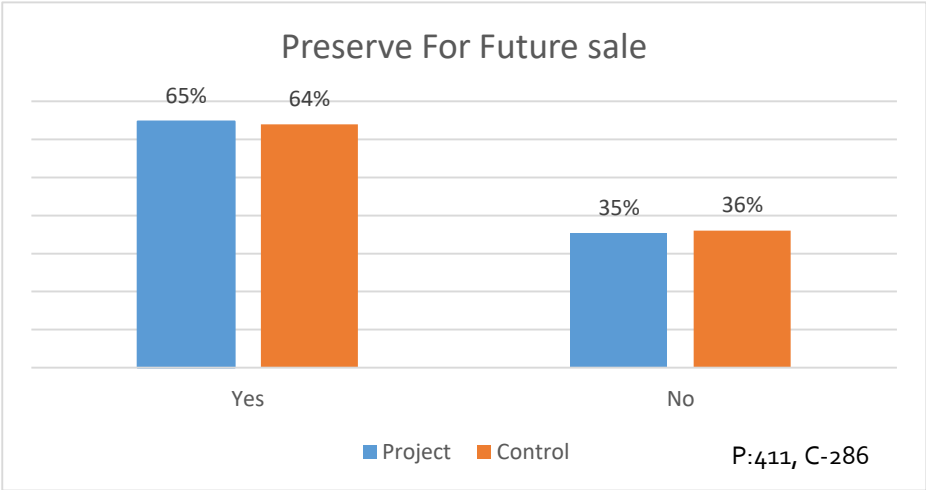


Figure 22: Preserving for Future Sale

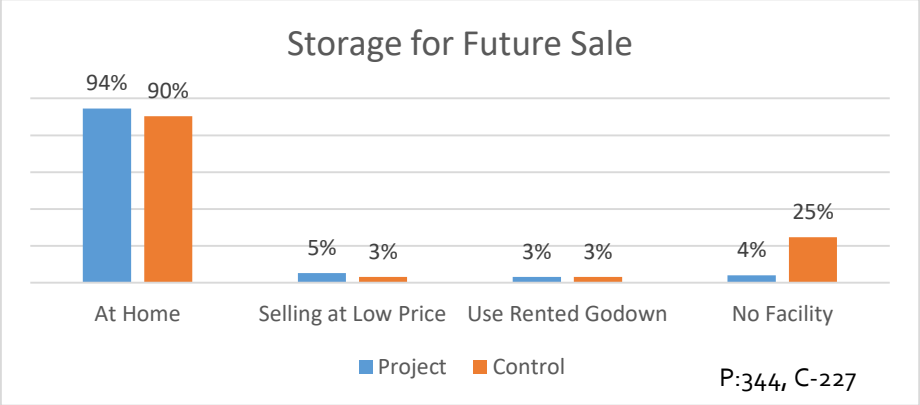


Figure 23: Storage for Future Sale

When asked about the involvement in grading and sorting, only 35% in project and 27% in control said that they were actually involved in grading and sorting of produce. This is encouraging signs as part of project implementation as more people are realizing the importance of post-harvest management.

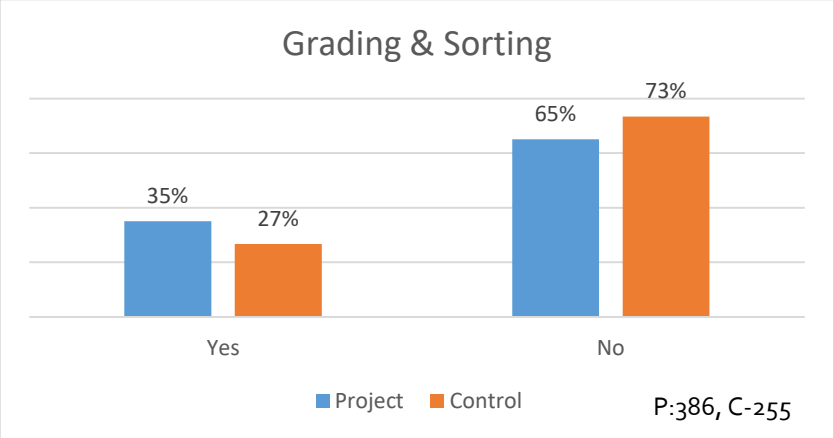


Figure 24: Grading & Sorting of Produce

The beneficiaries were also asked about the constraints faced for marketing produce as a multiple-choice response. 87.5% in project and 81.9% in control villages said that fluctuation of price is the biggest constraint. Low price (P-16%, C-14.1%) and lack of knowledge (P-14%, C-11.9%) were other major constraints reported by beneficiaries.

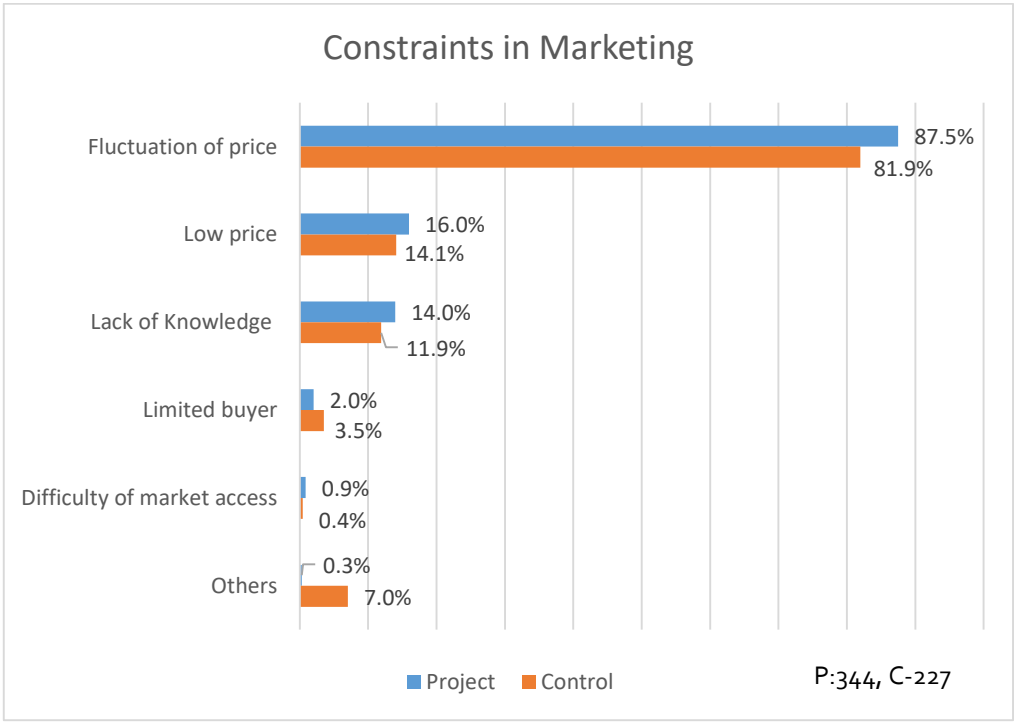


Figure 25: Constraints in Marketing

Feedback on Farmers' Field School Conducted

As part of Component A: Promoting Climate Resilient Agriculture Systems, Farmer Field School (FFS) is a major activity. FFS focuses on demonstration of climate-resilient varieties of field crops as well as of productivity-enhancing agronomic practices. As part of FFS, technical assistance is provided for technology transfer to farmers through demonstration, diffusion, and adoption at farm and village level. As part of the activity, 25% Host Farmers and 75% Guest Farmers have been selected for CM-II survey. Out of the 3 guest farmers selected for the survey, 1 women guest farmer has been selected.

Participation of Farmers

FFS Beneficiaries as part of CM-II sample villages were asked whether they have attended field schools as part of the project. Out of the total beneficiaries selected for FFS, 84% reported attending FFS, while 16% said that they are yet to attend any training/demonstration under FFS.

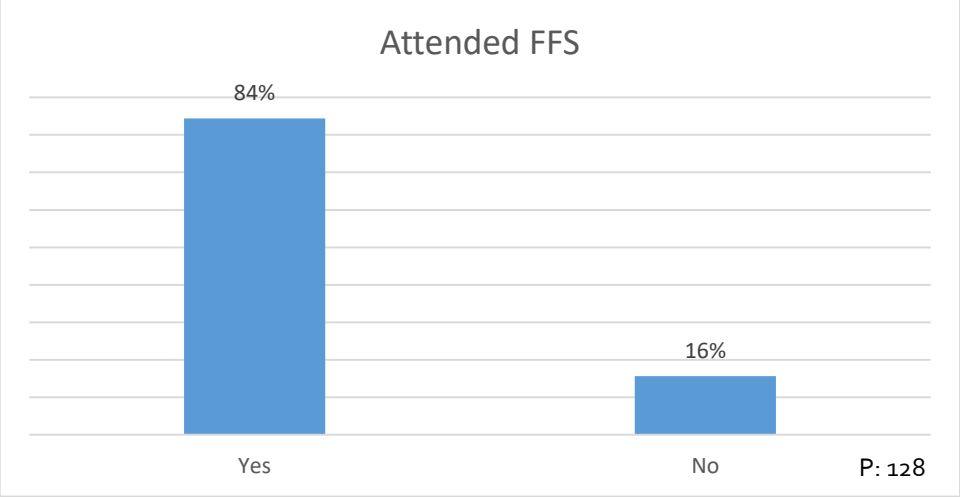


Figure 26: Attended FFS

Majority of the farmers attending FFS reported that they have participated to get information on new farming techniques, as reported by 56% farmers. Since pests and disease are major issues reported by farmers, 35% said that they have attended FFS to get information on Pest & disease management. 9% said there were other reasons to attend FFS like encouragement from agriculture department and motivation through fellow farmers.

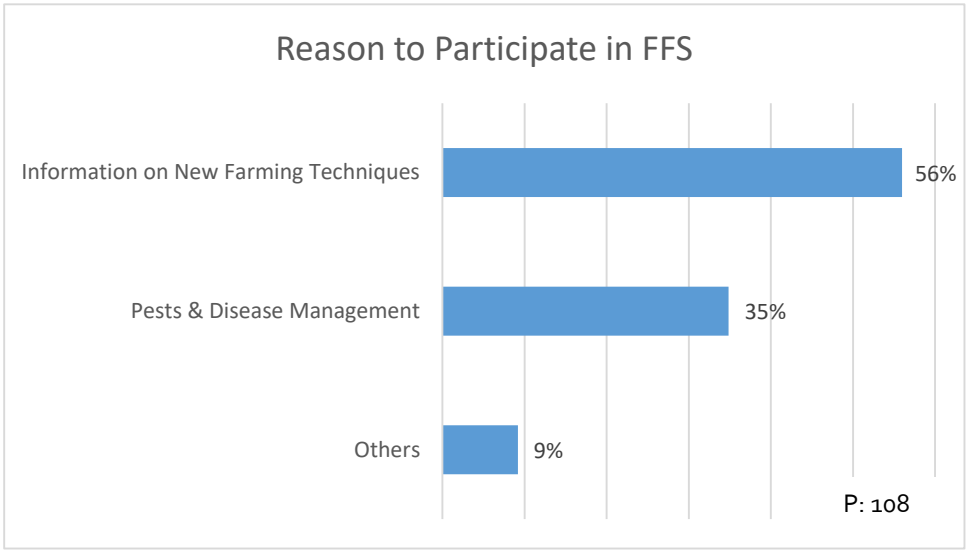


Figure 27: Reasons to Participate in FFS

When asked about the number of times farmers have attended FFS, 27% said that they have attended the FFS at least once, 46% said two to five times, while 11% had attended six to ten times. 16% had not attended any FFS session, even though they have been identified as FFS beneficiaries. The respondents also revealed that on an average around 20 farmers attended FFS in one session with them.

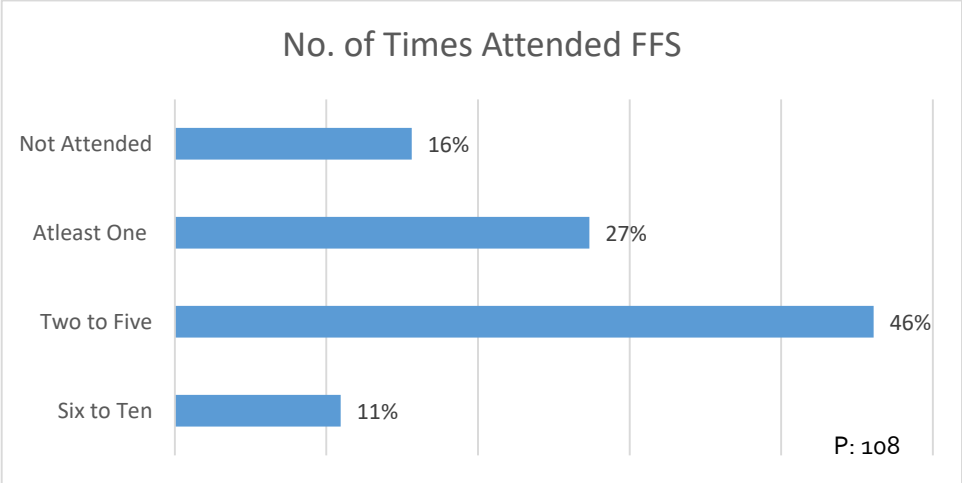


Figure 28: Number of times attended FFS

Technology Demonstrated

As part of the FFS, beneficiaries were asked about the technologies demonstrated as a multiple-choice response. 48% reported fertilizer dosage application as the main technology, followed by Seed Treatment (41%), Fertigation (38%), Control measures for Pests & Diseases (36%), Preparation of Organic Manure (32%) and Sowing Techniques (30%).

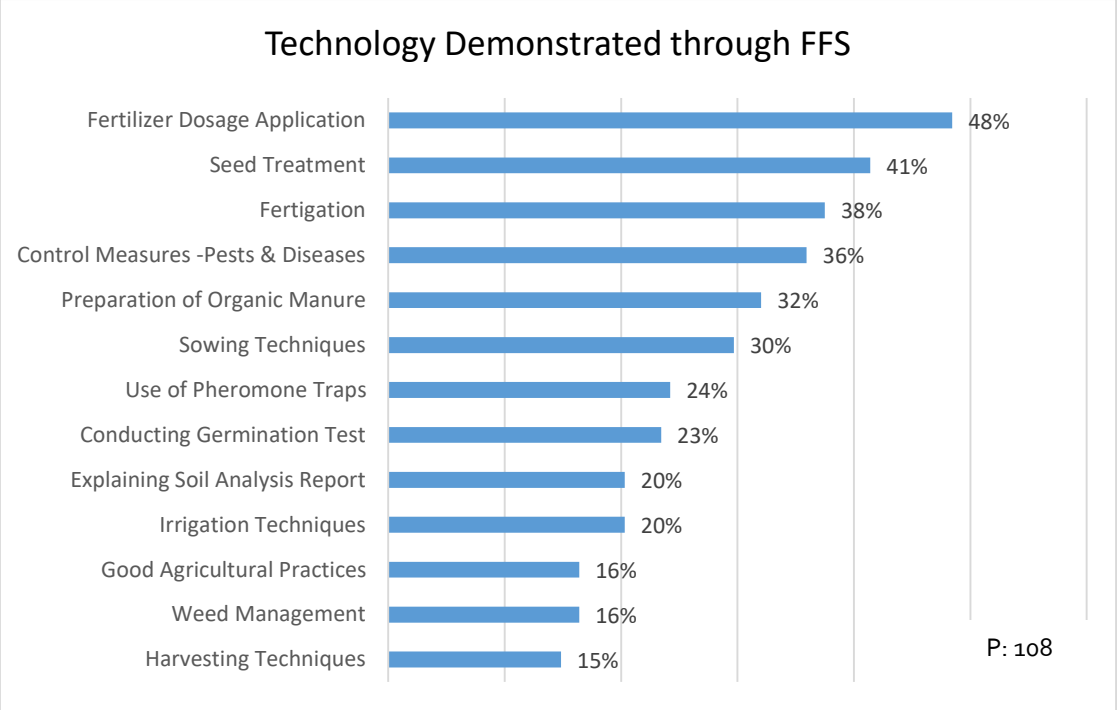


Figure 29: Technology Demonstrated

Cotton and Soybean being the major Kharif crops in the region, 56% and 43% of the FFS were conducted for these two crops. For Rabi Season, 100% demonstrations happened for Chickpea.

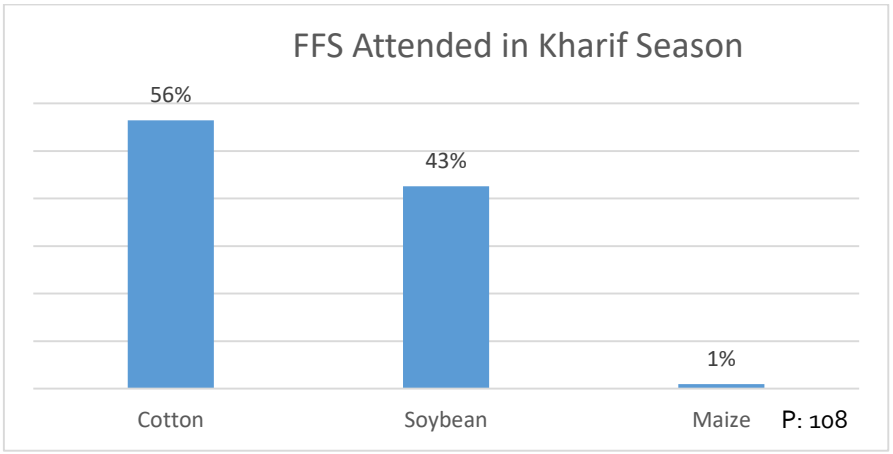


Figure 30: FFS Attended in Kharif Season

FFS farmers were also asked where they sell their produce. 31% said that they are selling the produce at APMC main/sub-marke, while 25% said that they are selling at Village market/Rural Haat. Farmers also highlighted that while selling directly, they are unaware about the market rate and also storage is required to get favourable price.

FFS Process & Effectiveness

Farmers were also asked whether they have been briefed on the method of demonstration before starting. 93% said they have been briefed and were aware about the technology demonstrations as part of FFS. In 92% cases, information board for FFS was installed at the site of demonstration. Further, beneficiaries were asked whether they have received timely inputs for FFS. 76% of the Host Farmers said that the inputs like seeds, fertilizers, pesticides have been received on time as part of the project.

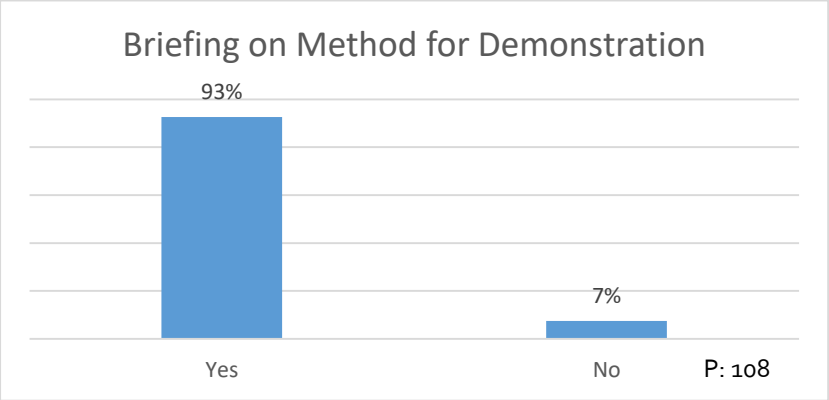


Figure 31: Briefing Method for Demonstration

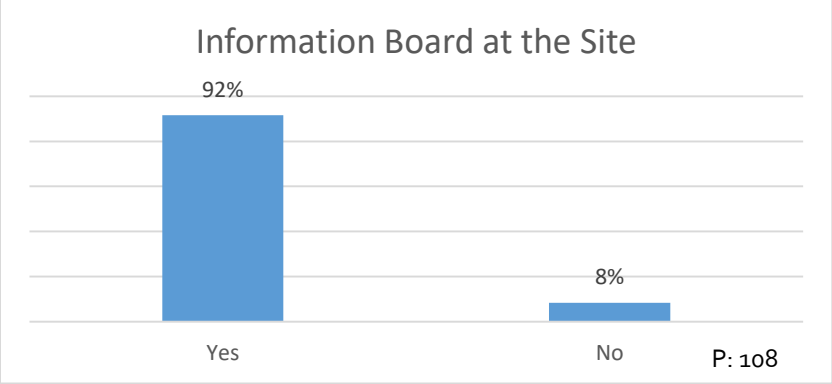


Figure 32: Information Board at Site

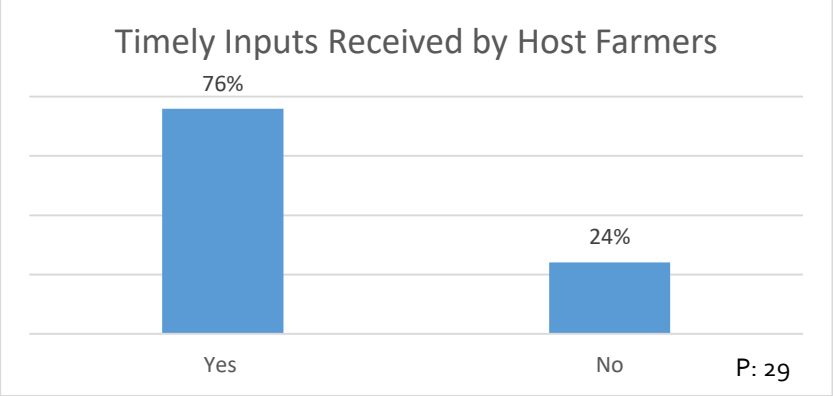


Figure 33: Timely Inputs Received by Host Farmers

Farmers were also asked whether any scientist or expert has taken the session during FFS. 77% reported that FFS technical experts have taken the sessions for technology demonstration and diffusion. When asked whether the beneficiaries will continue the practices demonstrated for next year, 82% said they would continue the practices demonstrated.

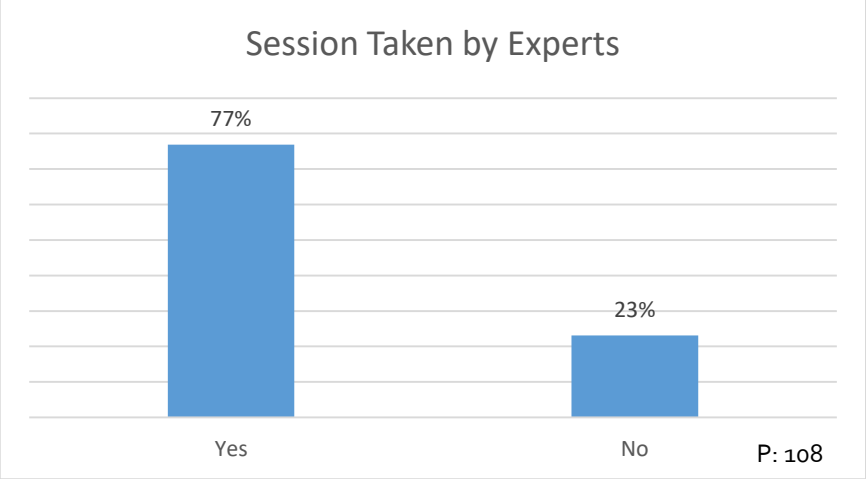


Figure 34: Session taken by Scientists/Experts

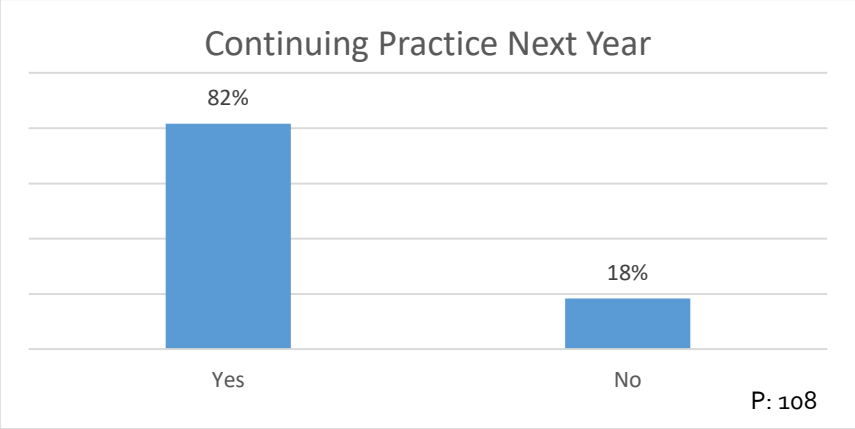


Figure 35: Continuing Practice Next Year

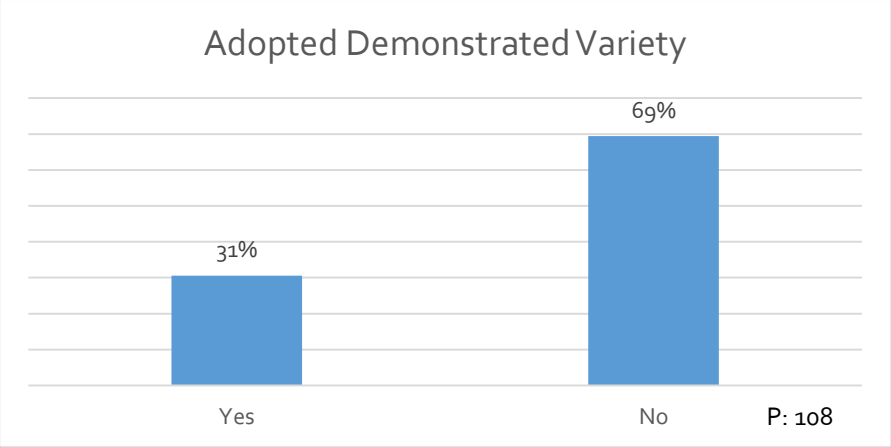


Figure 36: Adopted Demonstrated Variety

92% of the farmers reported that they have found the information provided during FFS relevant. 92% of the farmers have reported that the schedule for FFS was convenient. However, when asked whether they have adopted the demonstrated variety, only 31% responded saying they have adopted the verities in their farmlands.

Majority of the farmers reported that improved germination rate, increased production and pest resistance are the main impacts of planting the new verities demonstrated during FFS. 18% stated that pest infestation has reduced by 10 per cent, 17% stated that the germination rate has improved by around 10 per cent, whereas 11% said plant diseases have reduced by around 10 per cent.

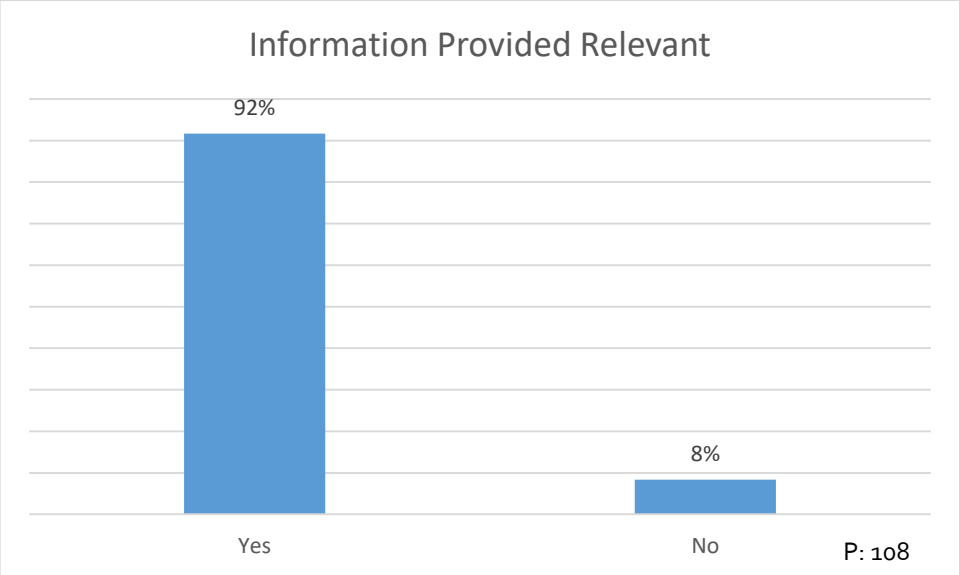


Figure 37: Information Provided Relevant

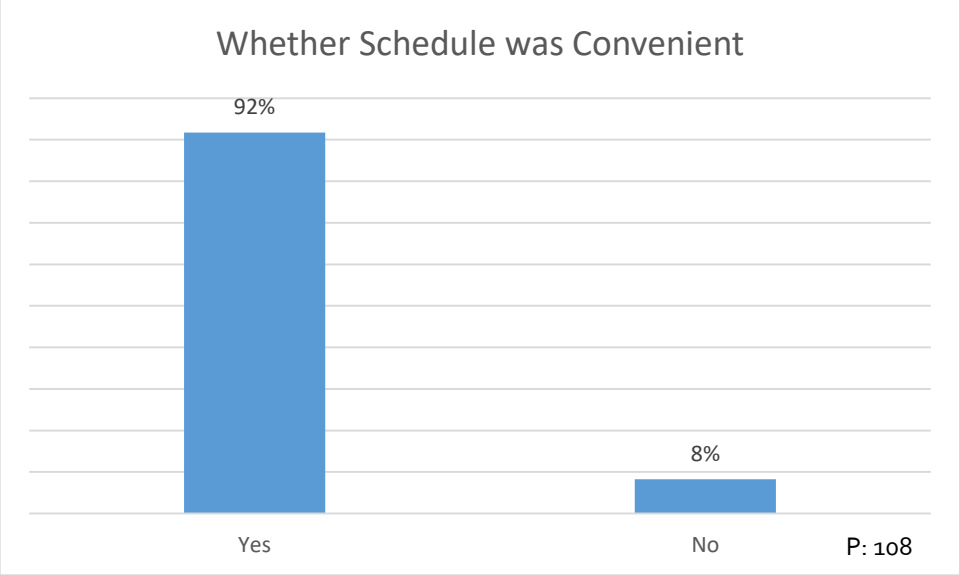


Figure 38: Whether Schedule was Convenient

Farmers who attended FFS were asked to rate on the usefulness of FFS, Rating 1 being lowest and 3 being highest. 29% of the farmers have given Rating 1, while 57% have given Rating 2 and 14% have given Rating 3.

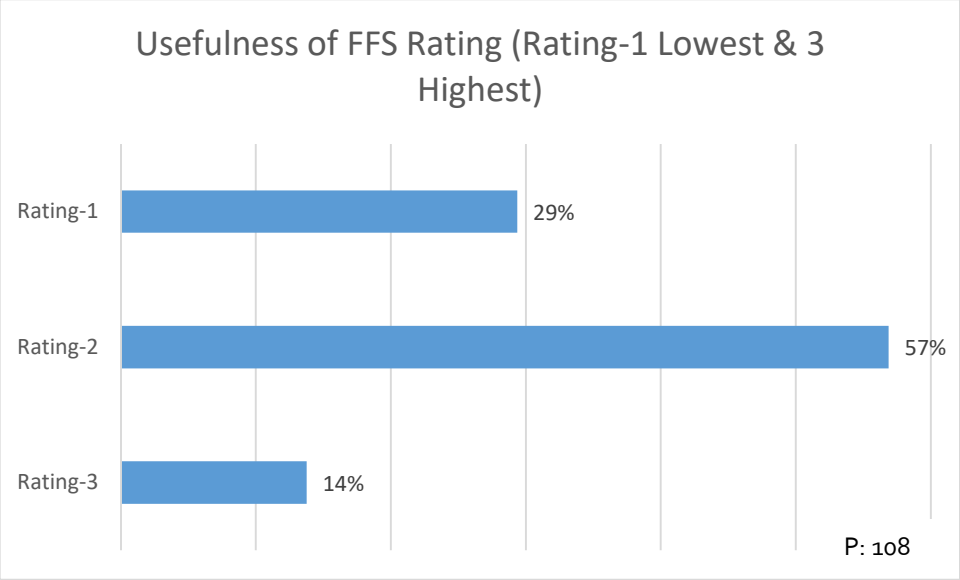


Figure 39: Usefulness of FFS Rating

Farmers who attended FFS were also asked to rate on the effectiveness of facilitators, rating 1 being lowest and 3 being highest. 23% of the farmers have given Rating 1, while 68% have given Rating 2 and 9% have given Rating 3.

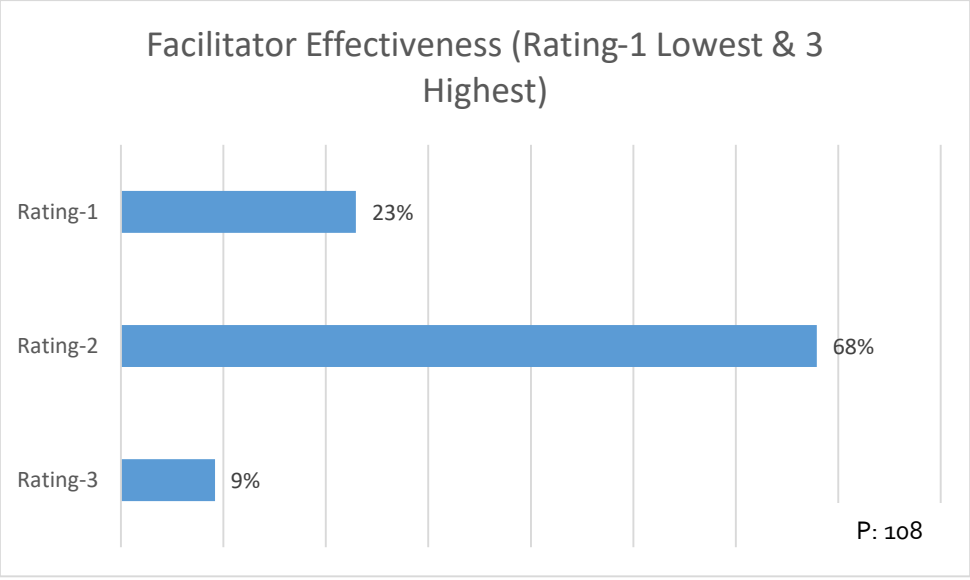


Figure 40: Facilitator Effectiveness

FFS Host Farmer Assistance through DBT

- Out of the sample DBT applications, majority were from Akola, Buldana and Yavatmal districts. No application was there from Jalgaon
- 54% of the applications were from Kharpan Villages
- As part of DBT beneficiaries, Host farmers are supported with seeds of improved verities, fertilizers and other agri-inputs.
- Most of the farmers reported that the FFS was helpful for them
- Demonstrations were regularly conducted. However, the timelines for providing Agri-inputs was not followed in some cases as reported by host farmers.
- Most of the Host farmers said that they wanted to get knowledge on improved agricultural practices and information on pests and diseases
- 70% of the Host Farmer beneficiaries said that they had received the inputs required for demonstration
- On an average 25 farmers attended the FFS
- Around 50% said that they adopted the demonstrated variety

Farmers Suggestions on FFS

On asked about the opinion on the technology learnt during the FFS, majority of the farmers reported that the FFS was helpful for them and the information provided is useful. However, few of the farmers also reported that the participation of more farmers should be there and the results should be disseminated. Some of the suggestions given by farmers to improve the FFS are:

- Awareness on FFS should be increased so that there is more participation
- FFS should be conducted as per the availability of farmers, especially during the peak season
- FFS conduction is beneficial, it should be arranged regularly & updated information should be given to the farmers.
- Apart from main crops, information regarding other crops should also be given.
- Seed support should be provided to the FFS participants.
- Timely subsidy should be given to Host farmers

Findings from KII Interviews with FFS Coordinator

Farmer Field Schools are group-learning activities for farmers through which farmers are empowered to solve their issues. It involves experimentation and observation. A total of 18 FFS coordinators have been interviewed as part of CM-II survey.

The sessions are usually organized in planting/sowing season in the field of host farmer while guest farmers (neighbouring farmers) farmers observe and discuss. Famers develop understanding about better cultivation practices, pest management, adoption of resilient varieties and others.

Role of FFS Coordinator

FFS coordinator reviews the trainings and demonstrations organised by the facilitator. Coordinator is also involved in selection of FFS topics in consultation with the SDAO and spreading awareness among farmers regarding benefits of attending FFS.

Training Attended

The FFS facilitator had attended 6 days training on IPM as on Sep 30, 2020. They had also attended online trainings on bio-fertilizers preparation for 5 days. Both the trainings were organized by NIPHM, Hyderabad in coordination with the PMU. It was indicated by the coordinators that they found the training useful as it upgraded their knowledge on various topics.

Planning process for FFS and Selection of Topic

The crop for which demonstrations is conducted is based on the seasons (Rabi & Kharif). In the topic of demonstration, recurrent issues of the crops selected are covered. For example: If Cotton crop is selected then demonstrations on proper selection of seeds, its treatment, sowing, plant spacing, doses and period of fertilizer, pesticides & insecticides applications is taken up. Progressive farmers are selected as the host farmers under the guidance of FFS coordinator and SDAO. The schedule of FFS is shared with Krushi Mittra and Krushi Tai in advance so that they may be able to mobilize farmers through awareness and reminders.

Findings from KII Interviews with FFS Facilitator

As part of the CM-II Survey, total 22 FFS facilitators have been interviewed and the discussion results are presented below.

Role of FFS Facilitator

The facilitator initiates the FFS. His/her role is organizing trainings & demonstrations and dissemination of climate resilient technologies.

Process for identification and selection of Participants

The process of selection of host farmer is based on project guidelines and parameters such as land holding, irrigation facilities, willingness to adopt technology and caste category used in their selection. Guest farmers are neighbouring farmers who observe the process and their registration process is App based. Krushi Tai's role is ensuring better participation of women

and other farmers. Around 25% of women farmers should participate in the FFS. Hence, Krushi Tai informs and reminds participants 3 to 4 days prior to the scheduled date of FFS.

Specific Interventions for Saline Sodic Soils

It was indicated by FFS facilitators that since the area is salt affected, farmers find it difficult to take up irrigation since salt in the soil comes on the surface. Hence, they informed that through FFS, farmers are informed about application of Gypsum to soil and other land development activities to improve soil fertility.

Review Mechanism Adopted for FFS

Regular interactions of coordinators with Krushi Tai, Cluster Assistant, Agriculture regarding issues of Crops of the season are taken up. The issues are then discussed with facilitators, which enables them to understand which topics that may be covered in the upcoming sessions. The DSAO office interacts with the FFS coordinators and facilitators weekly.

Feedback on quality and effectiveness of the FFS sessions

It was indicated that farmers' awareness regarding application of seed treatment, fertilizers, pesticides, insecticides have improved. Some of the farmers have adopted use of bio-fertilizers and Pheromone Traps.

Issues Highlighted

- Participation of guest farmers, especially women, has been a cause of concern.
- Lack of response from farmers during early stage of the monsoon & Rabi season makes it difficult to resolve issues as and when they occur.

Host Farmer-Chick Pea, Village-Nagapur, Tal. Khamgaon, Dist. Buldhana	Guest Farmer, Village-Malrajura, Tal. Patur, Dist. Akola

Experts Suggestion on FFS

Increasing awareness and participation

- For increasing awareness about FFS the facilitator should extensively use the electronic social media (such as wtsapp/mobiles) and should form a group of farmers and disseminate the information about the subject of field school, time and site where the FFS is being implemented.
- Field facilitators need to develop the personal contact with farmers and influential local leaders so that the farmers can participate actively
- Farmers should be informed well in advance with date, time and venue (address of host farmer) about the FFS being conducted in the month as farmers are expected to attend weekly classes over growing season of crop.
- For increasing the participation, the farmers may be provided the information with literatures/folders/pamphlets and appreciation may be given to farmers with certificates of participation to them, which can encourage other farmers of village also to participate.
- Facilitators should have access to ongoing support and backstopping from supervisors and technical experts connected to local research centres.
- Involvement of VCRMC members and Krishi Tai needs to be encouraged for increasing the participation of farmers

Alternative extension approaches

- **Farmers' interest groups**: A Farmer Interest Group (FIG) is a self-managed, independent group of farmers with a shared goal and interest. The members work together to achieve this goal by pooling their existing resources, gaining better access to other resources and to share in the resulting benefits.
- **Integrated farming system approach**: The farming systems approach considers the farm, farm household and off-farm activities in a holistic way to take care of not only farming but all aspects of nutrition, food security, sustainability, risk minimization, income and employment generation, which make up the multiple objectives of farm households.
- **Support to seed:** Support to seed to guest farmers would be encouraging for increasing the participation of farmers in field schools. Also, if the seed of newly released improved varieties/ early varieties/disease and pest resistant varieties was provided to guest farmers the new strains would be promoted through farmer to farmer effectively and would serve as a ready result demonstration**.**

Support through DBT for Individual Activities

As part of the project, to transfer the approved grants directly to the Aadhaar linked bank account of the beneficiary, PoCRA has adopted the Direct Benefit Transfer (DBT) mechanism. Under this functionality, beneficiary register himself on the DBT portal of PoCRA through his Aadhaar number and apply for the available activities from the platform. Total 192 DBT beneficiaries were surveyed as part of CM-II.

Category wise DBT applications show 61% are from OBC, 15% SC, 11% ST, 11% General category, and 2% were from other categories.

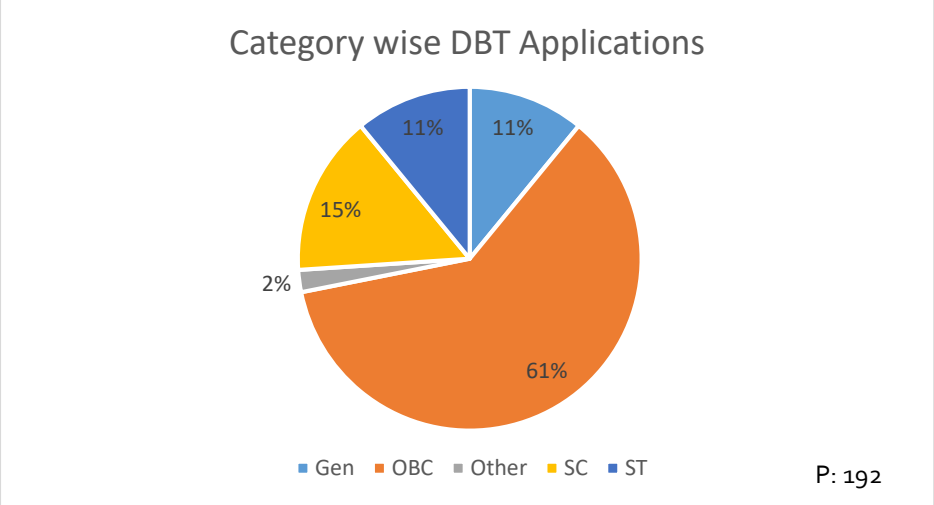


Figure 41: Category wise DBT Applications

Feedback on DBT Activities

Beneficiaries were asked whether they are aware of the DBT process under the project. 45% reported that they were aware of the complete process, whereas 55% said that they are not aware of the entire process followed for DBT application.

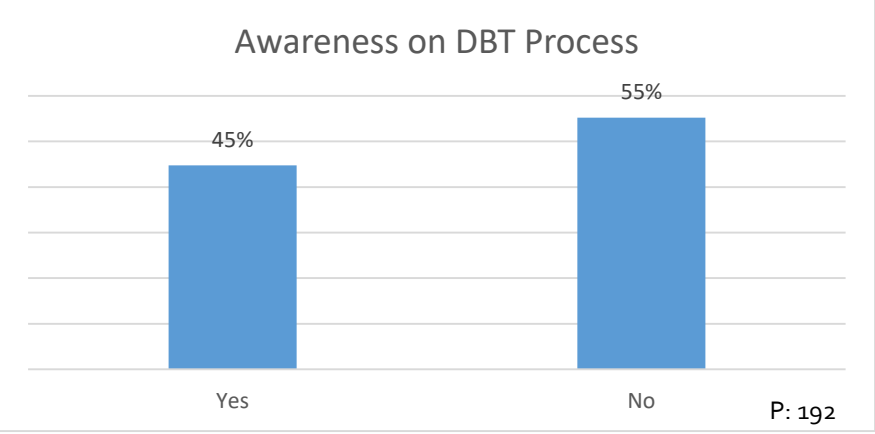


Figure 42: Awareness on DBT Process

Based on the processes for DBT, beneficiaries were asked about the activities that they have applied under the project. 22.4% said they have applied for small ruminants including goat rearing. This activity is for the landless as a special focus under the project is for landless.

Enhancing water security at farm level is one of the major component under the project. Most of the activities under DBT are focused on this component as seen from the responses. 18.8% of the beneficiaries have applied for sprinkler irrigation, while 16.7% have applied for water pumps. 15.6% have applied for Pipes (HDPE/PVC), while 7.3% have applied for drip irrigation.

Seed production was another important activity taken up by 7.3% beneficiaries. 6.8% were host farmers under Farmer Field School (FFS), while 2.1% were involved in horticulture plantations. Other activities taken up under the DBT scheme were Composting (1%), construction of wells (0.5%), farm mechanization (0.5%), shade net (0.5%). As per the responses, 10% of the beneficiaries have applied for more than one activity under the project.

Shri Jayant Sheshajirao Phadke, Shovangaon Village in Wardha Disatrict had applied for tractor and received the subsidy amount through DBT. He has purchased the Tractor and implements (Rs.7.0 Lakhs for tractor and Rs.1.75 Lakhs for purchasing instruments including BBF machine). He has put Rs.2.50 Lakhs of own money, Rs.4.75 Lakhs of loan (via dealer) from the bank and Rs.1.50 Lakhs subsidy under PoCRA project. He is earning Rs.1.0 Lakhs per season. As there are 8 tractors in the village, he is providing services in the neighbouring villages. The BBF implement he had purchased is yet to be fitted with the tractor because of design issues in the machine.

Details of individual activities in Project Villages are highlighted below:

Small Ruminants

- As part of the sample DBT applications, 22.4% were for small ruminants
- Majority of the applications were from Jalgaon (28%), Akola (23%) and Buldana (19%)
- 30% of the applications were from Kharpan Villages
- Out of total 45 sample applications, 38 are at pre-sanction stage and 7 are paid
- As per the findings, it was observed that the activity is helping to generate significant profit from herd of ten goats and one Buck.
- Some of the beneficiaries also asked for additional time period for purchase of goats due to financial constraints
- Some of the beneficiaries also asked for advance assistance for purchase of goats

- Increased Production, Improved Germination& Pest Resistance were some of the perceived impacts from FFS

Agroforestry/Horticulture

- As part of DBT, applications from very few farmers have been received for agroforestry or horticulture,
- Only 4 (2.1%) from project (2.1%) and 16 from control villages (7.5%) were taken as sample as part of CM-II
- Out of the four sample applications, only 50% had taken up plantations
- Some of the plantations included Lemon, orange and custard apple.
- On an average, around 700 trees have been planted
- Most of the farmers said that they had not received any training for the activity
- Some of the beneficiaries reported that they had taken up the activity, but it was canceled due to untimely planting of seedlings

Compost (Vermi/Organic)

- Only 2 (or less than 1%) applications were taken as sample as part of CM-II
- Discussions with beneficiaries revealed that compost and organic manures are in high demand. However, the availability of quality manures and compost is a challenge.
- Farmers demanded to subsidize the organic inputs for sustainable soil health and increasing demand of organic food.

Shade net House

- As part of CM-II, one beneficiary was covered under shade net activity in Kharchi Village, Jalgaon district. The beneficiary was given pre-sanction, however could not complete the activity due to high initial investment involved.

Findings on DBT Process

Each application under DBT are processed through the approval mechanism after which payment is processed through Aadhaar Based Payment System (ABPS) which gets directly credited to the Aadhaar linked bank account of the beneficiary. DBT process is highlighted in the figure below (Source: PMU).

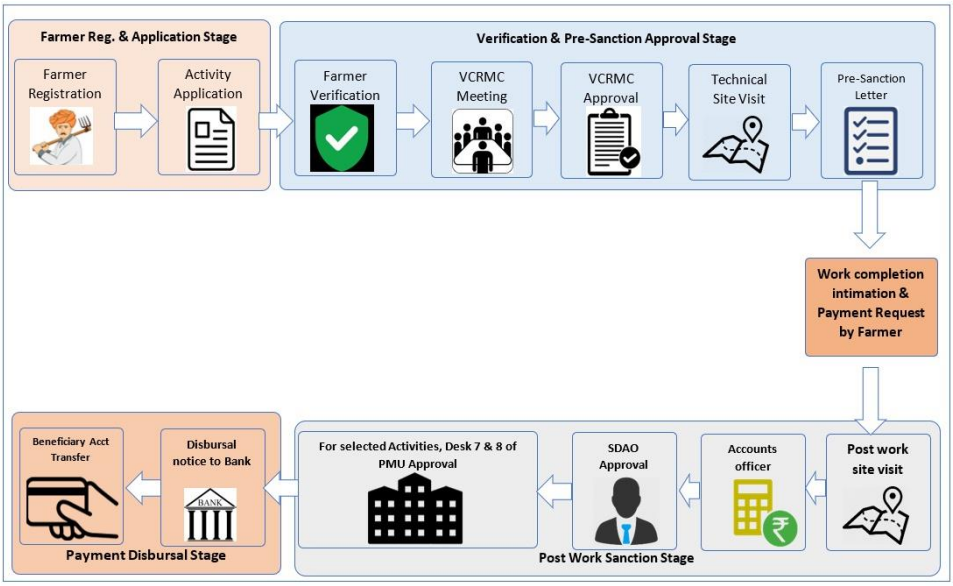


Figure 43: DBT Flow Chart

16% respondents said that they have faced challenges while applying for the activities through the portal. The status of DBT applications revealed that in 51.6% cases, subsidy has been released. This shows the effectiveness of the DBT process. The data also shows that once the activity is completed at the farmers' end (purchase of activity), disbursement of subsidy is done after verification.

In 28.6% of the cases, the applications were at the SDAO pre-sanction level. As revealed during discussions, in most cases this is due to poor financial condition of the farmers. They have not been able to purchase the implements/assets. Non-availability of loans was another factor for financial constraints. 12% of the applications were approved by VCRMC but have been pending for spot inspection by agriculture assistant.

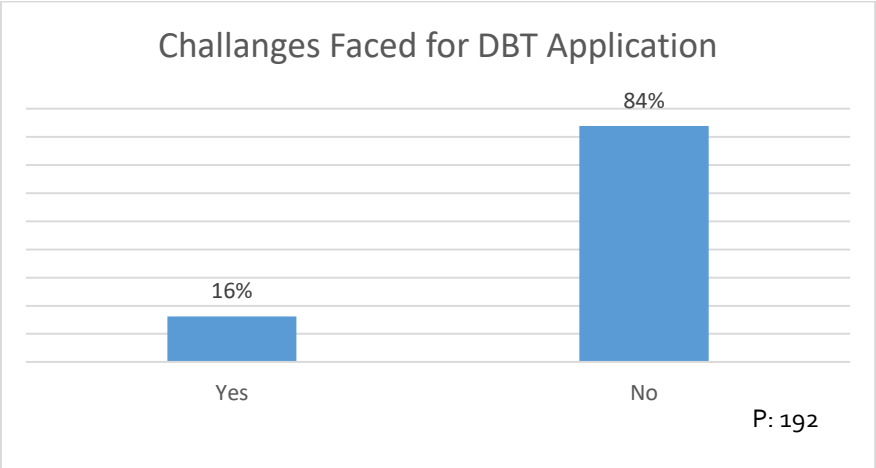


Figure 44: Challenged Faced for DBT Application

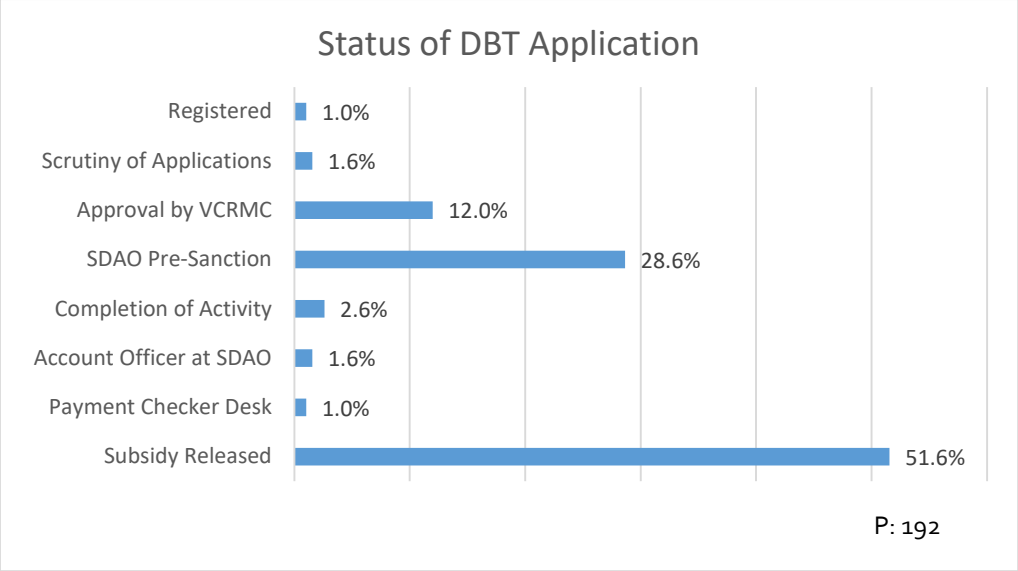


Figure 45: Status of DBT Application

Shri Pradeep Yaswantrao Bhagat in Amdi village, Yavatmal is having 6 Acres of land has leased-in 4 acres of land. He has grown 4 acres of Cotton, 2 acres of Soyabean and 4 acres of Chick Pea.He had applied for sprinkler irrigation system plus motor pump and got his pre-sanction.

He had purchased Motor pump (from a dealer of KRL company) and sprinkler set (from dealer of Premier company) (Rs.58,000/-) and paid for Electricity Connection (Rs.7,000/-) in August 2020 and received Rs.32,000/- subsidy amount in December 2020. He is yet to install and run the sprinkler because electricity connection is yet to be sanctioned by the department to the farmer.

Beneficiaries were further asked about the nature of challenges faced by them for DBT application. 22.6% said that verification of the activity took time after completion, whereas 22.6% said subsidy was not released on time. 19.4% beneficiaries reported that delay in receiving sanction from SDAO office was a major challenge. 35.5% reported other challenges for the DBT applications.

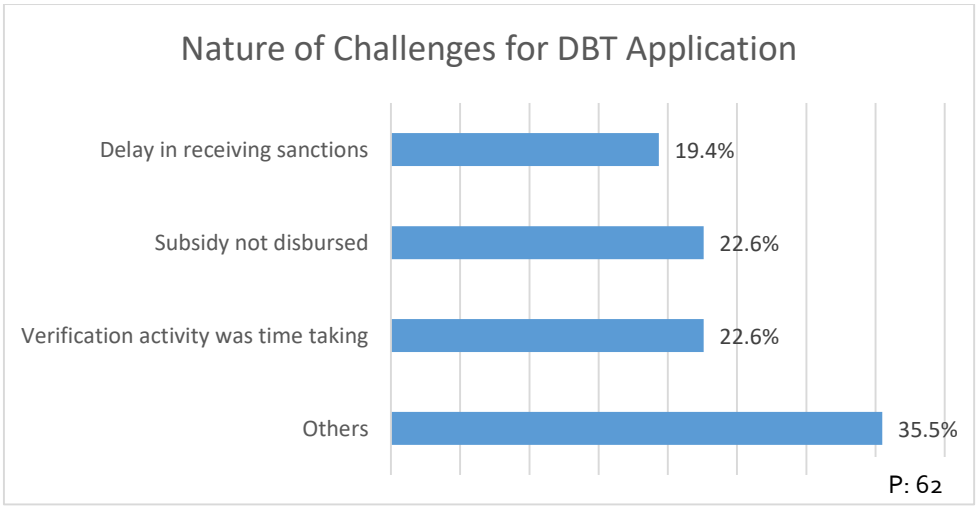


Figure 46: Nature of Challenges for DBT Application

Beneficiaries were asked whether they have received any kind of support for registration process. 73% reported to have received support from VCRMC or other institutions created as part of the project. Beneficiaries were also asked whether the timelines for purchasing assets/activity completion was sufficient. 78% said that the timeline was sufficient, whereas 22% said that they could not arrange the required funds for purchasing the assets

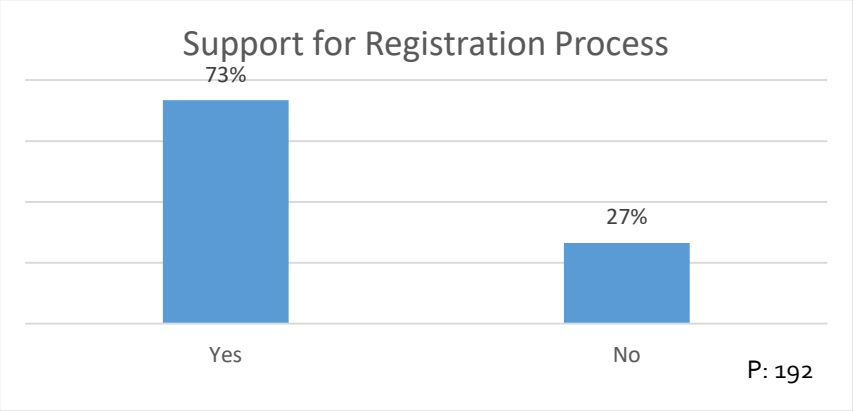


Figure 47: Support for Registration Process

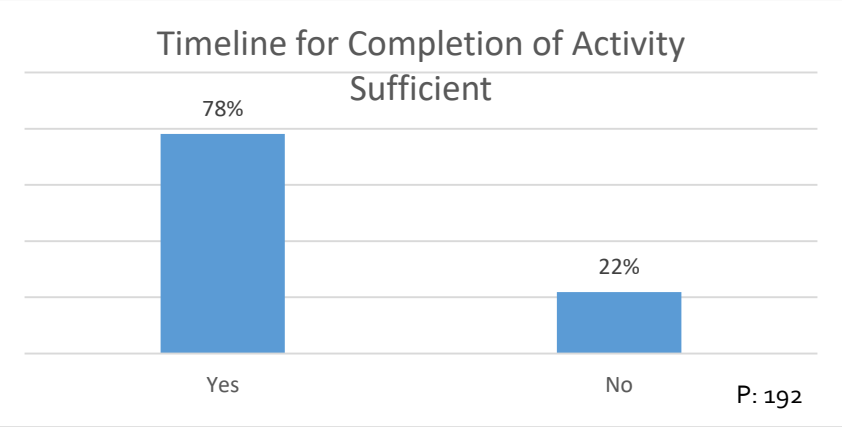


Figure 48: Timeline for Completion of Activity Sufficient

Out of the respondents saying time was not sufficient, 48% said that they could not arrange for funds for purchasing the assets within the timeframe. Some of the respondents also said that they were awaiting further guidance from department after pre sanction was received.

Farmers' feedback on average days for DBT process was recorded. It was observed that DBT is a faster way for disbursements and farmers who had completed the activity were happy about the processes. The first step of the process is registration and application, which is done at farmers' end. Post application, verification is done by Cluster Assistant and normally takes 2-3 days for completion. As per the responses, VCRMC approval takes around 17 days. Next step is site visit by Agri Assistant to check the feasibility and takes around 25 days. Average time taken for account transfer was 29 days signifying around a month lag between post completion and disbursement of subsidy.

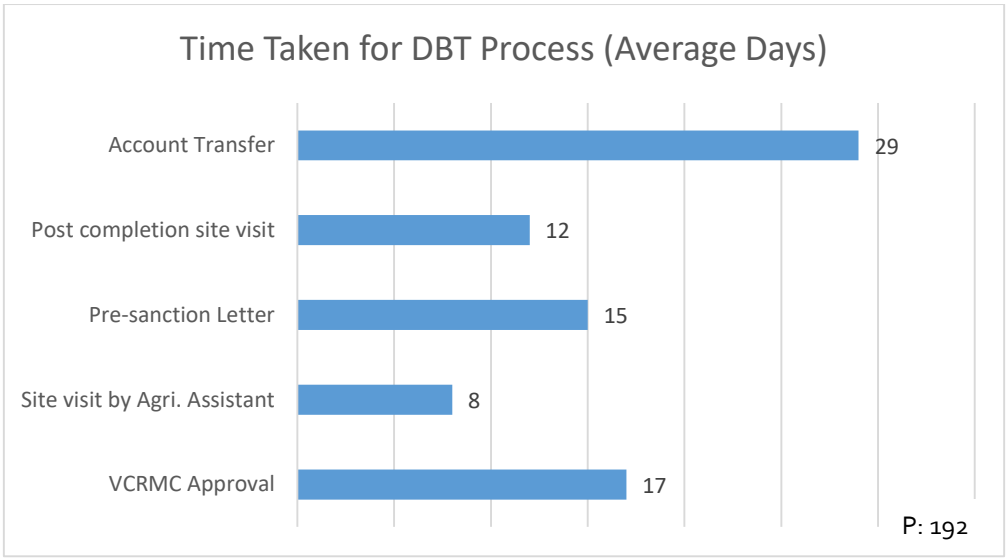


Figure 49: Time taken for DBT Process (Average Days)

Beneficiaries were also asked to rate the process of DBT at various levels. As per the responses, most of the activities have been rated at 2 (1 being lowest and 3 being highest).

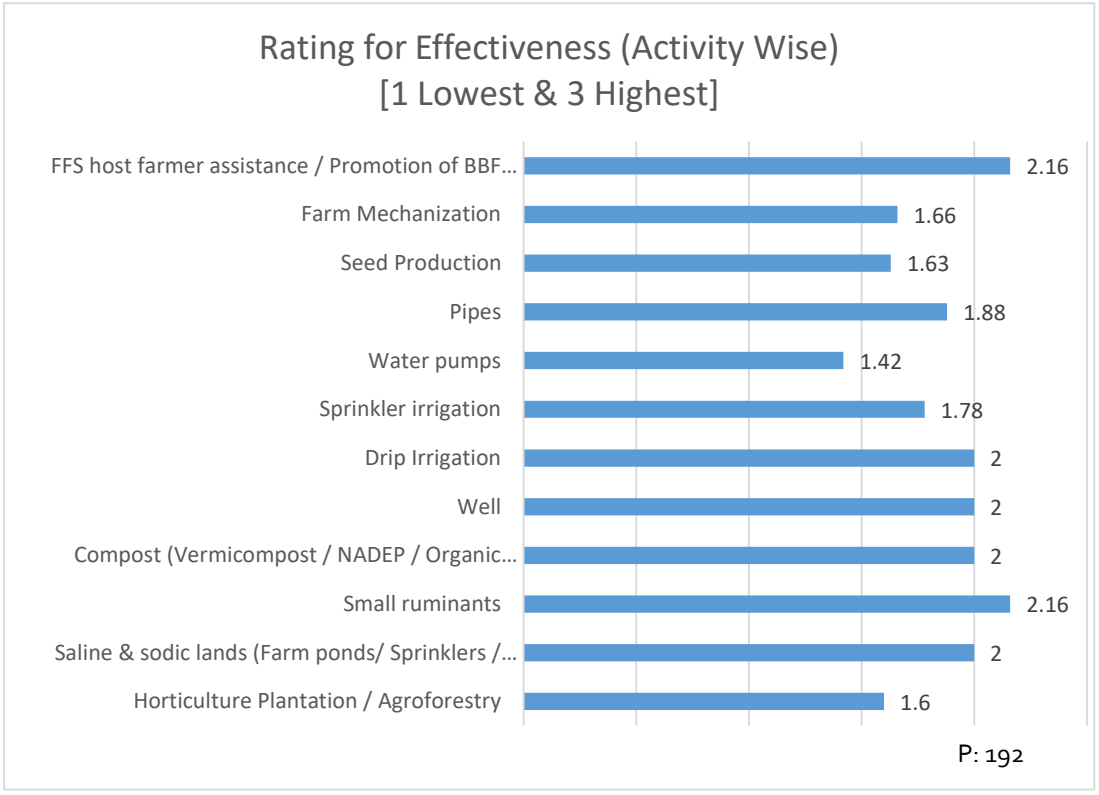


Figure 50: Rating for DBT Effectiveness (Activity wise)

Farmers' Feedback on Project Activities

- *Project Implementation is satisfactory & beneficial to increase crop yield.*
- *Direct transfer is good. Transparency is maintained.*
- *FFS is good for getting knowledge about seed treatments, planting method, fertigation etc., but faced challenges in adoption*
- *Awareness on activities & guidelines needs be increased*
- *Landless should have more range of activities*
- *Registration and documentation process is time consuming as reported by some farmers*
- *If part of subsidy is paid as advance, it will be helpful for small, marginal & landless.*
- *Landless beneficiaries requested to continue Goat Rearing activity*
- *Some farmers could not arrange for funds within the timeframe after pre-sanction*
- *Initially all of the activities were included, however, a few activities have now been kept on hold*

Success Story- DBT: Goat Rearing

Sangita Diliprao Ram is a tribal and landless resident from Dighi Village of Wardha who belongs to the BPL category. She lives with her husband and three children.

Sangita and her husband, both worked as farm labours since they were landless and lacked skills. On average their annual family income from wage labour was Rs.78,000/-. Apart from wage labour, they were also rearing 3 goats.

When they heard about the PoCRA project during the Gram Panchayat meetings, they approached the Agriculture Assistant, Sh. Rajesh Kolhad. He informed Sangita that she was eligible to apply under Goat rearing activity since they are landless.

She applied for the activity in January 2019 and received pre-sanctioned in March-2019 to purchase 10 Goats & 1 Buck. She purchased the animals from Anjansinghi and the animals were of local breed.

The expenditure incurred on the purchase of 10 Goats and a buck was Rs. 75,000/- for which she received assistance of Rs. 48,000/- on 3 March 2020 (64%). The agriculture assistant visited their location, took up verification, and recommended to release the subsidy.

Sangita explained that she had prior experience of rearing cows, goats and chickens, out of which she found goat rearing to be most profitable. Due to proximity to market and access to goat agents, she was able to directly sell the goats.

Sangita explained that her prior experience in goat rearing helped her in pursuing it further unlike some of them who had abandoned the activity.

Availability of feed and water in the region also played an important role in sustaining the activity. She had also insured the goats for a period of three years, however, none of the goats perished. Access to veterinary services and monthly visits to the veterinarian keeps her abreast on any kind of diseases. There has not been any case of worming in goats as well.

The goats and bucks produce around 2 times in a year and presently Sangita has 30 goats and a buck. Up until now, she was able to sell 40 goats for Rs. 5000/- per goat. After deducting the expenses on feeding, goat shed, labour cost & veterinary services, of around Rs. 60,000/- up till now, she made a net profit of Rs. 3500/- per goat i.e. Rs. 1,40,000/- in total.

Sangita could financially her family due the goat rearing activity and was thankful for receiving assistance under the project. She also has plans to expand the activity on her own by purchasing more goats. However, she expressed that goat rearing requires planning and extensive technical support. If beneficiaries were provided with guidance on rearing, feeding, diseases and health check-ups for better up keep of goats, they would definitely succeed.

A3: Promoting efficient and sustainable use of water for agriculture

The component focuses on activities to enhance security by maximizing the use of surface water for agriculture, managing groundwater resources in a sustainable manner, retaining and enhancing soil moisture and enhancing water use efficiency and water productivity.

Feedback of beneficiaries has been obtained on irrigation status, activities under DBT to enhance water security and community and NRM activities.

Access to Irrigation

As per the data received from CM-II survey, 30.6% beneficiaries in project and 28.6% in control villages reported to have irrigation. This indicates an increase in access to irrigation through project activities. Most of these beneficiaries having assured irrigation have applied for activities like sprinkler, drip, water pumps and pipes.

When asked about the source of irrigation, 78.1% in project and 78.5% in control villages reported to have dug wells as the major source. 18.3% in project and 8.2% in control reported to have bore wells, while 2.8% in project and 8.2% in control were lifting water from river. Only 0.8% in project had individual farm ponds. In control, 7.0% beneficiaries reported having farm ponds. The data shows there is a positive impact of project activities on increasing area under irrigation. Large number of applications have been received for irrigation systems, wells and water pumps. However, farm ponds may be promoted on a large scale to ensure water availability.

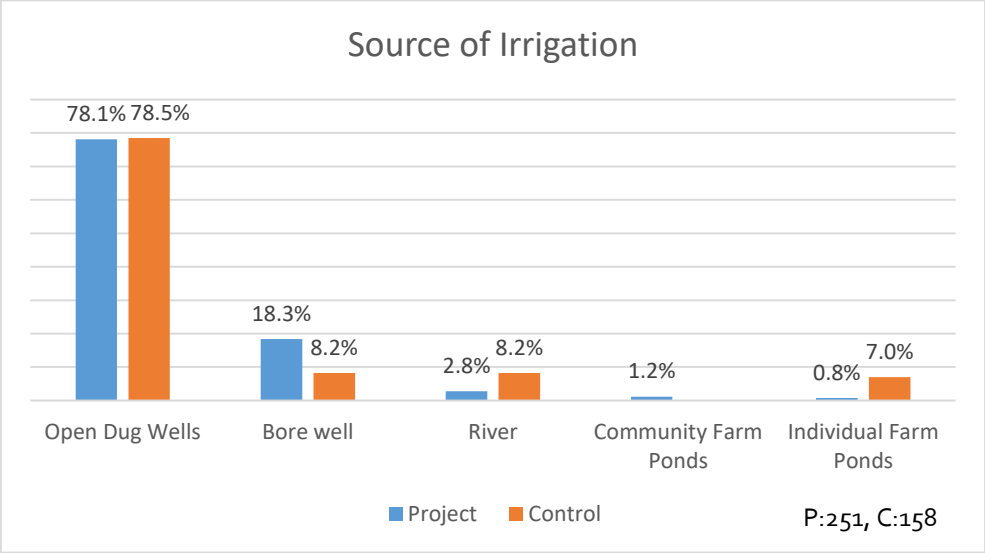


Figure 51: Source of Irrigation

Support through DBT for Water Security

Majority of the applications under DBT have been received for micro-irrigation and to enhance on-farm water security. Majority of the beneficiaries responded that they perceive increase in crop water productivity as the major impact from the activities. However, they highlighted to increase the support for on-farm water security under the project.

Sprinkler Irrigation

Key findings from beneficiary survey:

- Mostly adopted in soybean and chickpea, which are the major crops of kharif and Rabi season and always in high demand from farmers of project area.
- Out of the sample DBT applications, 28% were from Amravati and Buldhana districts, followed by Wardha (17%), Washim (14%), Akola & Yavatmal (6%) and Jalgaon (3%)
- Out of the sample DBT applications for Sprinkler, 31% had taken for Chickpea, 22% for Soybean, 11% for Wheat & tur
- Around 72% of the beneficiaries reported they could bring increased area under crops (on an average 10%)
- 17% of the sprinkler beneficiaries were from Kharpan villages
- Around 20% of the beneficiaries said that they didn't receive after sale services, in case of defects and faulty system
- Only 25% reported that they were aware about the concept of water management
- Sprinkler systems prevent unnecessary losses of water and increased water availability.
- When uneven rainfall or drought period, sprinkler irrigation is helpful to irrigate area for sustain crop.
- As per the feedback to improve the activity, most of the beneficiaries asked about awareness on water management and timely release of subsidy

In addition, beneficiaries in both project and control villages were asked about the sprinkler use and effectiveness. 100% in project said that they are using sprinkler irrigation for agriculture use as compared to 95% in control villages. 5% in control villages said that they are also using the sprinkler for horticulture. 71% in project and 50% in control said that they are using the sprinkler for 1 to 5 times.

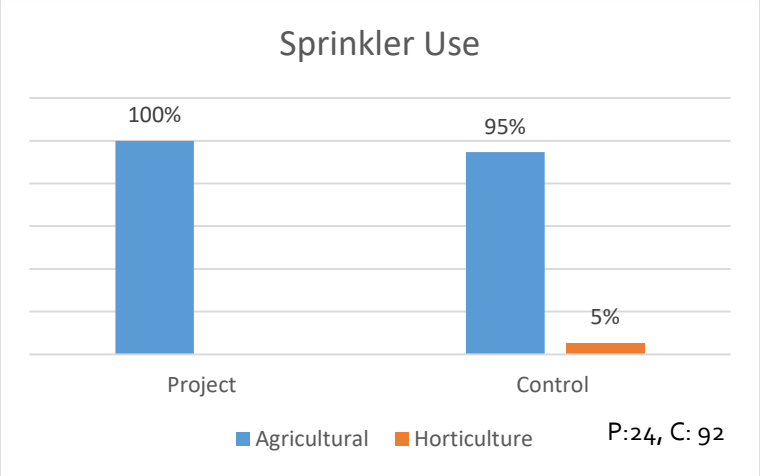


Figure 52: Sprinkler Use

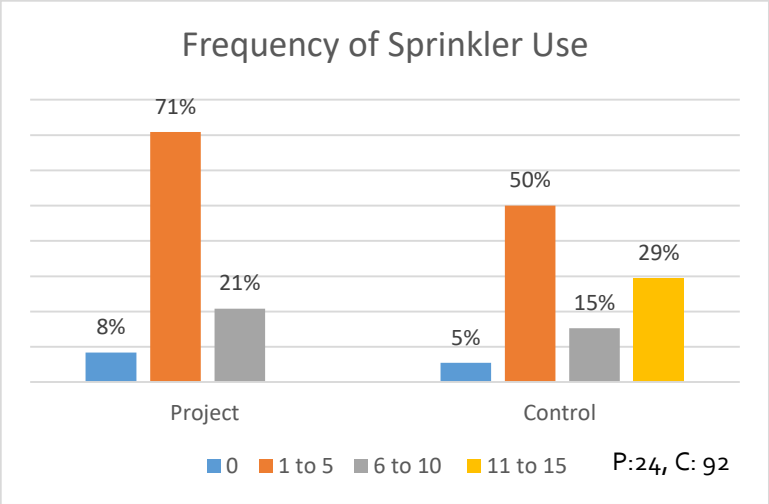


Figure 53: Frequency of Sprinkler Use

Beneficiaries were also asked about the impact of the sprinkler use. 100% in project and 92% in control villages said that there has been an increased availability of water in Rabi season. This shows the impact of sprinkler for water security and increasing water use efficiency.

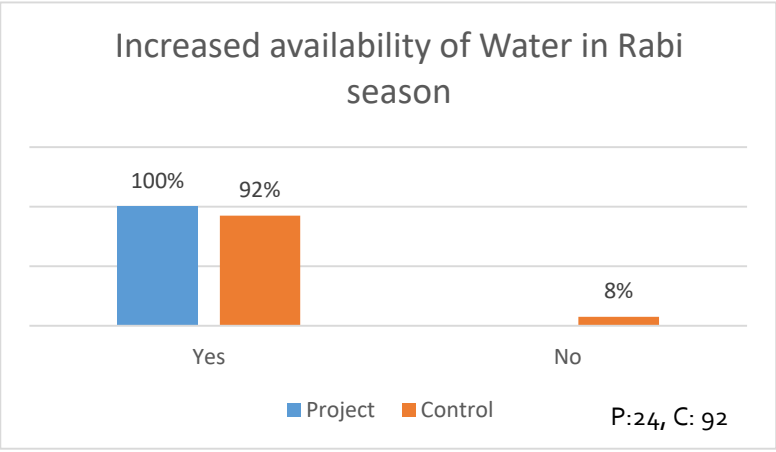


Figure 54: Increased availability of water in Rabi Season

Activity Name-Sprinkler Set Village-Aloda, Tal. Deoli, Dist. Wardha	Activity Name-Sprinkler Set Village-Nagapur, Tal. Khamgaon, Dist. Buldhana

Drip Irrigation

Key findings from beneficiary survey:

- It was observed during the visits that except Jalgaon district there is minimal adoption of drip irrigation by farmers.
- As per the sample DBT list, 50% of the applications for drip were from Jalgaon district
- No application for drip was received from Washim district
- Farmers are well aware about the benefits of drip irrigation but initial investment is a big challenge for them.
- As per their feedback, using drip irrigation saves time as well as water
- They also mentioned that the field can be irrigated in a planned manner using drip irrigation
- In few cases, the farmer had to re-apply for the activity as they didn't have finances to purchase the set

In addition, beneficiaries in both project and control villages were asked about the drip use and effectiveness. 86% of the beneficiaries in project villages are using the drip for agriculture and 14% for horticulture.

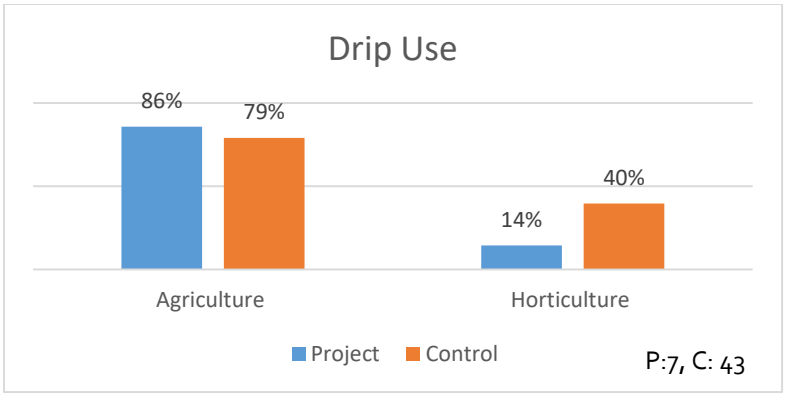


Figure 55: Drip Use

As per the feedback from the beneficiaries, 43% of the beneficiaries said that the area under irrigation has increased by 30-60 per cent. 29% said that the area has increased by 10-30 per cent.

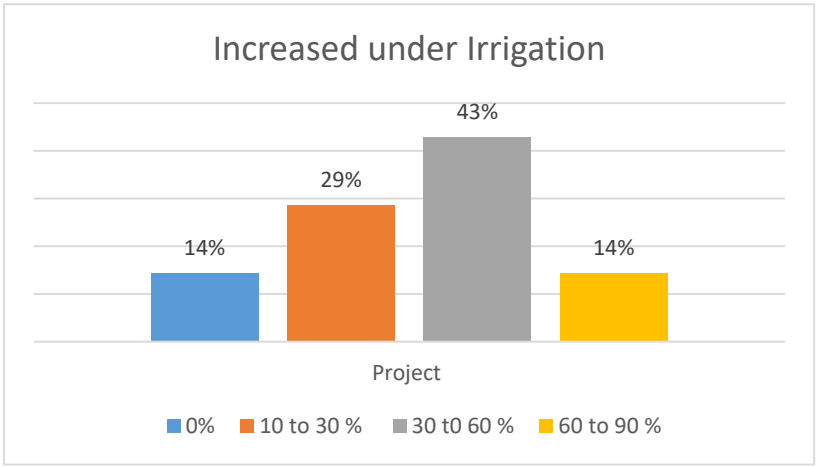


Figure 56: Increased area under Irrigation

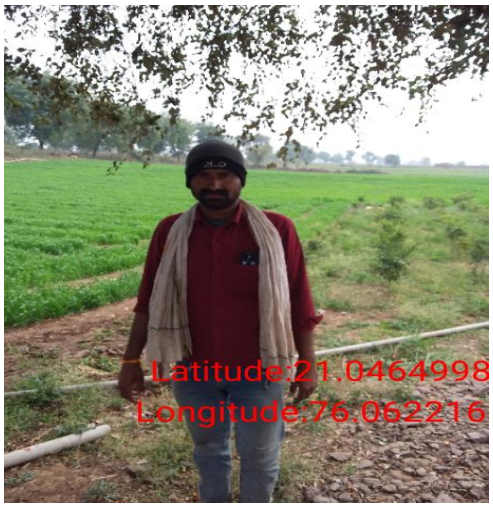
Activity Name-Drip Irrigation Village-Asegaon Bazar, Tal. Akot, Dist. Akola	Activity Name-Drip Irrigation Village-Dasegaon Kh. Tal. Chalisgaon, Dist. Jalgaon

Water Pumps

- The activity is essential for increasing the area under irrigation. It is also essential, especially in saline areas for lifting water from the river. Most of the applications for the water pumps has come from these areas
- Total 34 applications (17.7%) were sampled as part of the DBT beneficiaries under the project
- 34% of the applications as per sample DBT list were from Jalgaon district, followed by Buldhana (19%) and Wardha (16%). No application was received from Akola district
- 17% of the applications for water pumps were from Kharpan villages
- It was revealed during discussions that many of the farmers are using motor pumps for lifting irrigation water from nearby river (especially in Akola, Buldhana and Jalgaon district in purna valley)
- Lifting and transportation of water from river needs a water pumps of about 7 hp but there is provision of purchase of motor pump up to 5 hp only in project. Many farmers requested to increase the capacity of motor pumps up to 7 hp.

Pipes [HDPE/PVC]

- The activity is essential for increasing the area under irrigation along with water pumps. It is also essential, especially in saline areas for lifting water from the river
- The activity was in huge demand as total 38 (19.8% of total) applications have been taken up as part of DBT beneficiaries
- Some of the farmers reported that the activity should continue as it is beneficial for farmers who cannot purchase drip or sprinkler set
- 83% said that they understood the concept of water management and its importance
- 30% of the applications for pipes was received from Kharpan villages, however in 67% cases the applications were at pre-sanction stage
- 53% of the applications were from Jalgaon district, followed by Akola and Amravati (17% each).

	
Activity Name-Pipes & Water Pump Village-Kund, Tal. Muktai Nagar, Dist. Jalgaon	Activity Name- Water Pump Village-Nagapur, Tal. Khamgaon, Dist. Buldhana

Success Story-DBT: Sprinkler Irrigation

Satish Arunrao Bobade is a small farmer from Umartek village in Amravati district. He lives with his wife, his two children and parents. Umartek is a small village, which is a part of Purna Nagar Gat Gram Panchayat of Purna Nagar. Most of households in the village are engaged in farming. Cotton, soybean and red gram were cultivated as kharif crops and wheat and chickpea was cultivated as rabi crops.

Satish owned 2 acres of own land and also cultivated 4 acres of his father, hence total cultivated 6 acres, out of which 2 acres were irrigated land.

He cultivated cotton, soybean and red gram in kharif season, wheat and chickpea in rabi season. He had been practicing flood method for irrigation using Bore well as the main source. However, he was facing difficulty in irrigating the entire 6 acres due to inadequate irrigation items & water resources.

The traditional method of flood irrigation caused salt in the soil to settle on the top that hinder further irrigation. It causes the water loss though field is sloppy and not much percolated in the soil.

Satish got to know about the PoCRA project during a Gram Panchayat meeting and gathered information on the activities that he could take up. After reaching out to the VCRMC, he applied for Sprinkler Irrigation under DBT. Total expenses on purchase of the two sets (one is on his name & another in the name of his father) were Rs. 56758/- (for 16 nozzles & 60 pipes) for which he received subsidy amounting to Rs.26282/- (46.3%). Satish could successfully bring the remaining 4 acres of land under irrigation too

He said that the use of micro irrigation has led to optimum water usage and water saving by 25 percent while his monthly electricity bill has come down to about Rs. 850/- instead of Rs. 1150/.

He participated in FFS activity as well, in which he was the host farmer for demonstration under cotton and received honorarium of Rs.2800. The variety demonstrated to him was PKV Hybrid-2. He took up seed treatments and used pheromone traps as demonstrated in the FFS while his knowledge on land preparation, sowing, spraying & harvesting method improved. Now Sh. Satish has also grown wheat, chickpea in rabi and vegetables such spinach, fenugreek, brinjal & onion. Also grown summer groundnut & got the good yield.

Due to the use of improved variety, seed treatments, sprinkler irrigation and other benefit provided under PoCRA project, there has been an increase in the yield of Cotton & other crops. The yield of Cotton increased from 5 quintals per acre to 10 quintals per acre, while the yield of Chickpea increased from 6 quintals per acre to 9 quintals per acre. Altogether, there has been an increase in his agricultural income by 50 percent. Now Sh. Satish has plans to apply for drip irrigation for whole land and take up cultivation horticulture crops. Satish appreciated the project in terms of timeliness in sanctioning the fund.

Status of Community based Soil & Water Conservation Activities

Activities under this include catchment area treatment, drainage treatment, construction of new water harvesting structures, and rejuvenation of existing water harvesting structures as part of NRM and community activities. Most of the activities undertaken under this component are in progress as per the details shown in the table below.

Table 11: Status of Community based Soil & Water Conservation Activities

S No	Activity	Status
1	Community Farm Ponds in Village Vasantwadi (Jalgaon)	Pre-sanction was received but due to non-availability of space, the sanction expired and a fresh application needs to be made
2	Community Farm Ponds in Village Kolpimpri (Jalgaon)	Work Completed
3	Gabion Structures in Dighi Village (Wardha)	Pre-sanction was received and work allotted to a contractor, however the contractor did not turn up. Fresh Allotment needs to be done
4	Desilting/ repairs of old water storage structure in Ancharwadi Village (Buldhana)	Pre-sanction was received but due to COVID-19, work could not be done. Sanction expired and a fresh application needs to be made
5	Compartment /graded bunding & Desilting/ repairs of old water storage structure in Kolmpimpri Village (Jalgaon)	Pending for SDAO Pre-sanction

Community Farm Pond in Kolpimpri village

As part of the PoCRA project, community farm pond has been completed in Kolpimpri village in Jalgaon district. Details of the farm pond are given below. The farmers reported huge impact due to the construction of the farm pond. Due to the construction of farm pond, the farmers have been able to irrigate an area of around 15 acres on average.

Some of the farmers are also doing fishing activity and selling it in local market. This gives an additional source of income to the farmers and is highly beneficial for creating resilience through integrated farming.

NRM Activity	Irrigated area (ha)	Size of Farm pond	Capacity
Community Farm Pond in	15	34m*34m*4.7m	5000cu.mt

Activity Name-Community Farm Pond Village-Kolpimpri, Tal. Parola, Dist. Jalgaon	Activity Name-Community Farm Pond Village-Kolpimpri, Tal. Parola, Dist. Jalgaon

Existing Soil & Water Conservation Structures

Apart from the project interventions, the beneficiaries were asked about the existing soil and water conservation structures in the village. The response in project and control villages have been compared to understand the needs and current situation. Construction of cement nalla bund was reported by 74% farmers in project villages and 94% in control villages. This was followed by earthen nalla bunds, 52% in project villages and 18% in control villages. Gabon structure was reported by 8% farmers and construction of loose boulder structure was reported by 2% farmers.

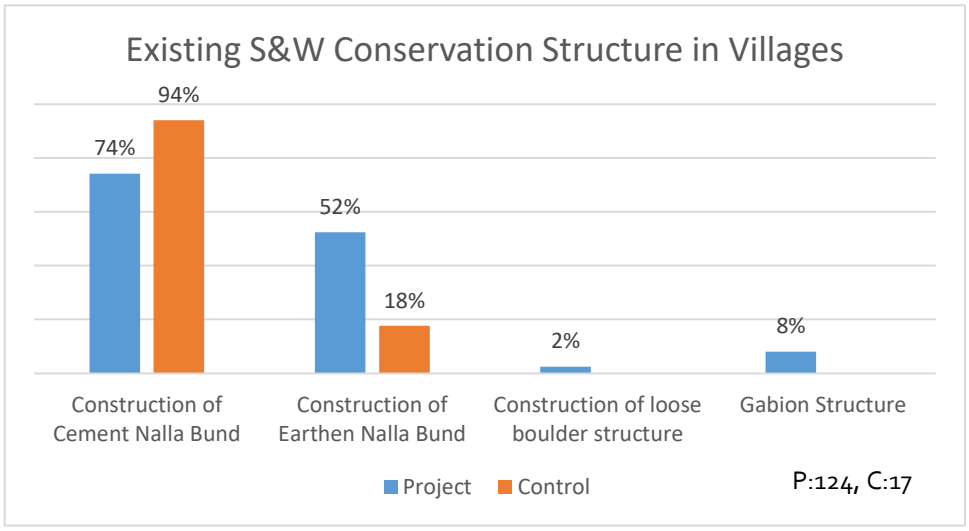


Figure 58: Existing S&W Conversation Structures

Component B: Post-harvest Management and Value Chain Promotion

Along with interventions for climate resilient agriculture systems, it is essential to develop adsorptive capacity of stakeholders. This component aims to support the participation of smallholders in Farmers Producer Organization (FPOs), Self Help Groups (SHGs) and integration in the value chains of major crops and to strengthen the supply chain for the climate-resilient crop varieties in the project area. The component also seeks to improve the performance of the seed supply chain in the project areas.

As part of CM-II survey, data has been collected on parameters related to FPOs, SHGs and seed supply chain in rest of project area. The feedback on value chain activities, support through PoCRA, benefits, issues and challenges has been recorded and is presented in this section.

Findings from FPOs Supported by PoCRA

Component B of the project: Post-harvest Management and Value chain promotion focuses on supporting the participation of smallholder farmers in FPOs. The component supports activities that enhance climate resilience beyond farming activities to focus on value chains for climate-resilient farming.

Status of FPOs Interviewed

Farmer Producer Organization have been perceived as catalysts and drivers of change in the rural economy. The objective of the component, Post-harvest Management and Value Chain Promotion**,** is to support the participation of smallholder farmers in organizations (FPOs) and integration of these FPOs in value chains for crops relevant to the climate agenda, and to strengthen the supply chain for climate-resilient crop varieties in the project area.

As part of the CM-II survey, 23 FPOs were interviewed. Three persons per FPO including director were interviewed. Details about the FPOs interviewed is given in the table below. Average shareholders in the FPOs were 450 and average shareholder contribution was Rs. 1659. Average Authorized Share Capital of the FPOs was Rs. 20,89,759 and Average Paid Up Capital was Rs. 7,64,077.

Table 12: Details about FPCs interviewed

Parameters	Responses
Average Authorized Share Capital of the FPOs (Rs.)	20,89,759
Average Total Net Worth (Rs.)	27,53,395

Average Paid Up Capital (Rs.)	7,64,077
Average shareholder contribution (Rs.)	1,659
Average Shareholders	450
Average No of Villages covered	20
Average Annual Profit For Year-FY 2018-19 (Rs.)	97,746
Average Annual Profit For Year-FY 2019-20 (Rs.)	1,33,545

Group Formation and Mobilization

The chairperson, directors and in most cases members of the groups had attended training programmes in nearby villages and interacted with FPOs there. During these interactions, they understood the benefits of collectivisation, effect on the prices received by farmers and that groups have better access to inputs and machines. The information received during these interactions were shared with fellow farmers during Gram Panchayat meetings. Through regular meetings, farmers were consolidated into interest groups and then into FPOs. Through its extension support, ATMA acts as the resource institution for these FPOs.

Trainings Attended

Most FPOs stated that members along with directors and chairpersons had received some initial trainings. Chairpersons & directors of the FPOs and members attended separate trainings.

Across some of the groups, Chairpersons and directors had received trainings on management and business activity at State level (in Pune). While members had attended trainings at the district itself which was organized by ATMA. Through these trainings/capacity building programmes, the needs and requirements of the farmers were identified and based on their needs they were consolidated as Farmers Producer Organizations.

46% of the respondents in the FPCs said that they have received capacity building and training as part of the project. 87% of the beneficiaries interviewed said that they were involved in decision making as part of their FPCs.

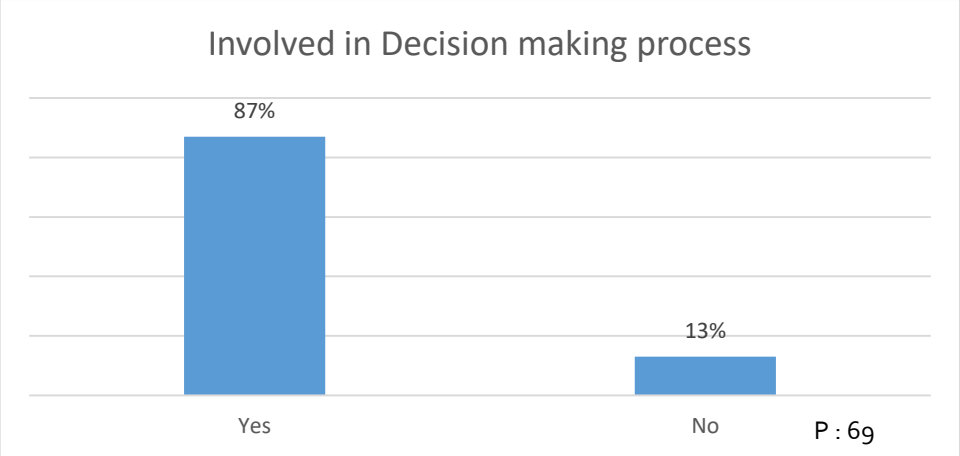


Figure 59: Involved in Decision making process

Awareness about the standard operating procedure for Management System

The members were aware about the day-to-day activities of management of bookkeeping, record keeping, finance, stock and inventory, procurement, marketing, internal conflict resolution. For the purpose accounting, bookkeeping and marketing, some of the profit making FPOs had appointed Agriculture Officer (AO). During the group meeting, the AO informs the group on aspects like finance, marketing, sales made, profit made and others that brings transparency in the process.

Bookkeeping is an integral part of FPCs and thus beneficiaries were asked whether they are maintaining records regularly. 71% reported that they are keeping books regularly as part of the FPCs. However, only 6% of the beneficiaries reported to have digitized bookkeeping.

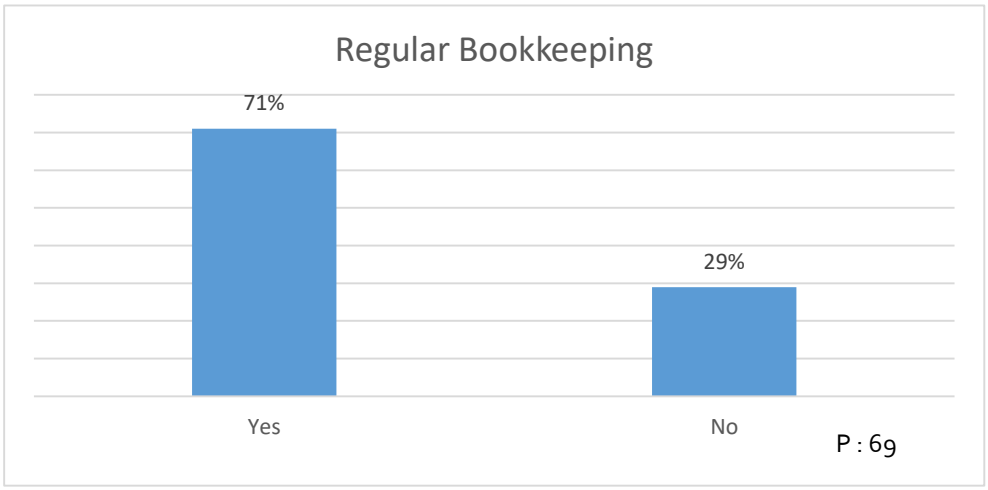


Figure 60: Regular Bookkeeping

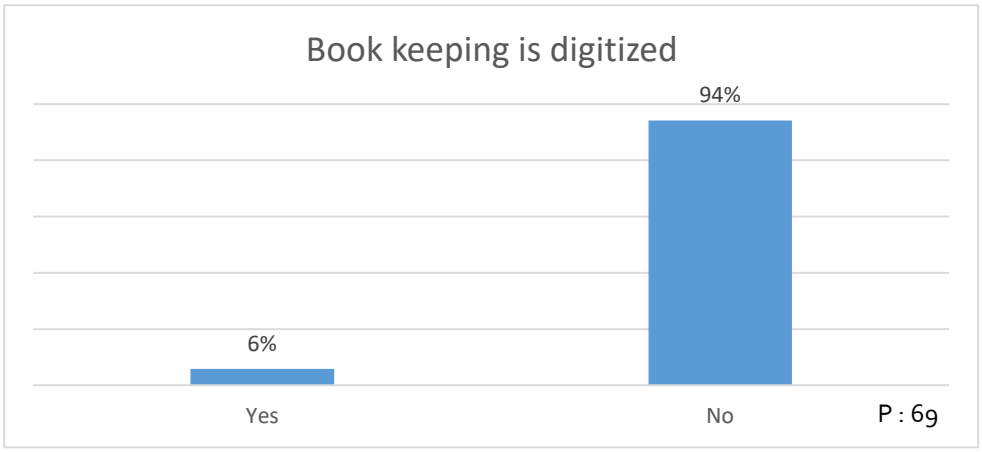


Figure 61: Digitized Bookkeeping

When asked about the value chain activities taken up by the FPCs as a multiple-response, 43% said that they took up storage activities, followed by seed processing (39%), procurement of inputs (32%), marketing (25%), seed production (23%) and market related information (17%).

Further, 42% of the members reported having received support for Seed Storage/Godown from the project. 26% reported having received support for bank linkages and 17% for custom hiring and Seed Processing. 7% said that they received support for skill development and 6% for marketing services. 1% received support for seed quality testing facility.

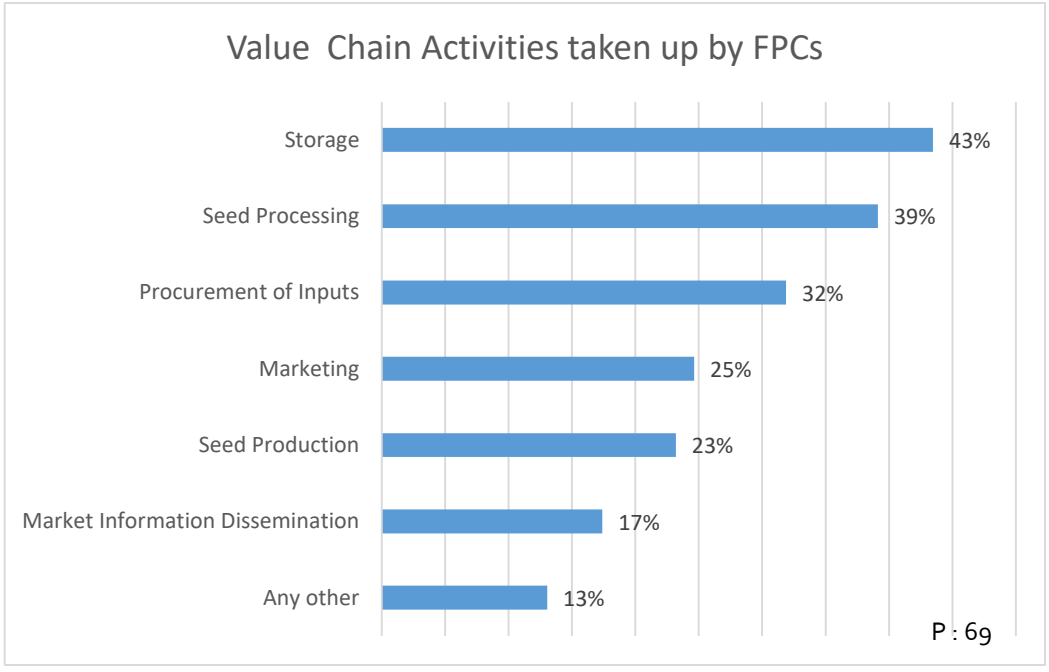


Figure 62: Value Chain Activities by FPCs

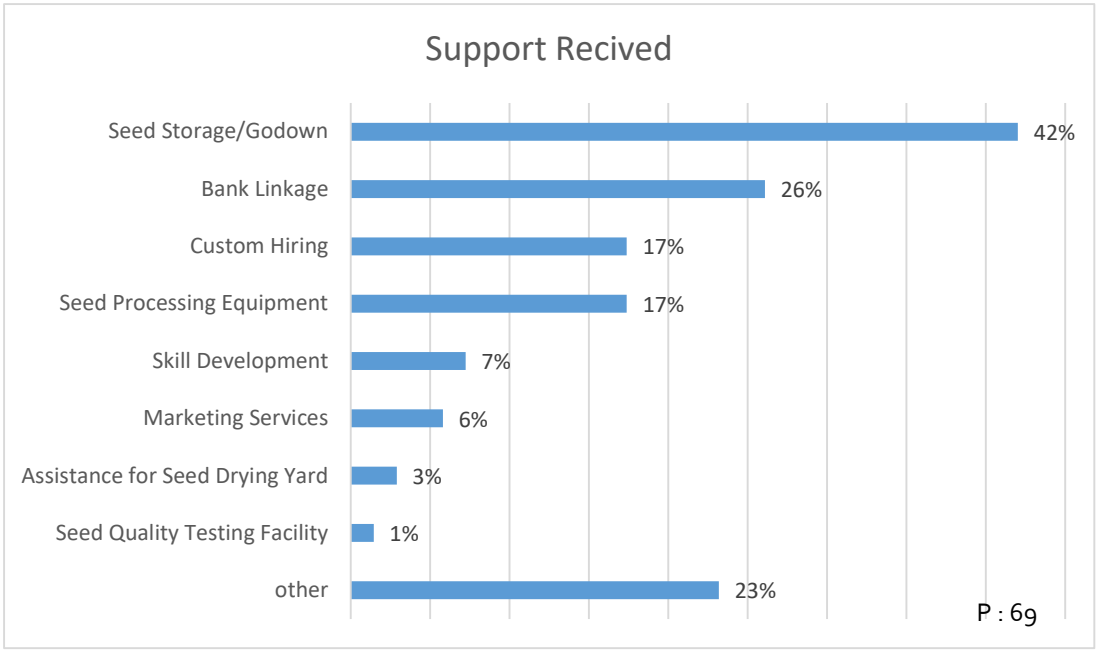


Figure 63: Support Received by FPCs

Members were asked whether any preference is given for taking the benefits under FPC services. 62% responded that preference was given to the members. When as ked about the type of preferences given, 30% responded that seeds are given at 10% discounted rate as compared to non-members.

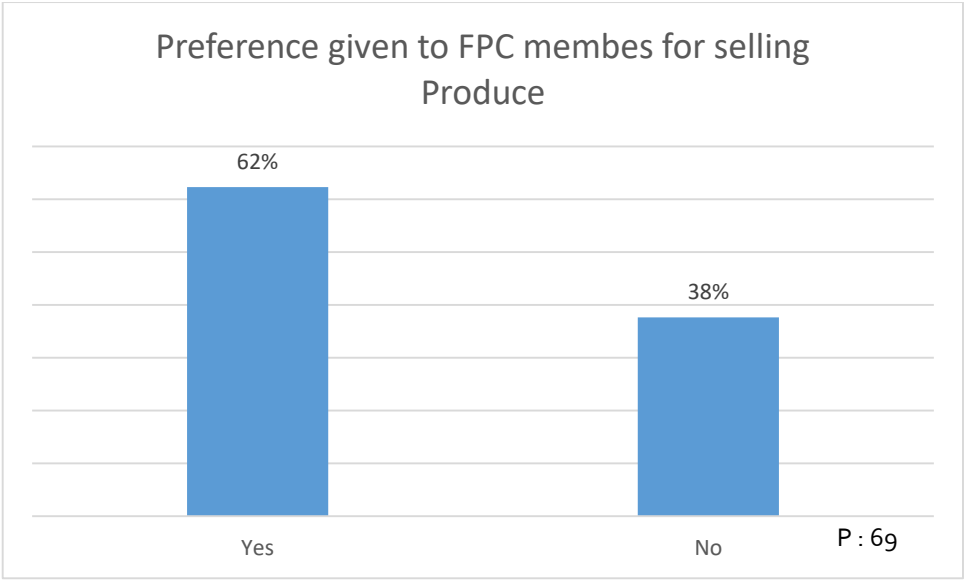


Figure 64: Preference given to FPC members for Selling Produce

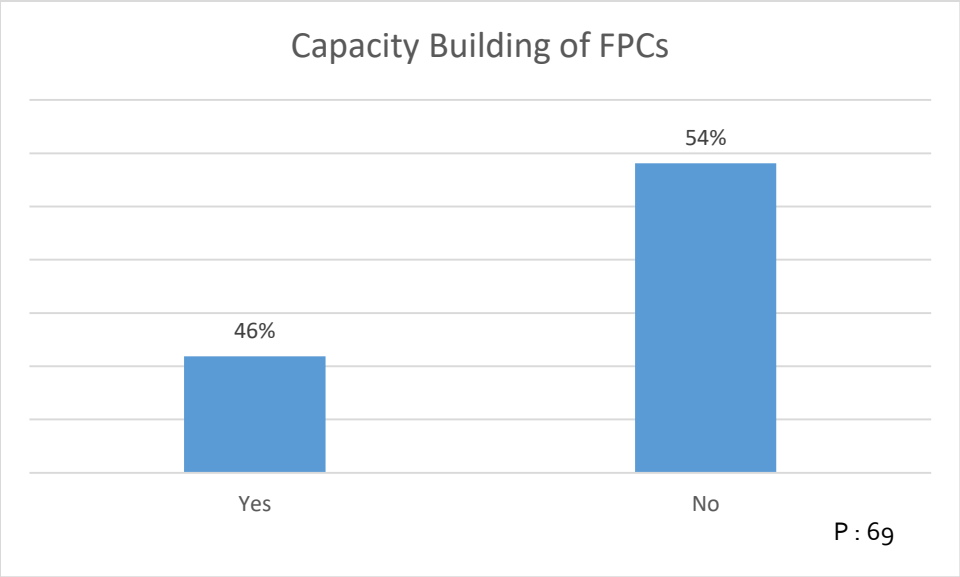


Figure 65: Capacity Building of FPCs

Selection of Business Activities by Groups

Business activities were being selected through mutual consultations amongst group members and chairperson. Across some of the FPOs like Greenza FPO (Bambharda), Krushi Mauli FPO (Mangrulpeeth), Rishiwat FPO (Rishod) and S. N. Producer Company (Manora), the directors were proactive and resourceful; hence, they had taken greater initiatives in selection of business activities. However, all the decisions were taken through consensus among members.

Business activities like seed processing, setting up *Dal* Mills, Neem Oil processing, turmeric processing were taken up by the FPOs that were visited. Some FPOs were also involved in directly marketing their products. Krushi Mauli FPO was directly selling neem ark to group of farmers at reduced prices at Rs. 650 per litre as compared to the input sellers who sell at Rs.800 per litre.

Most of the FPOs are still at a nascent stage, training and capacity building for upscaling and sustaining the business is imperative.

Decision Making Among Members

Decision-making is an integral part in self-sustainability of FPOs. Across most of the FPOs the decision-making process regarding the business activity, management of fund and others are done through consultations. However, in some of the FPOs, the directors' contribution was more significant than that of the group members. Hence, the groups should further be strengthened and 'team building' exercises may be conducted for the group in which both members and directors should participate.

Benefit Received Under PoCRA Project

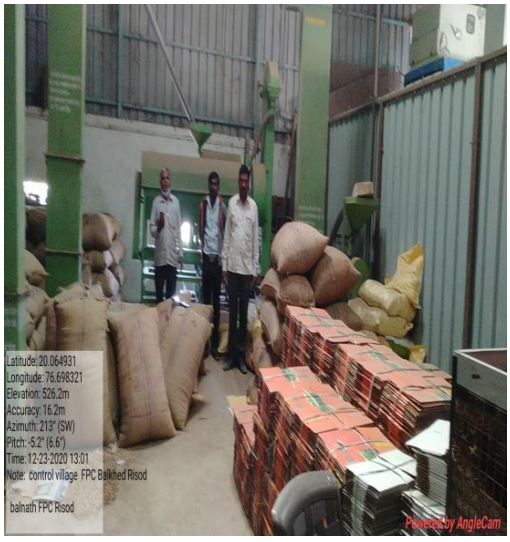
Under PoCRA project, the FPOs had mainly taken up activities like Godown construction, seed processing, implement Bank and machinery shed. Applications were submitted by the groups for the activity of their choice (based on discussions with functionaries) for which due diligence was conducted by PoCRA team, site visits were made, post that pre-sanctions were provided.

It was stated by the members of the FPOs visited that due to construction of Godowns, they were able to store the raw materials like pulses, spices and neem seeds before and finished product post processing. They also stated that there has been a reduction in spoilage due to rains and lack of storage while farmers (mostly small and marginal) have been able to fetch better prices as result of aggregation.

Issue and Challenges Faced by FPOs

The FPO members stated that due to Covid-19, they faced some difficulty in initiating activities. In some cases, the business activities were impacted due to unavailability of labour or challenges faced in marketing of produce.

Better linkages of FPOs with local market players like agri-input providers as well as marketing entities including organized wholesale and retail chains shall be fundamental in sustaining their business.

	
FPC Name-Balnath FPC Village-Balkhed, Tal. Risod, Dist. Washim	FPC Name-Joyas FPC Village-Ner, Tal. Ner, Dist. Yavatmal

FPC Name-Rajanitai Deshmukh Utpadak Village-Vasantwadi, Tal. Bhadgaon, Dist. Jalgaon	Activity Name- Vrushiwad Village-Vasantvat, Tal. Risod, Dist. Washim

Findings from SHGs Supported by PoCRA

Along with FPCs, the project also focuses on SHGs, which are an integral part of the institutions to be supported under the project. A comparison of SHGs in project and control villages is given in this section. Total 32 SHGs in project and 19 SHGs in control villages have been surveyed.

Credit plays an important role in the rural economy. The poor are reluctant to approach institutional lenders because of lack of financially credibility, high cost of transaction and is time taking. SHGs play an important role in providing timely, low-cost, and viable credit. Wherein, FIGs offer the farmers the benefit of collectivisation, getting loans, maintaining common infrastructure - farm ponds, bore wells, tractors and other equipment, aggregation and marketing. As per the data, there were on an average 10 members per SHG in Project villages and 7 members in the control villages.

Group Formation and Mobilization

Each SHG had around 15 members on an average. Most of the SHGs and FIGs were formed under *Umed* project and were consolidated on common interests; social financial background of the members was also kept in mind while forming the groups. All the members lived close by which was advantageous to the groups. Regular meetings were held to ensure formation of groups. After the formation of groups, the groups were named.

Training & Capacity Building of the Members

During the initial phase of formation, the members are trained how to perform tasks like initiating the meetings, taking attendance, conducting the proceedings, maintaining accounts, writing the minutes of the meetings, get signatures/thumb impressions of the members, taking decisions regarding the group functioning and closing the meetings. Once they could demonstrate that they could perform the tasks, they are deemed ready for taking responsible of the group.

Capacity building of SHGs is an important component to enhance their skills. 34% in project villages and 21% in control villages said that they had received training/capacity building.

Decision Making

SHGs have an important role in empowerment of the unprivileged and not just provision of credit. Decisions were made through participatory method. The group leader presided the meetings. Meetings were held monthly. Minutes of the meeting and attendance was recorded and maintained.

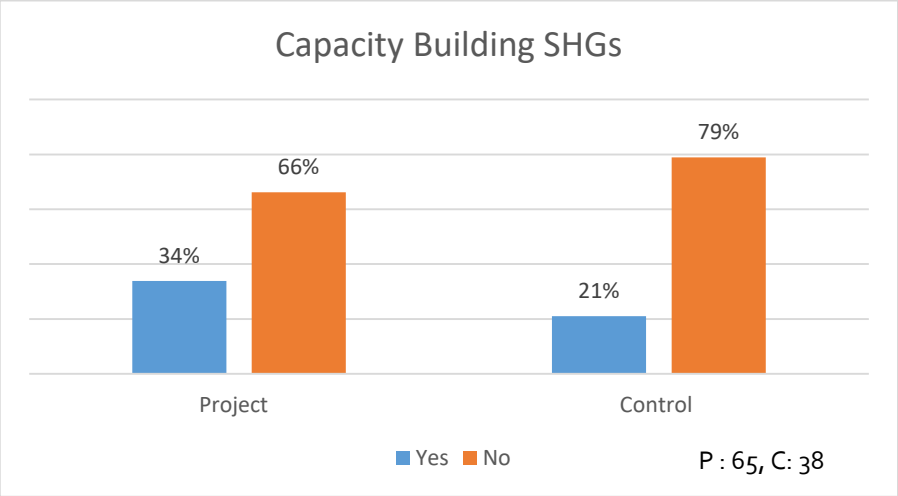


Figure 66: Capacity Building of SHGs

Internal lending

The primary purpose of SHGs is savings and then lending to the members for taking up economic activity or to meet emergency needs. The SHG members were savings small amounts of around Rs.50 to Rs.100 per month in the common fund. SHGs members revealed that group funds are crucial & available in their need. However, the FIG members had not taken up saving activity.

The SHG members were involved in the internal lending activity as well. Depending upon the need, the members borrowed. The major purpose for borrowing were for crop loan, purchase of agriculture implements and self-consumption needs like education of children and construction of house. 75% in project and 87% in control said that they were practicing internal lending. Around 25% of the members reported that they are taking up lending mainly for education and household purposes.

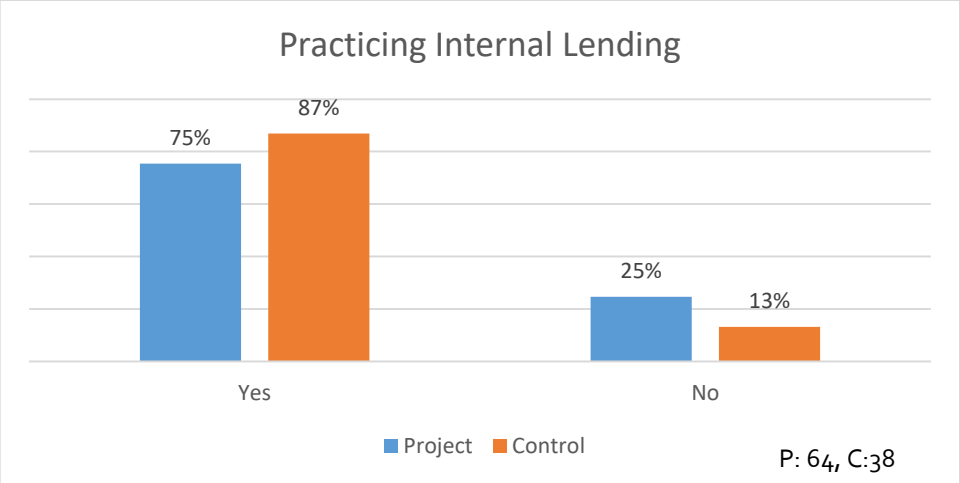


Figure 67: Practicing internal lending

Across some of the SHGs, the members did not take up any monthly savings or internal lending's. Such SHGs needed capacity building and handholding to initiate savings and lending as a part of financial discipline.

Financial Discipline

The SHG groups regularly saved small amounts and ensured timely repayments through peer pressure to ensure end use of the loan money.

Bank Linkage and Credit Linkage

Most of the SHGs had opened bank account, where the periodical collections of the group are deposited with bank. A few of the SHGs could collectively start income generating activities for which they could secure loans i.e. become credit linked with the banks. However, most of the groups faced challenges in availing loans from banks.

Awareness about the standard operating procedure for Management System

The books of records; attendance register, passbooks, savings and loan registers and other registers were maintained by the members. When asked about the saving activity, 89% in project and 97% in control said that they were involved in savings as part of the SHG. As part

of the project, a special focus can be given on the training and to increase the financial capacity of the SHGs in project villages.

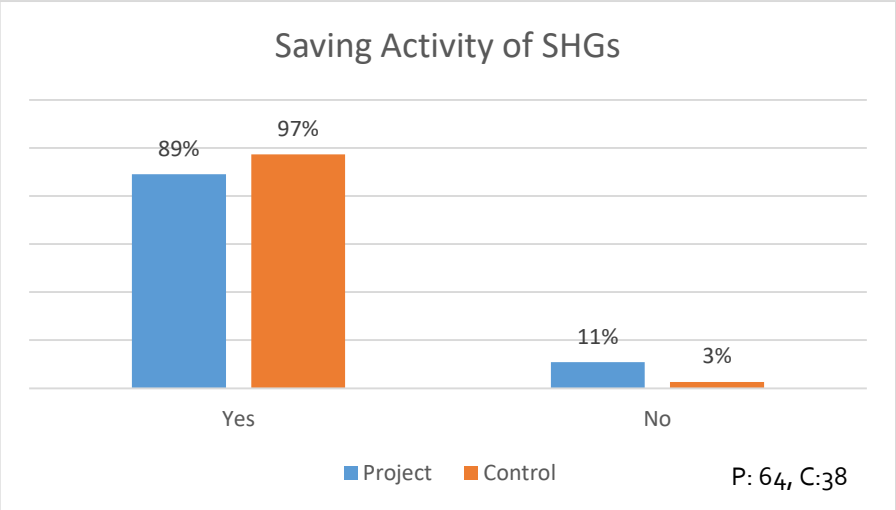


Figure 68: Saving Activity of SHGs

Since the project aims to increase the income of SHGs, the responses received indicated that currently 45% in project and 14% in control are involved in income generating activities. This is encouraging for the project as the supported SHGs are already involved in income generating activities.

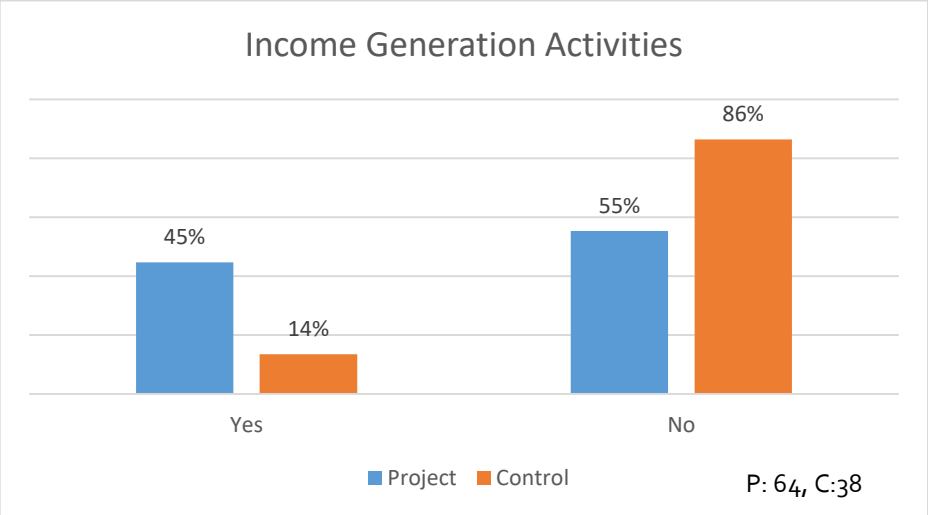


Figure 69: Income Generation Activities

However, only 11% of the members in SHGs are involved in marketing activities. This given an opportunity under the project for market linkages and support for value chain activities.

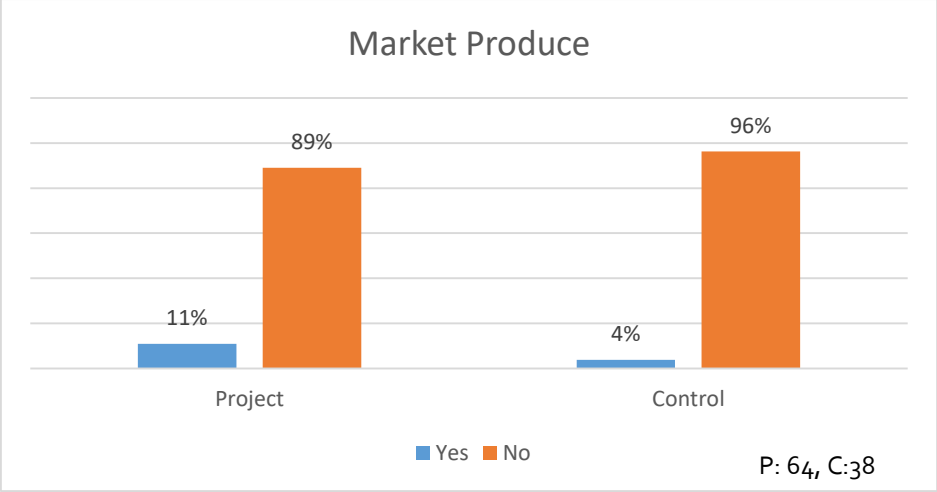


Figure 70: Marketing Produce

Bookkeeping is also an integral part of SHGs and thus beneficiaries were asked whether they are maintaining records regularly. 95% in project and 100% in control reported that they are keeping books regularly as part of the SHGs. However, only 13% in project and 26% in control villages reported to have digitized bookkeeping.

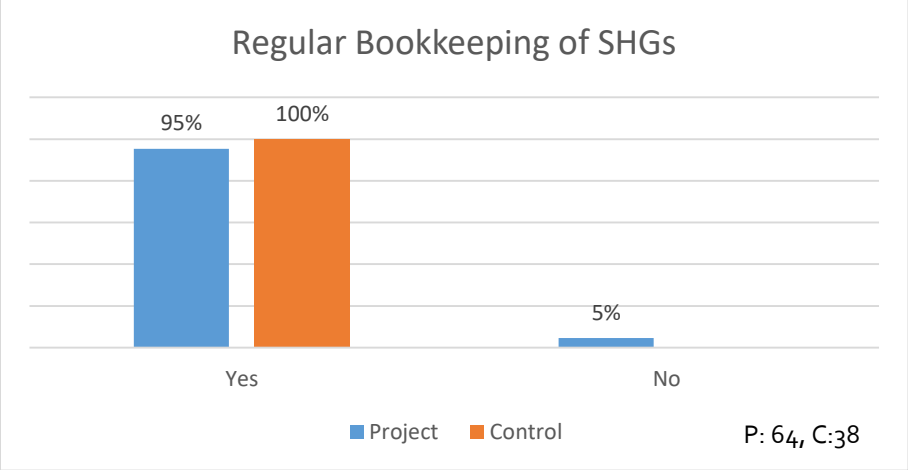


Figure 71: Regular Bookkeeping of SHGs

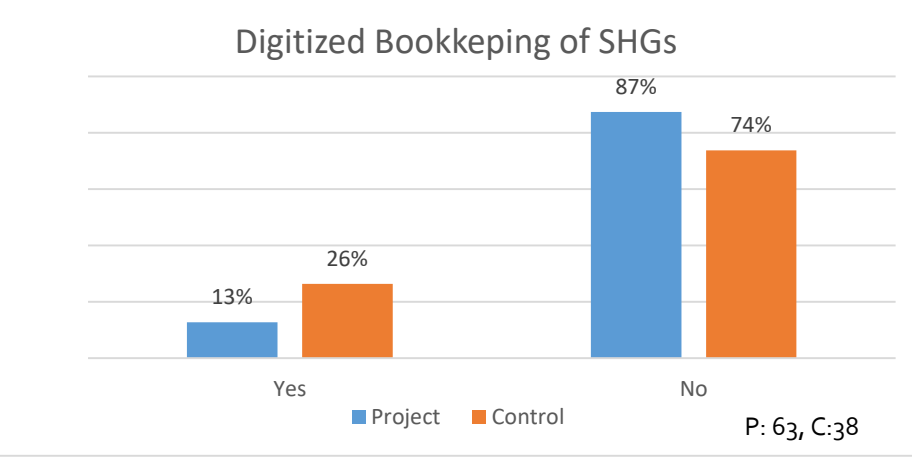


Figure 72: Digitized Bookkeeping of SHGs

Benefit Received Under PoCRA Project

Under PoCRA project, SHGs had received funding from PoCRA project for Godown (Grain), Farm mechanization and Spice Processing Unit. Members were asked about the perceived benefits of the project as a multiple response question. 75% in project and 76% in control said that economic prosperity is the major benefit from the project. 65% in project and 50% in control said better decision making is one of the perceived benefits from the project. Financial discipline and inclusion was one another major perceived benefit, reported by the members.

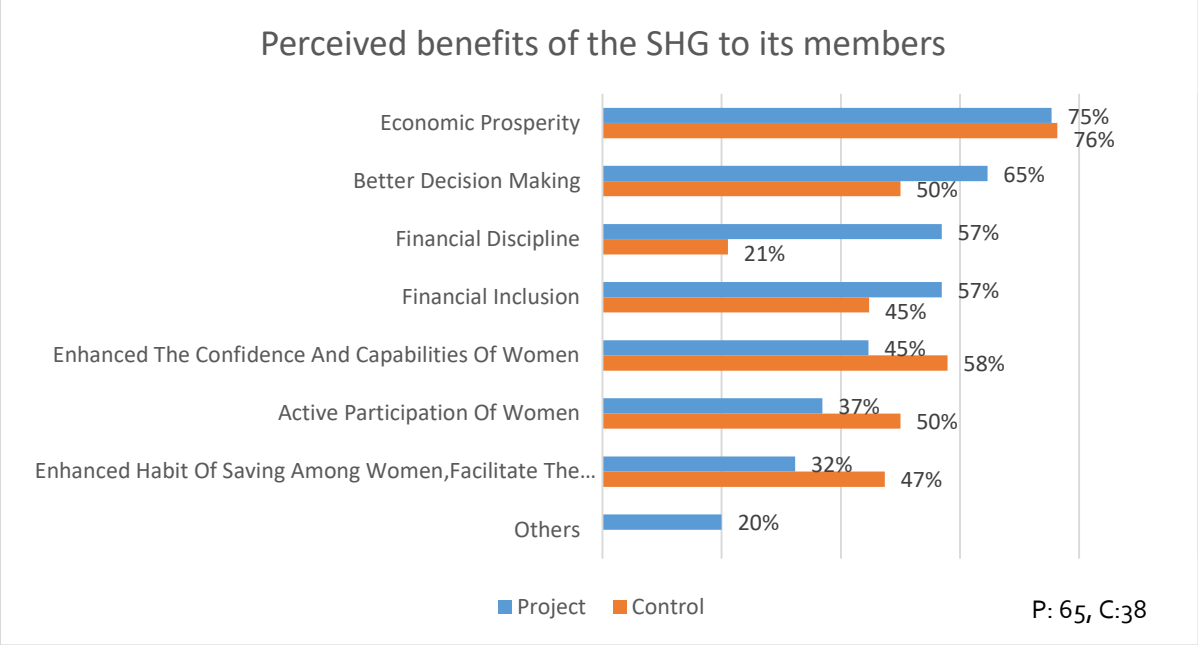


Figure 73: Perceived Benefits of the SHG to its members

Activity Name-Tractor & Implement Bank Village-Bhidi, Tal. Deoli, Dist. Wardha	Activity Name-Tractor & Implement Bank Village-Bhidi, Tal. Deoli, Dist. Wardha

Activity Name-Implement Bank Village-Anturli Kh., Tal. Bhadgaon, Dist. Jalgaon	Activity Name-Implement Bank Village-Anturli Kh., Tal. Bhadgaon, Dist. Jalgaon

Success Story-SHG

Kumkum Self Help Group SHG in Dabha village of Amravati district has 10 members, it is a woman SHG. The group was formed under Umed project in 2014. Mrs. Rekha Manapure is a Chairman & Mrs. Manisha Tawlare is the secretary of the group. Most of the members were educated till standard 9th or 10th and belonged to economically backward background. The monthly savings per member is Rs.100. SHG Group Chairman, Secretary and one of the members attended at KVK, Badnera (10 Kms from Dhaga) for one and half month training. The decision on taking up income generating activity was mutually decided. Initially members had decided to choose a low cost for which raw materials were easily available. The Group had received the "'Hirkani award" of Rs.52,000 in 2019 from Umed project.

Initially, the members were mainly involved in the weekly saving and internal lending activities. After learning about the technique & information received during the training and their previous experience of *Masala* making, the group applied for **Dehydration and Pulverization Unit for Vegetables** in under PoCRA in Dec-2019. The group has received pre-sanctioned in Jan-2020, Bank of Maharashtra; branch- also sanctioned the loan of Rs. 2.65 Lakh to be paid in 18 months. The group has purchased the machines in Feb-2020. Of the total project cost of Rs.4.04 lakhs, they received assistance of Rs.1.39 Lakhs under PoCRA Project (**34.4%**) during Jan-2021. Monthly instalment of Rs.1500 is regularly deposited by the group, the loan should be repaid in 18 months.

Using the machine, various products, Tea masala, Curry leaf masala, Green masala, were prepared and Fenugreek, Mint, Drumstick and Green Gram were dehydrated and processed; the daily processing capacity being 30 to 35 Kgs. Currently, they were processing 8 to 10 kgs every day. The members grow Drumstick, Fenugreek, Mint and Grass Tea in their own field, which is used as raw material. Other materials such as Green Gram Dal and packaging material are purchased from nearby market from Badnera and Amravati.

The SHG has been able to market the products to wholesalers and retailers from Badnera, Amravati, Yavatmal and Akola who sell it to end consumers. The members themselves take up all activities and market the products, which has led to improvement in their confidence. Non-members are not engaged in any of the activities.

The group sells around 2.5 quintals of the produce for around Rs. 25000 per month. One packet is around 30 to 40 grams and sells for around Rs.40 to Rs.50. While, one kilogram of flour wadi sells for Rs.150 to Rs. 170. The group has been able to earn net profit of Rs.15000 per month after deducting the monthly labour charges of Rs.12000 and electricity charges of Rs.2000. *They are eager to expand their business and plan to construct godown and extension of the current activities on larger scale. An application has been submitted to Gram Panchayat for allotting the space at village for constructing the Godown but is yet be approved.*

Supply Chain for Climate-Resilient seeds

As part of the project, an important intervention is promoting the creation of a supply chain of seeds with climate resilience features like short duration, drought-resistance, and salinity tolerance. Feedback was obtained on the current seed practices and use of climate resilient varieties.

Seed production is an important component under the project. As per the responses received, 97.1% in project and 98.3% in control villages are using certified seeds. Truthful seeds were 9% in project and 6.1% in control villages.

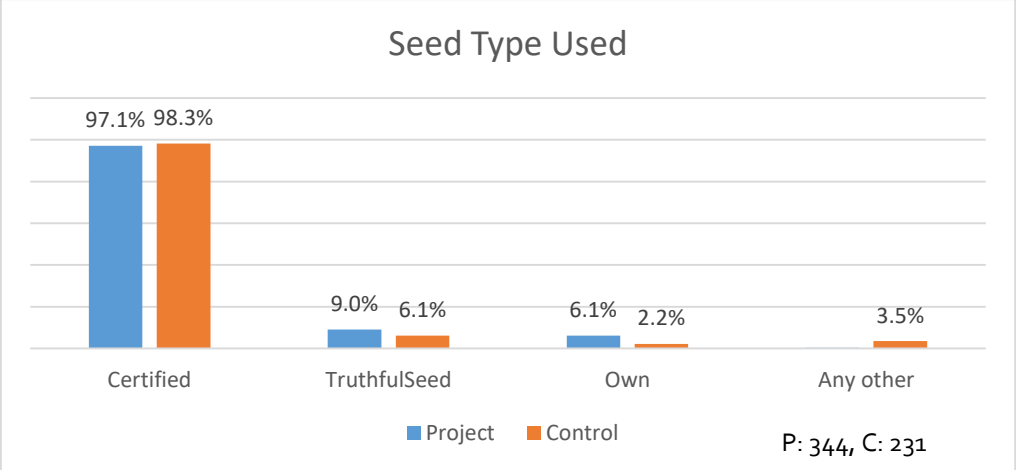


Figure 74: Seed Type Used

When asked about the source of seeds, 92% in project and 91% in control reported that they are sourcing the seeds from Input shop. 10% in project and 11% in control villages are sourcing seeds from KVKs. Only 9% in project and 7% in control villages are using their own seeds.

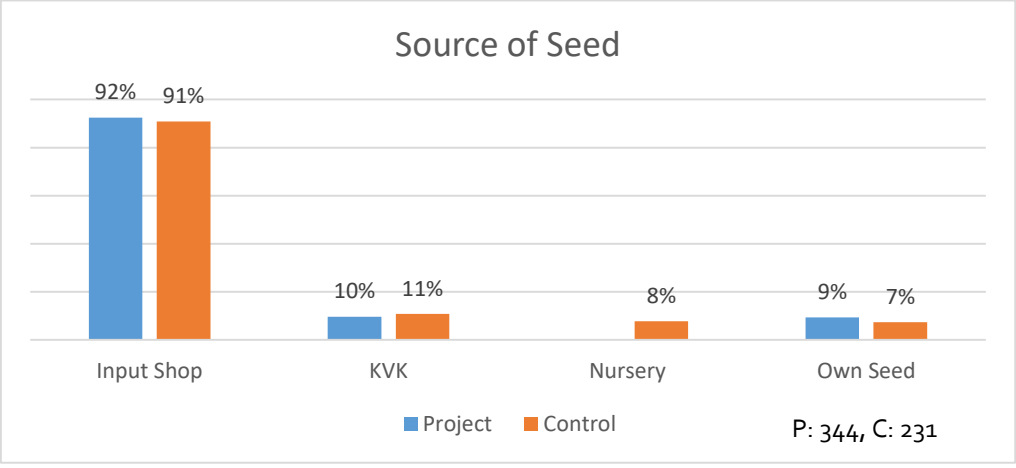


Figure 75: Source of Seeds

Area under certified seed was asked from the respondents and is presented for three major crops: Soybean (P-88%, C-85%), Chickpea (P-79%, C-76%) and Pigeonpea (P-71%, C-91%).

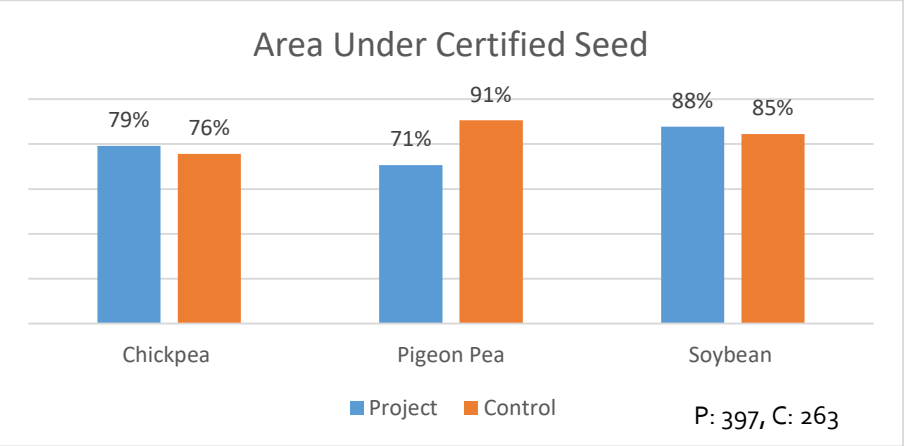


Figure 76: Area under Certified Seeds

Seed Production as part of DBT Activities

- As part of DBT sample applications, total 14 sample beneficiaries were covered in CM-II
- Out of this, 36% were from Kharpan villages
- Major Crops for which seed production was undertaken were: Soybean, Pigeon pea, Black gram, Chickpea.
- Farmers have used climate resilient varieties as part of seed production
- 65% of the applications were from Amravati and Buldhana districts
- Seed production needs a collaboration with MSSC ltd. (Mahabeej) for production of seeds.
- During discussions with beneficiaries, it was observed that many of farmers who are willing to conduct the seed production programme are unaware about the formalities and documentation process required.
- In some cases, due to target completion for the year, MSSCL rejected applications to register seed plots with them.
- 28% of the beneficiaries reported that new verities should be provided as part of the project

Component C: Institutional Development, Knowledge and Policies

In order to achieve climate resilience and ensure the intended results from the activities proposed, it is essential to build the capacity of stakeholders. The component focuses on mainstreaming climate resilience and the coordinated interaction in the field. As part of CM-II, feedback has been taken from various stakeholders on their awareness, capacity building,

and understanding of environment safeguards, issues and challenges and is presented in this section.

Trainings Attended

Beneficiaries were asked whether they have attended any training programme. Only 6% said they had attended training programmes as part of the project. Among the beneficiaries who had attended training programme, 96% said that they had attended at least one training. During the training programme, 68% said they were provided with training material, while 93% said that they were provided with food, accommodation and travel support. 93% also found the information provided during the training useful.

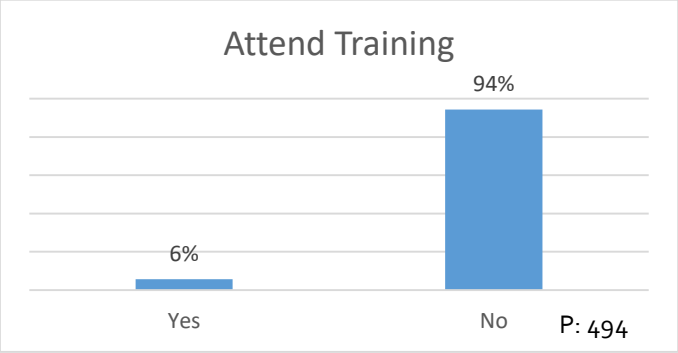


Figure 77: Attended Training

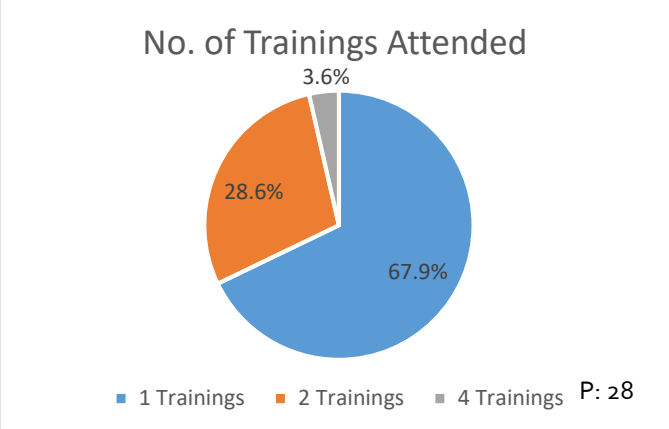


Figure 78: No. of Trainings Attended

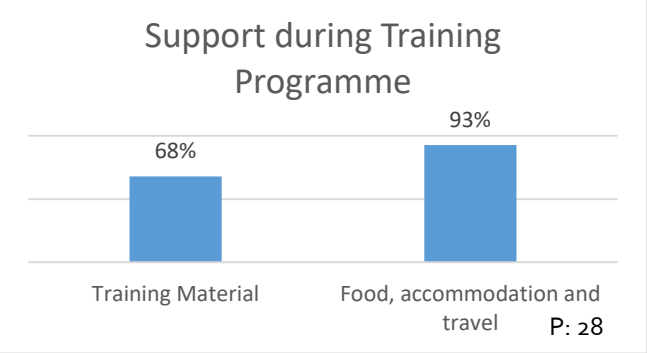


Figure 79: Support during Training Programme

Beneficiaries were also asked about the feedback on the training programme. 71% said that the quality of learning material was good. 93% said that the training programme was relevant and schedule was convenient. 89% said that the trainer was skilled.

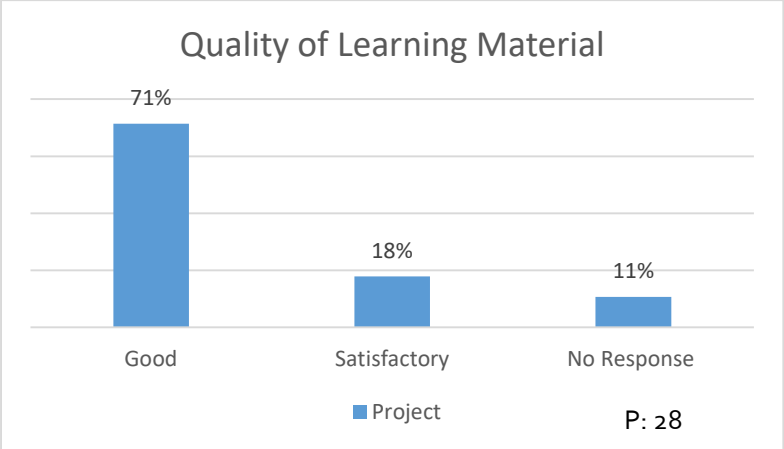


Figure 80: Quality of Learning Material

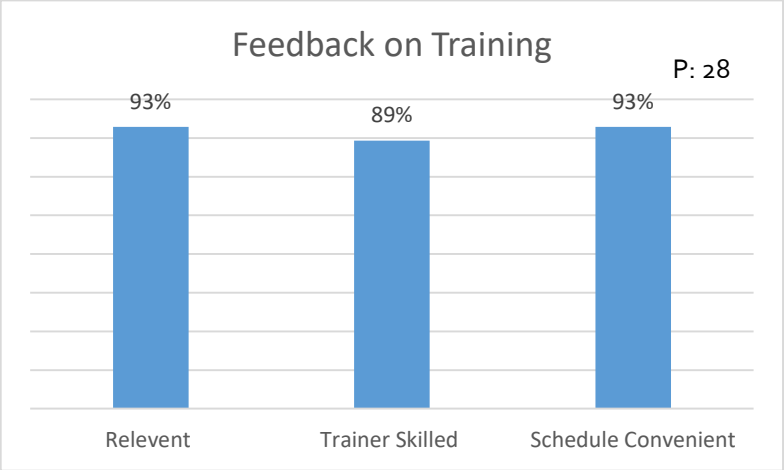


Figure 81: Feedback on Training

Awareness through IEC

Awareness on project was also seen through the project information boards put up in project villages. These information boards are important part of the IEC as part of the project. During the CM-II survey, it was found that total 19 villages had information boards out of total 32 villages, which is around 59%. At panchayat level, Grievances boxes have also been installed as seen during the CM-II survey. This is an important aspect as part of the transparency and accountability and safeguards for the project. During the survey, it was observed that 16 villages had grievance boxes, which is around 50% of the total villages. In other areas, work on installing the boxes is in progress. Village wise details of information boards and grievance boxes installed is presented in Annexure-II.

The VCRMC had a mechanism in place wherein members could be approached directly. In some of the VCRMC grievance boxes were set up while in others it had been planned. Some of the farmers had discussions with VCRMC on tentative discontinuation of some of the project activities.

Figure 82: Snapshots of Information Boards in Villages

Agro-metrological Services

For creating climate resilience for agriculture systems, agrometeorological services are an important component under the project. As part of CM-II, beneficiaries were asked if they are having access to the services. 33% of the beneficiaries' in project villages said that they are receiving support for agro-metrological services as compared to only 6% in control villages. This is encouraging as part of the project and it is expected that more number of beneficiaries would be having access as the project progresses.

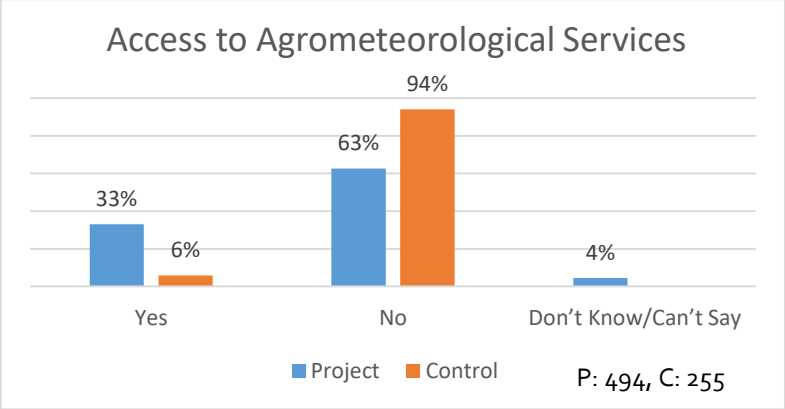


Figure 83: Access to Agrometeorological Services

Environmental Safeguards

PoCRA project is designed as per the Environment, Social Management Framework (ESMF) to ensure all the activities are being carried out in accordance with the framework.

During CM-II Survey, responses were recorded to understand the practices regarding the environmental awareness for crop residue burning and use of insecticides/ pesticides. As per the responses received, it is observed that awareness on crop residue management and use of chemical fertilizers needs to be increased as part of Component C. 95% of the farmers are burning the residue in project villages as compared to 96% in control villages. This shows marginal improvement in project due to awareness interventions.

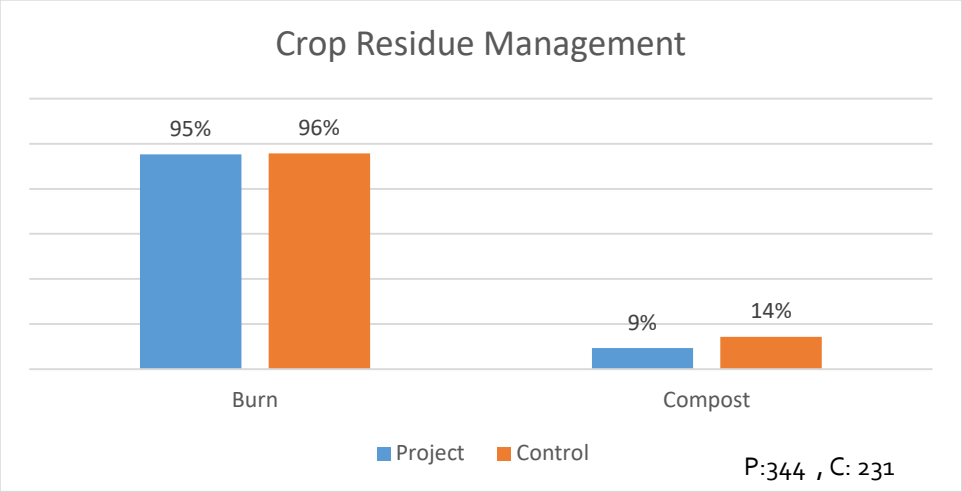


Figure 84: Crop Residue Management

Further, it was found that 89% of the farmers in project and 90% in control villages are using chemical fertilizers. The data also shows marginal improvement in project villages due to awareness on environmental safeguards.

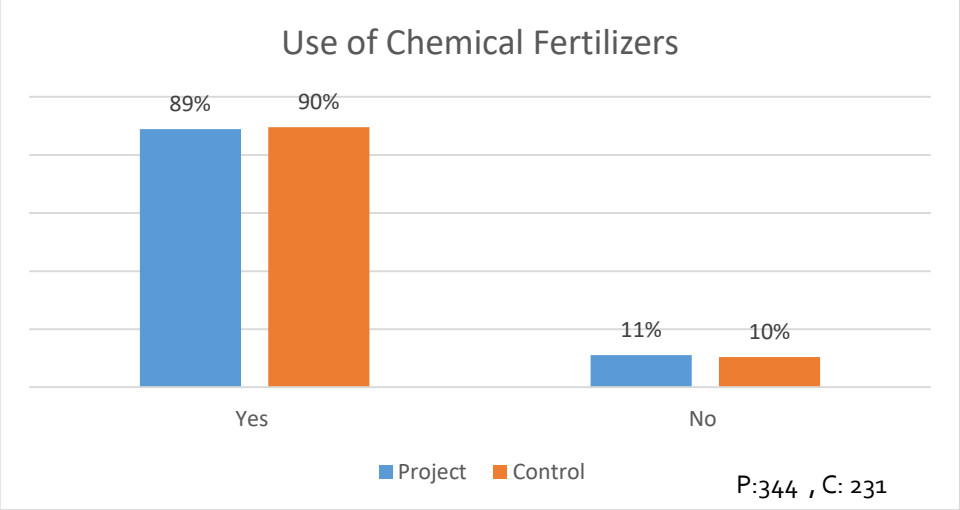


Figure 85: Use of Chemical Fertilizers

Findings from Key Informant Interviews with Key Functionaries

District Superintendent Agriculture Officer (DSAO)

As part of CM-II Survey, seven DSAOs, one in each district have been covered.

Responsibilities of DSAO

The DSAO recommends approval of Annual work plan, VDPs and CDPs to district level Committee under the leadership of District Collector. Before recommendation, the Annual work plan, VDPs and CDPs are vetted in consultation with PS-Agri at DSAO office. The process takes one month for approval.

Frequency of meetings with functionaries like SDAO/TAO

Meetings with functionaries of the Project are arranged fortnightly and meeting of minutes are recorded to record the points of discussion.

Documentation of policies/guidelines maintained at the DSAO office

All policy guidelines and documents are maintained in the form of separate files and in soft forms as well. These are updated regularly as per the instructions receive from PMU.

Frequency of Visit

DSAO office representative visit the project area once in a week depending upon the requirements of the cluster.

Mechanism for Grievance Redressal

Beneficiaries can lodge their complaints directly to the DSAO office. It can be in the form of written application, through email, messages & phone calls. A separate register is maintained at DSAO office.

Suggestions for Improvement of Implementation

The following suggestions were provided by the DSAOs for strengthening the implementation of the Project:

- The internet infrastructure may be strengthened.
- The process of DPR preparation & micro planning should be simplified (suggested by DSAO, Wardha)
- In context to villages involved in the cluster, responsibility of 06 villages may be given to the Cluster Assistant.
- In Jalgaon district, there is a requirement for creation of infrastructure for Banana processing and cooling chamber since it is a major Banana producing belt.

Project Director-ATMA

As part of CM-II Survey, interviews with project directors in six districts have been covered.

Roles and Responsibilities

The ATMA office works in coordination with DSAO office. PD-ATMA is involved in the process of approval of budgets and work plan related to capacity building and value chain sustainability. The SDAO apprises PD-ATMA regarding the plans & approvals in the district coordinated committee, post which approvals are provided.

Trainings were organized for Agriculture Assistant, Cluster Assistant, FFS-Coordinators, FFS-Facilitators, Krishi Tai, VCRMC members and Host farmers. The Training plans at district level are sanctioned by ATMA office. The sanction is provided within one week of receiving the plan.

Visit to Project Area during Implementation

PD-ATMA visits the project areas to oversee the implementation of the activities. The visits are taken up fortnightly.

Frequency of Meetings with Project Functionaries and Documentation of Records

The ATMA office has regular interactions with project officials and farmers. Meetings with FFS-Coordinator are arranged before the commencement of season as well as during the mid-season. Minutes of the meetings are recorded.

All policy documents and project guidelines are maintained at ATMA office updated regularly.

Overall feedback on the implementation of PoCRA

PD ATMA indicated that transparency in implementation is maintained through online reporting and Direct Benefit Transfers. The times required for processing the application and releasing of subsidy is minimal and effort is made to improve the physical coverage of the project.

Impact of COVID-19 on Project Implementation

The COVID-19 pandemic has slowed down the project implementation. There has been a reduction in the applications received, conduction of FFS and visit to project areas. Most of the communication is made through telephonic discussions and messages due to restrictions on meetings and gatherings.

Project Specialist –Agriculture

As part of CM-II Survey, interviews with five PS-Agri officials have been covered.

Role of PS-Agri for PoCRA

The roles and responsibilities are well defined for PS-Agri at DPIU and they are involved in monitoring of the activities in coordination with various departments. Monthly meetings are held and minutes are recorded.

PS-Agri is also involved in reading and approving the annual work plan. It is sanctioned by District Coordination Committee. It takes around 20-25 days for the approval.

Training & Capacity Building

Training on capacity building of the DPIU officials is arranged every 3 months. Further, specialized training on soil & water conservation activities has been arranged under the project from WALMI, Aurangabad.

Involved in Review of VDPs & CDPs

PS-Agri is also involved in vetting the cluster development plans and village development plans. It takes around 20-25 days for sanctioning. It is ensured that in VDP/CDP, all the components of agriculture development are incorporated such as climate resilient seed production, subject of FFS and soil & water conservation activities.

As per the applications made, sprinkler and drip systems, seed production, horticulture plantations are the mostly preferred activities. These activities are selected as per the project guidelines.

It is also ensured that the social and environmental safeguards are followed while vetting the CDPs & VDPs. None of the activities are sanctioned without confirming adherence to the social & environmental safeguards.

Visits to Project Area

Field visits are also undertaken by PS-Agri during the implementation of the activities. During the visits interaction with VCRMC members, Krishi Tai and project beneficiaries are ensured. It is also ensured that the implementation is as per the PoCRA guidelines. Field visit reports are also submitted to the PMU.

Feedback on PoCRA and Implementation

Beneficiary selection is done through VCRMC members taking into consideration project guidelines and priority criteria. All the process is online and status of the applications is updated on real-time basis and informed to the beneficiaries.

Subsidy is transferred directly to the beneficiary account within one month. Due to these robust processes, transparency is maintained. Therefore, the project activities are quite beneficial for the farmers.

Due to Covid-19, some of the activities were delayed, however, the online process has continued and work is ongoing.

Project Specialist HRD

As part of CM-II Survey, interviews with six PS-HRD officials have been covered.

Training & Capacity Building

Trainings have been arranged for cluster level officials about their roles & responsibilities, project guidelines, project activities and various IT- based applications used for the project. Trainings about micro level planning have also been arranged for the officials.

Trainings for beneficiaries of horticulture plantations, seed productions and Goat rearing have been arranged. Further, specific trainings on capacity building of villagers especially youth are also included as part of VDP/CDPs.

As part of training capacity building activities, *mela* for farmers having pre-sanction has been arranged. Trainings for horticulture plantations, bamboo plantations, Sericulture and Goat rearing were arranged. One-day training was organized through state livestock department for Goat rearing. Training on horticulture plantations was arranged through KVKs.

Exposure visits have also been planned as part of the project activities.

Climate Resilient Activities undertaken

Focus of the entire project is on building Climate Resilience of small holding farmers and landless villagers. Activities like farm ponds, protected irrigation, plantations, well recharge, BBF and seed productions are being promoted through FFS and as part of the climate resilient activities.

Activities for Tribal Villages

VDP/CDP have been prepared by incorporating the various tribal related aspects and it has sanctioned by the district committee. Regular interactions with the SHGs in tribal project villages has been conducted to provide the project details. In the plans, support to tribal farmers whom have received common and individual ownership of forest land are also incorporated.

Grievances Redressal Mechanism (GRM)

Grievance boxes have been installed at gram panchayat level. The GRM has been informed to the villagers through VCRMC meeting & through Krishi Tai. If the complaint is received, VCRMC will try and resolve the issue with the help of Agri. Asstt. If not resolved, then the grievance is forwarded to SDAO level.

Feedback on PoCRA and Implementation

All the project activities are important for the beneficiaries for creating climate resilience. Though training and capacity building of cluster level officials is conducted, it can be strengthened further.

Project Specialist - Agri-Business

As part of CM-II Survey, interviews with six PS-ABM officials have been covered.

Roles and Responsibilities

Roles & responsibilities for PS-Agri. Business are well defined. PS- Agri-Business is responsible for preparing, sanctioning and implementation of business activities.

Trainings Attended

Two trainings were arranged for the field team as per the need.

Frequency of Meetings with Functionaries

Monthly meetings are arranged for discussions and review of project implementation.

Visit to Project Area

Bi-monthly visits are arranged usually to oversee the installation of unit/activity in the project area.

Reasons for receipt of lesser number of proposals

Lack of awareness in activity selection and paucity of technical knowledge in preparation of proposals is the one of the major reasons for lesser submission of proposals. Lack of adequate resources is another concern amongst the members.

It was suggested to hold regular meetings with FPO members in which benefits of the project are explained.

Overall Feedback of the Project

The project was perceived to be transparent and beneficial for the community.

Project Specialist –Procurement

As part of CM-II Survey, interviews with five PS-Procurement officials have been covered.

Roles and Responsibilities

PS-Procurement is responsible for procurement of items at district level and monitor the expenses incurred at VCRMC level as per the project procurement guidelines. Every purchasing in the project is done as per the guidelines. PS-Procurement provides guidance to the SHGs and FPOs for procurement of the items.

Trainings Attended

- Two days training organized by PMU was attended
- During lockdown period, live streaming trainings were attended. It was arranged as per the need of the officials

Frequency of Meetings with Functionaries

Weekly discussions are held with Account Assistant. Monthly meeting is held for the review.

Visit to Project Area

Fortnightly visits were arranged to the project villages in which the inventory registers and recording of items purchased are verified and the concerned staff is advised for regular maintenance as per the project guidelines.

Overall Feedback

The project was perceived to be transparent and beneficial for the community.

Sub Divisional Agriculture Officer (SDAO)

As part of CM-II Survey, interviews with 13 SDAO officials have been covered.

Role of SDAO in Micro-planning

SDAOs are responsible for overall MLP process, which includes selection of MLP coordinators as per guidelines. Project Assistant and Cluster Assistant involved in the process under SDAOs' supervision.

DBT Process Monitoring

The SDAOs had received training from PMU office and Office of DSAO for DBT process Monitoring. Specialized training was attended for DBT monitoring and disbursement while online training was also arranged as per needs. The SDAO, project assistant and account officer monitor beneficiary details on time-to-time basis.

Frequency of Meetings

Meetings with functionaries of the Project are arranged fortnightly and meeting of minutes are recorded to record the points of discussion.

Mechanism for Grievance Redressal

Complaint register and grievance boxes are maintained by the office while a unit to assist farmers has been set up as well. Farmers can easily lodge complains or address their grievance directly to the functionary at SDAO office.

Key challenges in implementation of POCRA activities

- In Amravati district, Dharni & Chikhaldara blocks have tribal population, therefore acceptability for activities by doing all the procedure are less as compared to other blocks.
- Internet connectivity is the problem; therefore, difficulties were faced in uploading applications and reporting.
- Although the target set for implementation of activities is village wise, it however depends upon interest of farmer & his economic conditions. In some cases, farmers find it difficult to make initial investments due to lack of resources.

Suggestions for Improvement of Implementation

The following suggestions were provided by the SDAOs for strengthening the implementation of the Project:

- Number of Cluster Assistants may be increased based on the coverage of villages so that they can coordinate better with village level functionaries and beneficiaries.
- Proper guidance to cluster team may be provided by DPIU about mobile applications from time to time.
- Adequate number of staff should be engaged and vacant posts may be filled at the earliest since it is affecting the implementation of the project.

Taluka Agriculture Officer (TAO)

As part of CM-II Survey, interviews with 29 TAOs have been covered.

Roles and Responsibilities

The roles and responsibilities of the Taluka Agriculture Officer (TAO) are well defined. The office oversees the functioning of Cluster Assistants, Agriculture Supervisor and Agriculture Assistants involved in the cluster. The Taluka Agriculture Officers attends the VCRMC meetings and are involved in discussions and providing recommendations with regard to the applications.

The office is also engaged in monitoring the documents submitted along with the applications, random spot verification, performing desk-3 responsibility and resolving the issues at the clusters.

Monitoring of DBT Process at TAO level

The Taluka Office supervises the progress of applications processing at various desks. As the Taluka Office, the most preferred activities are Motor Pump, Pipes, Sprinkler sets and horticulture plantations are the activities mostly taken by the farmers & Goat rearing by the landless in the clusters.

Online training was conducted for DBT monitoring by PMU for Agriculture Assistant, Agriculture Supervisors and CAO.

Visit to Project Area during Implementation

Taluka Agriculture Officer visits the project areas to oversee the implementation of the activities. Weekly visits are arranged to project villages in which the official interacts with farmers.

Frequency of meetings conducted with functionaries

Weekly meeting with cluster officials is organized at TAO level and minutes of meeting are recorded.

Monthly review meeting is organized at SDAO office in which the project progress is discussed. All communications are shared through e-mails.

Feedback on the various mobile based applications

The view of the TAO, mobile based applications are user friendly. However, there were some issues with the application in registering, verification and documentation due to network connectivity problems. The issue gets resolved on time to time basis.

Major challenges Faced

- One of the major problems faced in non-linking of farmers Aadhar which was resolved through handholding and support to farmers.
- During verification stage post work completion for getting individual benefits through DBT, in some cases sanctioned activities were not found at particular sanctioned locations. The issue was resolved and farmers were informed to procure the activities at same location, then verification has completed.

Grievance Redressal: Beneficiaries can lodge their complaints directly at TAO and Cluster office. Online complaints can also be submitted.

Overall feedback on the implementation of PoCRA

- All the processes are online, therefore approvals require less time
- Guidelines are well defined and activity specific. Therefore, it provides the clear information to the beneficiary.
- Transparency is maintained in Subsidy payment through DBT

Impact of COVID-19 on Project Implementation

The COVID-19 pandemic has slowed down the project implementation. Most of the communication is made through telephonic discussions and messages due to restrictions on meetings and gatherings.

Agriculture Assistant (AA)

As part of CM-II Survey, interviews with 32 AAs have been covered.

Roles and Responsibilities

The role of Agriculture Assistant is verification of online applications, uploading documents and visit to project activity site prior to the sanction, checking details of applicants and benefits availed through PoCRA project, preparing technical and financial estimates as per the format. The Agriculture Assistant takes up spot verification post activity and uploads the bills. All records are updated in the Maintenance Book of NRM works, submits geo tagged location details through App.

The Agriculture Assistant takes up appraisal of Krishi Tai quarterly.

Training/Capacity Building programme attended

- 2 one day trainings were attended with VCRMC members at district level regarding project details.
- Three days training were attended on roles & responsibilities, project guidelines & micro planning by PMU.
- Live streaming was attended on DBT App arranged by PMU. Live streaming was attended on book keeping & account aspects from SDAO office.

Feedback on process for verification of uploaded documents of Applications made

The Agriculture Assistant uploads all documents such as 7/12, 8A, Electricity bill, Aadhar, income certificate and caste related documents post verification. The CA visits the site of activity post which the cases are discussed in VCRMC meetings. All the documents are compared with original documents. Based on the need of the farmer and his/her eagerness in taking up the activity, the application is recommended for pre-sanctioning.

Basis on which Applications are sorted

Applications are sorted out as per the guidelines. Small & medium farmers, SC, ST, women headed & handicapped farmers are given priority. All the processes, verification of application, pre activity spot verification, discussions in VCRMC and recommendations for pre sanction with technical aspects are usually completed in 15-20 days.

Monitoring of DBT process at the Agriculture Assistant level

Agriculture Assistant checks the status of application at desk 2, after which pre-sanctioned is received at desk 3 and then the bills are uploaded. After the activity is completed, spot verification is taken up, the verification report and geo-tagged photo is uploaded at desk 4. Account officer verifies all the documents and processes at desk 5 and submitted for further processing. At desk 6, SDAO provides approval. Training about DBT was received from Account officer at SDAO office and then by PMU.

Involvement in Accounts and Bookkeeping

Agriculture Assistant is involved in accounts and book keeping at VCRMC level. Total 13 books of records are maintained at VCRMC level. Training was attended from Account Officer at SDAO office.

Frequency of meetings conducted with functionaries

Meeting with project functionaries is organized at the interval of 8 to 10 days. Minutes of meeting are recorded.

Key challenges faced in successful implementation of the FFS

Participation of the farmers in FFS and adoption of technologies are the key challenges in implementation of farmer field school.

Grievance Redressal

Grievance boxes were installed at Gram Panchayat and beneficiaries can report their complaints through them. The issues are resolved by VCRMC with the help of Agriculture Assistant at village level.

Impact of COVID-19 on Project Implementation

The COVID-19 pandemic has slowed down the project implementation. Most of the communication is made through telephonic discussions and messages due to restrictions on meetings and gatherings.

5. Analysis from Saline Affected Villages

The Purna valley of Vidarbha region is an east-west elongated basin with slight covering to the south occupying the part of Amravati, Akola and Buldana districts. The development of salinity in these soils has been attributed to the semi-arid climatic conditions that have induced the pedogenetic process of depletion of calcium ions from the soil solution in the form of calcium carbonate. This has resulted in an increase in salinity in the area.

As part of the CM-II Survey, total 11 Kharpan villages have been covered with total 93 beneficiaries (20% of the total). 55% of the beneficiaries were DBT, while 45% were FFS.

Data from Beneficiary Survey

Awareness on Salinity

Farmers were asked whether they are aware about the salinity issues. 85% said that they were aware, whereas 15% were unaware. Farmers were also asked about the parameters for identification of salinity issues in their farmlands.

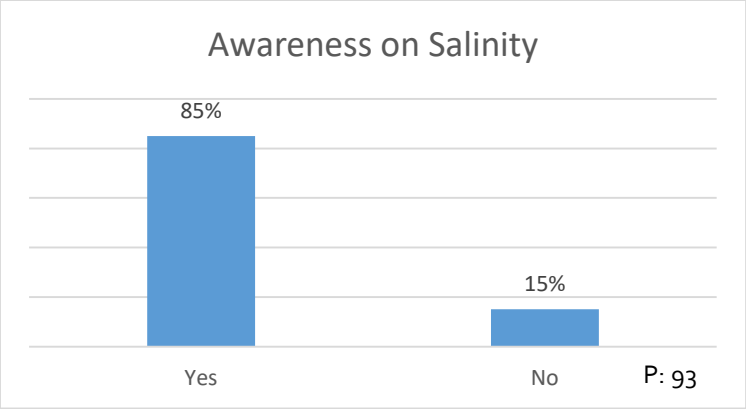


Figure 86: Awareness on Salinity Issues

Major Issues reported by farmers due to salinity:

- Growth of crops affected leading to decrease Productivity
- Difficulty in cultivation & tillage
- Issues for irrigation as ground water is saline
- Water logged conditions occur during heavy rains
- Difficulty in Intercultural operations
- Issues for availability of drinking water and fodder for cattle
- Due to fungus on crops, productivity decreases

Further, beneficiaries were asked about the symptoms and how they identify salinity issues. 49% said that they can identify salinity through visual symptoms, 15% said there are

symptoms observed in the crops, 1% had soil testing done. 31% said that they were not aware how to identify salinity issues.

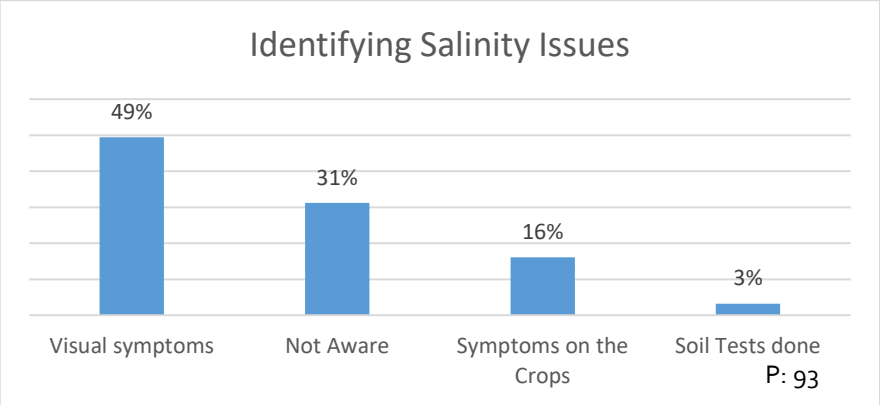


Figure 87: Identifying Salinity Issues

FFS Conducted in Kharpan Villages

Out of the total 42 beneficiaries of FFS in kharpan villages, 9 were host farmers and 33 were guest farmers. 62% said that they had attended at least one session of the FFS. Out of the total attended, 50% said that they have attended to get information about pests and disease, especially pink bollworm in Cotton.

As part of FFS, most of the technologies demonstrated were pest & disease management (90%), Application of fertilizer dosage (65%), preparation of organic formulation (32%), seed treatment (29%), sowing techniques (19%), etc. as shown in the figure below. 85% of the farmers reported that the technologies demonstrated were useful for them. However, only 12% has adopted improved variety demonstrated during FFS.

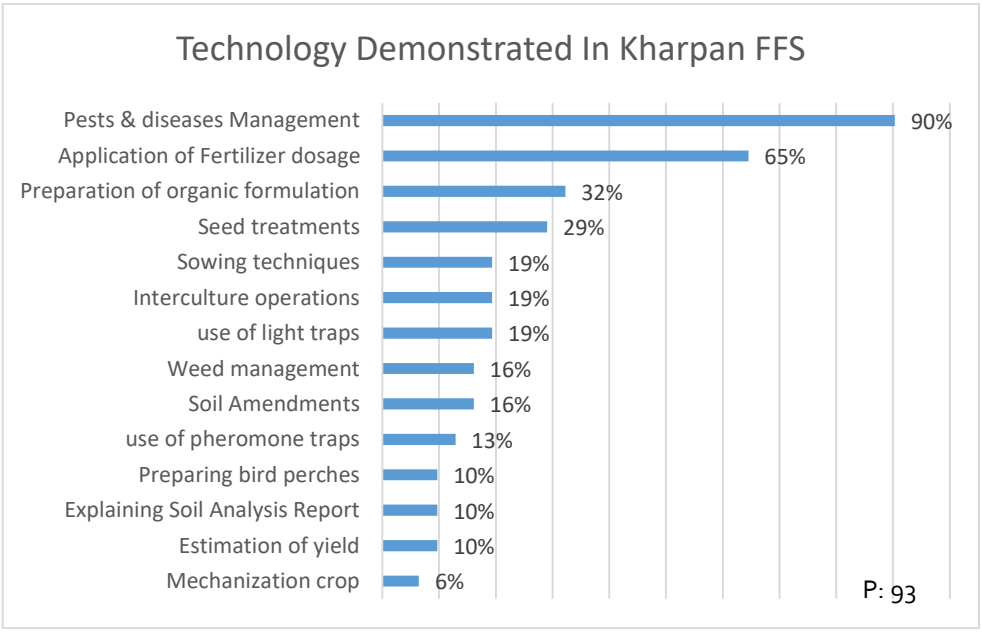


Figure 88: Technologies Demonstrated in Kharpan Villages

DBT Activities applied under the Project

Since many of the farmers are unaware about the salinity problems and how to deal with the issues, it was observed that a large number of applications in Kharpan villages are for FFS (52.7%), which is encouraging as technologies demonstrated for good agriculture practices will be useful in saline affected villages.

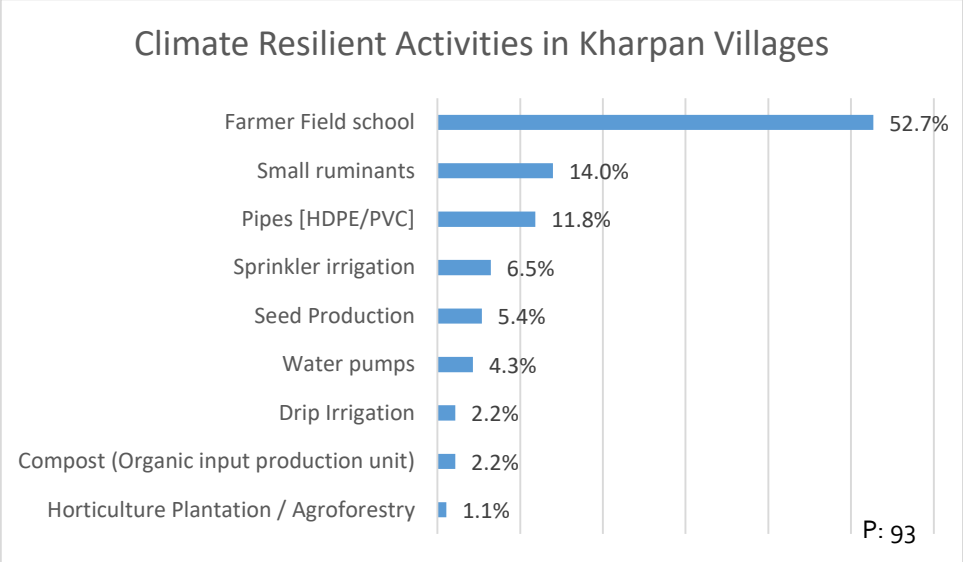


Figure 89: Climate Resilient Activities in Kharpan Villages

Other applications were Small Ruminants (14%), Pipes (11.8%), Sprinkler (6.5%), Seed production (5.4%), Water pumps (4.3%), Drip irrigation (2.2%), Composting (2.2%) and Horticulture (1.1%).

For small ruminants, out of the total 13 beneficiaries, 5 said that they are lacking financial resources to complete the activity. They have requested advance assistance to purchase goats. Some of the beneficiaries also reported that they had applied but the activity is currently on hold. They asked for restarting the activity, as it is beneficial for the landless.

Beneficiaries taking pipe and water pumps as the activity reported that they have benefited from it through better irrigation practices and water saving. 67% said that they understand the concept of water management and is essential to increase productivity in Khapan villages.

Beneficiaries who had applied for sprinkler irrigation reported that the system has been taken for Cotton & Chickpea. 75% of the beneficiaries reported increase in yield and better water management due to the sprinkler system. On an average, they are using the system for 4-5 hours per day.

For the beneficiary taking up horticulture plantation could not complete the activity due to financial issues. He asked for payment of subsidy in advance for completing the activity. Similarly, for drip irrigation, one beneficiary could not complete the activity.

Findings from KIIs with Functionaries

As per the feedback, in Kharpan villages, soil & water conservation activities have to be done after thorough analysis and survey. Farm Ponds can be an effective option to deal with Salinity issues. These activities are planned according to water budgeting done as part of micro planning, rainfall of the area, soil type, soil depth and slope.

MIS Data

Focus of PoCRA on Saline Villages

As part of the project, special focus has been given to saline/sodic villages and activities taken up by farmers.

As per the MIS data, out of the total applications, 22% were from Kharpan Villages with 63% in Akola, followed by 55% in Amravati, 20% in Buldhana and 6% in Jalgaon. Major activities applied by farmers in Kharpan villages were Small Ruminants (21.9%), Farm Mechanization (14.3%), Sprinkler Irrigation (10.6%), pipes (8.6%), Seed production (8.1%), Drip Irrigation (4.2%), etc. The MIS data indicated 1697 beneficiaries (5% of total) have been paid subsidy for sprinkler irrigation activity with a total disbursement amount of Rs. 2.83 Cr.

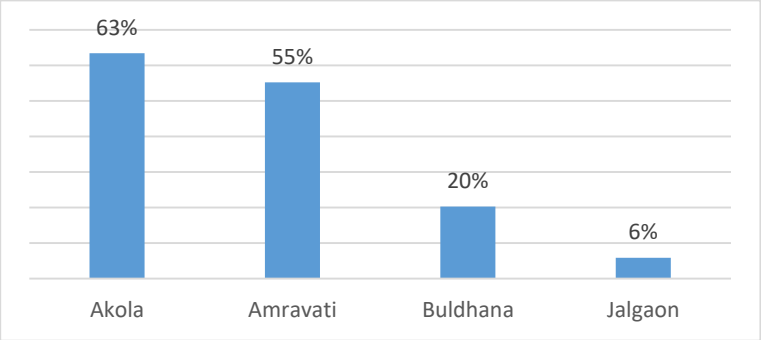


Figure 90: Applications in Kharpan Villages

As part of FFS in Kharpan villages, total 484 FFS have been conducted in 180 villages in 2018 and 2009 FFS in 769 villages in 2019.

Table 13: FFS Conducted in Saline Areas

District	2018				2019			
	No. of Villages	FFS-Kharif	FFS-Rabi	Total FFS	No. of Villages	FFS-Kharif	FFS-Rabi	Total FFS
Akola	85	169	76	**245**	314	605	238	**847**
Amravati	67	134	39	**173**	276	522	257	**772**
Buldhana	24	48	14	**62**	143	279	125	**401**
Jalgaon	4	4	0	**4**	36	50	23	**76**
Total	**180**	**355**	**129**	**484**	**769**	**1456**	**643**	**2099**

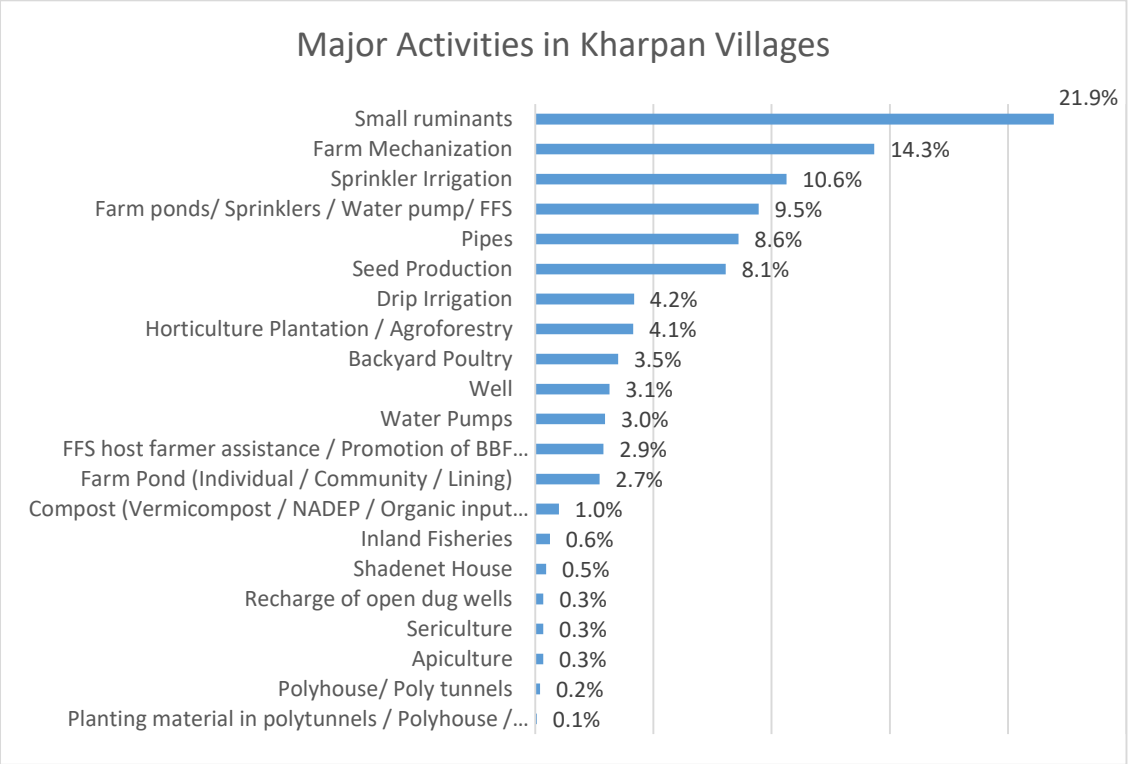


Figure 91: Major Activities Applied in Kharpan Villages

Recommendations for saline soils

- Mono-cropping of cotton is observed on large extent in saline tract of purna valley. Farmers need to be made aware with adoption of proper crop rotation and crop diversification.
- Cultivation of the salt tolerant crops at suitable spacing for eg. sugarbeets.
- Deep ploughing at every year or alternate years is necessary to increase the permeability of soil and to reduce surface runoff and losses of soil nutrients.
- Opening of furrows after 2 or 3 rows of crops should be opened after 30 days of sowing to enhance efficiency of amendments and fertilizers
- Application of soil test based chemical fertilizers and micronutrients to ensure judicious and balance use of such fertilizers. Soil testing in the saline tract needs to gear up.
- Addition of extra dose of nitrogen to the tune of 20-25% of recommended dose of fertilizers will compensate the low availability of N in saline soils.
- Addition of organic manures like, FYM, compost, etc. helps in reducing the ill effect of salinity due to release of organic acids produced during decomposition and hence should be encouraged
- Green manuring (for e.g. Sunhemp, Dhaincha, etc.) and or green leaf manuring (for e.g. glyricidia) also reduces the effects of salinity and needs to be promoted in saline tract areas.

- Application of straw mulch has been found to curtail the evaporation from soil surface resulting in the reduced of salt concentration in the root zone profile within 30 days from date of sowing.
- Application of Zinc sulphate 10-50 kg depending on the zinc status of soil to meet up the zinc deficiency in vertisols needs to be promoted to reduce the salinity.
- In cases, where natural drainage is insufficient to wash excess water and salts away from an area without raising the ground water table. It may be necessary to install an artificial drainage system for leaching of excess salts.
- The waterlogged saline soils can be reclaimed by subsurface drainage (SSD) technology developed and standardized by ICAR-CSSRI, Karnal in collaboration with the Netherlands through field experimentation under different agro-climatic conditions (*Ref: ICAR-CSSRI/Karnal/ Technology Folder/ 2016/02).*
- Afforestation on degraded/fallow lands with cultivation of suitable dryland crops/horticultural/agroforestry species (e.g. Ber, Aonla, Custard Apple, Tamrind etc.) including food, fuel & fodder plantations, depending upon soil and slope condition needs to be initiated to encourage the alternate land use.
- Capacity building of farmers for continuous cultivation of salt tolerant crops/horticultural crops along with soil test based judicious application of fertilizers and micronutrients to prevent reoccurrence of saline soils.

6. Socio-Economic Profile of Respondents

As part of the CM-II survey, beneficiaries were asked about household information from both project and control villages. Social-economic details were captured as part of the household information.

Gender of Respondents

Gender of the respondents revealed that 86% were males in project as compared to 14% females. In control villages, percentage of female respondents was a little higher to 22%.

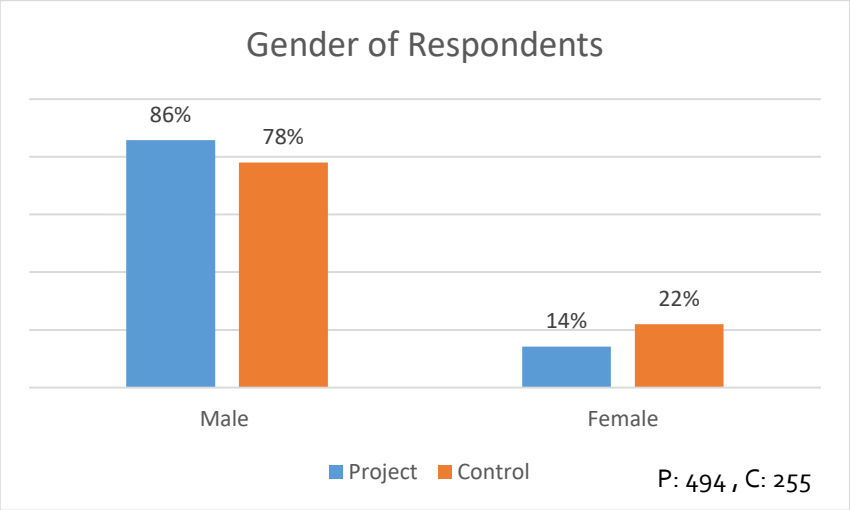


Figure 92: Gender of Respondents

Gender of the household head revealed that only 4% were female-headed households in project villages as compared to 6% in control villages.

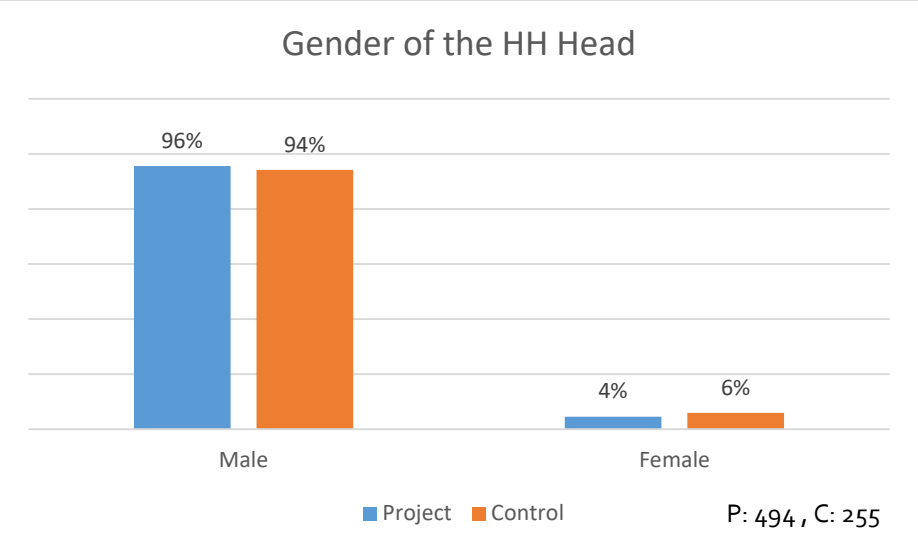


Figure 93: Gender of the HH Head

Education Status of Respondents

Education status of the respondents revealed that 5% were illiterate in project as compared to 7% in control villages. 18% had passed primary in project and 17% in control villages. 27% were matriculate in project as compared to 24% in control villages. 26% had passed higher secondary in project and 30% in control villages. 19% were graduates in project as compared to 20% in control villages. Only 5% were postgraduates in project and 2% in control villages.

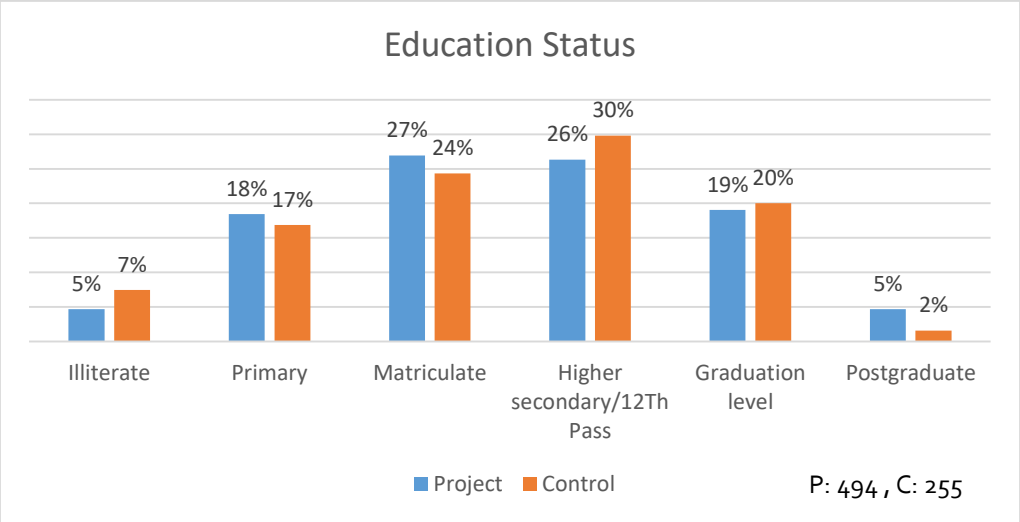


Figure 94: Education Status

Caste Details

Caste details showed majority of the beneficiaries from OBC category, 64% in project and 62% in control villages. This was followed by General category, 13% in project and 5% in control. SC category was 11% in project and 14% in control; ST was 10% in project and 4% in control. Other category was 3% in project and 15% in control villages.

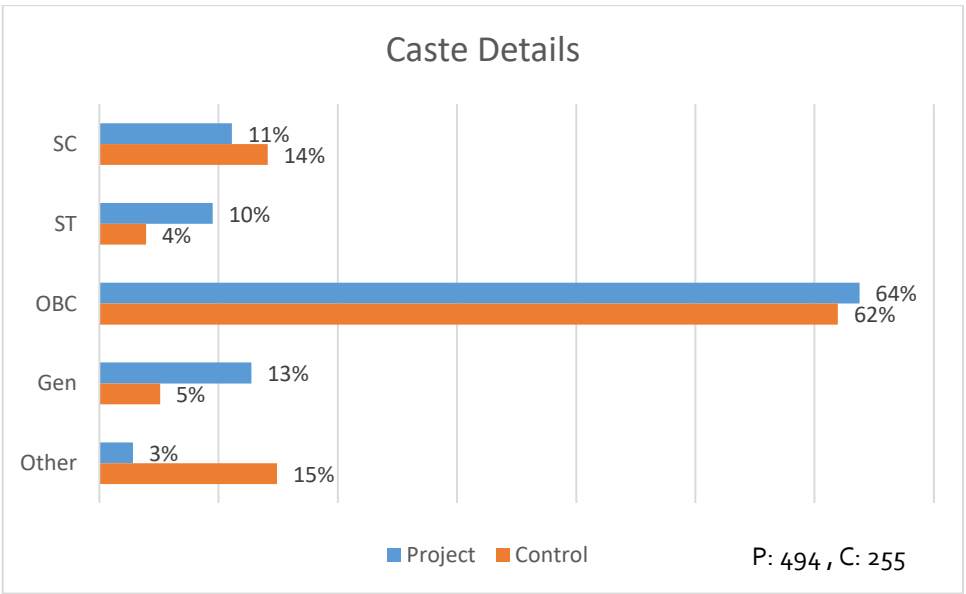


Figure 95: Caste Details

Household Economic Status

Household economic status showed that majority of the respondents from both project and control were in the APL category. 34.4% in project and 34.1% in control belonged to the BPL category.

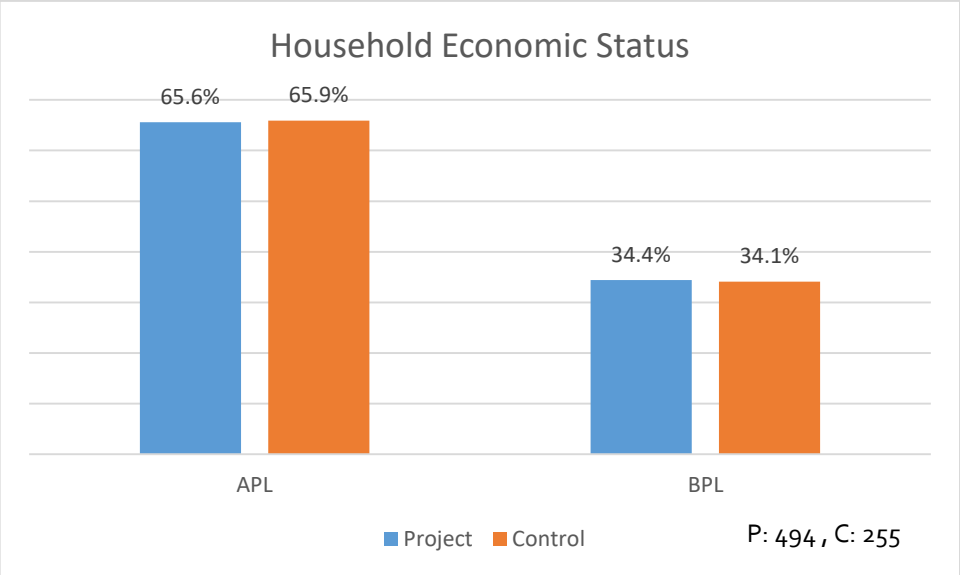
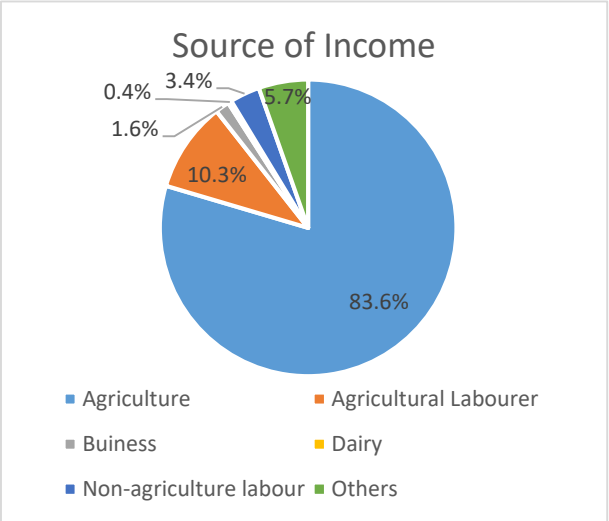


Figure 96: Household Economic Status

Average Annual Income of the Households

Average annual income of the households was also recorded as part of CM-II. Project villages reported marginally higher annual average income of Rs. 1,32,637 as compared to Rs. 1,25,284 in control villages.



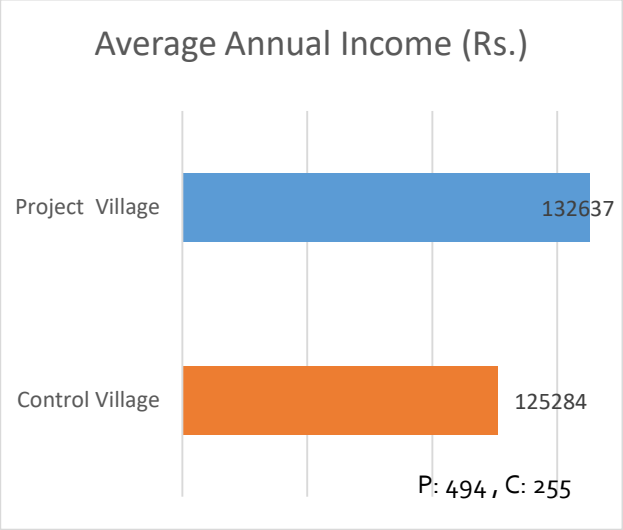


Figure 97: Average Annual Income

Institutional Access

As part of the CM-II Survey, beneficiaries were asked whether they are part of any institution. 45.1% in project and 24.7% in control reported to be part of SHGs. Further, 14.4% in project and only 0.4% in control reported to be part of FPCs. This indicates role of PoCRA project in mobilizing farmers into groups. 6.7% were part of VCRMCs in project villages.

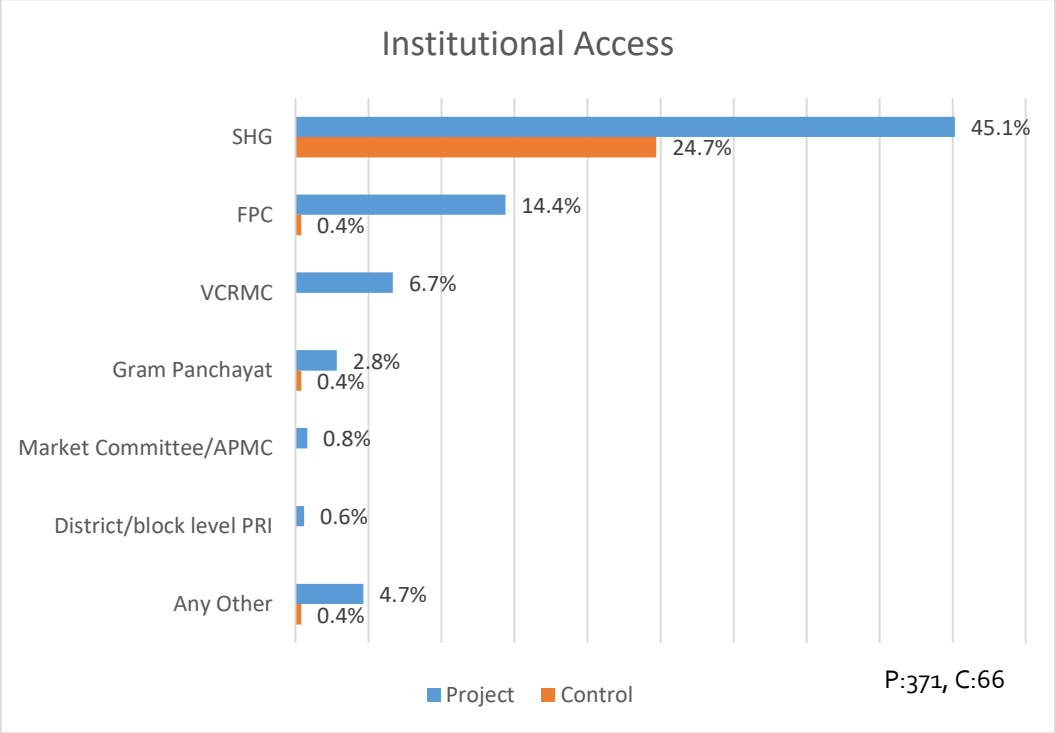


Figure 98: Institutional Access

7. Key Observations & Recommendations

Component A: Promoting Climate Resilient Agriculture Systems

Agricultural Practices

Parameters	*Observations*	*Recommendations*
Rainfall	Cotton and soybean growers of project area largely depend on rainfed agriculture. Lack of proper irrigational facilities combined with un-reliable and erratic nature of monsoon and frequent hailstorms largely affect the crop yields.	• Dissemination of agro-advisories with weather forecasting and real time contingency plans with information of timely intercultural operations to be followed. Remedies on crop wise diseases and pest management to be prepared for farmers as part of the project.
Soil Health	Medium to deep black soils of project area are low in total N status, P is medium and K is high. Soil fertility downside is directly having an effect on to the crop production system. Still it was observed that farmers apply chemical fertilizers excessively without soil testing. Although the soils are potash rich, farmers using potash externally in this scenario increases the cost of cultivation. Sustainable soil health is a major issue.	i. Promotion of recommended technologies/ package of practices developed by State Agricultural Universities and Research Centers to cope up with drought situations. • In-situ and ex-situ moisture conservation practices needs to be conducted on farmer's field to achieve the desired goal of water productivity. • Creating awareness about soil testing among farmers and adoption of recommended dose of fertilizer is immediate need for sustainable soil health in long terms
Incidence of diseases and pests	• As per discussions, drastic yield losses were observed in 2020 due to infestation of bollworm. Although there is about 90-95% area under Bt Cotton the breakdown in resistance against bollworm is making it hard for them to recover their	• Promotion and adoption of newly developed early varieties, disease and pest resistant varieties should be facilitated as part of FFS • Area under intercropping is also found limited, which needs with to be promoted.

	production costs too. Similarly, in case of soybean the heavy attacks of leaf eating caterpillar, pod borer and semilooper are responsible for reduction in yields. • Most of the farmers had stopped cultivating oilseeds due to animal attacks.	• Crop diversification is needed for the entire project districts as 70-80% of the area is covered under Cotton, Soybean and Pigeon pea during kharif and Chickpea-wheat during Rabi season. • For creating awareness among the farmers about the diseases and pests, identification and low cost control, measures should be promoted through FFS. Use of electronic and social media (for e.g. WhatsApp groups) may be considered. • Strategic plan is required to trap the infestation of pink bollworm which was responsible of severe yield losses in cotton for the current year. • Not only chemical but also an integrated approach involving natural, cultural and mechanical controls need to be disseminated.
Cost of cultivation	Cost of cultivations are getting higher and higher due to inflation and price hikes in seed, fertilizers, pesticides and labour wages. Higher cost of cultivation and lower prices for their produce consistently year by year are landing farmers into the vicious cycle of deep debts.	• Use of organic inputs viz; organic fertilizers, manures/compost, decomposers, cultures for seed treatments, pesticides needs to be promoted which was not seen anywhere in project activities or components.
Lack of irrigation facilities	It was observed that 70-80% of farmers are still lacking in irrigation facilities. Early season and mid-season drought has already created an havoc among the farmers in project areas and lack of irrigation facilities making it more worse.	• Adoption of drip irrigation in cotton and sprinkler irrigation in soybean needs to be boosted in the project villages as part of the project.
Lack of storage	Storage facilities were not at all observed at any of the villages under study. Godowns were available at taluka places but the farmers reported that the transportation costs are not bearable forcing them to	• Storage facilities in the project area needs to be developed at village level with the help of SHG/FPC/FPO so that farmers can fetch a fair price for their produce.

	sell their produce to local traders fetching lower prices to them.	
Farm Mechanization	Farmers are aware about the farm mechanization and ready to adopt but the high initial investment of tractors and tractor operated farm implements forcing them to rely on rents.	• Agri-allied small scale industries needs to promoted for effective utilization of farm inputs and wastes and creation of additional revenue.
Wild animals	Wild animals (Herds of wild pigs, deer's) attacks on crops with groups/herds is causing yield losses.	• Low cost live fencings (Cactus, Karonda, etc.) and electric fencing (zhatka machine) needs to be demonstrated and provisioned as par of the project activities for protection from wild animals.
Seed production	Seed production is adopted on very limited scale and has a huge scope to extend through project. Major hurdle in this is lack of knowledge about the documentation and registration process of seed plot and seed production techniques to farmers	• Farmer's trainings and awareness programmes on seed production documentation and registration of seed plots in collaboration with MSSCL ltd and experts from State Agricultural Universities needs to implemented to bring maximum area under seed production, which at present is limited.
Agri-allied business	It was observed that farmers showed unwillingness to adopt and initiate Agri allied business in all the districts of the project area. Cotton and soybean is cultivated on large scale though none of the farmers or farmer groups were found engaged in processing industry of cotton or soybean. In addition, orange is major fruit crop grown in Amravati district and banana is grown on very large scale in Jalgaon. However, no processing industries or small-scale industries were observed.	• Area under horticultural plantation is observed to be limited. Dryland fruit crops viz; custard apple, hanuman phal, aonla, tamarind etc. can be utilized for rainfed areas of project. • Uncultivable and barren lands need to be brought under silvi-pastoral systems/ agroforestry to meet the demands for fodder and fuel.

DBT Beneficiaries

Parameters	Observations	Recommendations
General Awareness	• Farmers had basic awareness about DBT Process. However, they stated that they would be benefitted more if they were provided with awareness on project activities under DBT. • Most of the farmers are of small and marginal. Due to lack of finances, they are not able to purchase the materials and then apply for the disbursement	• Farmers would be benefitted more if they were provided with awareness on project activities, especially under DBT. • DBT process to be explained clearly for each desk
Sprinkler Irrigation	Mostly adopted in soybean and chickpea, which are the major crops of kharif and Rabi season and always in high demand from farmers of project area.	• Target should be maximized for this component due to very high demand from farmers.
Water Pumps	• It was revealed during discussions that many of the farmers are using motor pumps for lifting irrigation water from nearby river (especially in Akola, Buldhana and Jalgaon district in purna valley) • Lifting and transportation of water from river needs a water pumps of about 7 hp but there is provision of purchase of motor pump up to 5 hp only in project. Many farmers requested to increase the capacity of motor pumps up to 7 hp.	• Due to huge demands from farmers for lifting irrigation, the capacity of motor pumps should be raised upto 7 hp. • This would enable farmers to lift irrigation from river and its transportation up to their fields and it will facilitate the protective irrigation, which will positively impact the productivity of the region.
Pipes [HDPE/PVC]	• The component is kept on hold at present but there is high demand from farmers to initiate this component again.	• As majority of the area of the project is rainfed, there is immediate need for protective irrigation for sustainable production and increasing productivity.

		• PVC pipes are in high demand as protective irrigation not only assures the crop production but also increase the cropping intensity and thereby the net income of farmers in project area.
Drip Irrigation	• It was observed during the visits that except Jalgaon district there is minimal adoption of drip irrigation by farmers. Farmers are well aware about the benefits of drip irrigation but initial investment is a big challenge for them.	• Adoption of drip irrigation needs to be promoted among farmers as part of DBT activities. • There is huge scope for promotion of drip irrigation in rest of project area. As cotton is the major kharif crop of the region, there is huge scope to promote drip irrigation, which can create a significant impact for water productivity & water use efficiency.
Seed Production	• As part of DBT applications, Seed Production is opted by very few farmers. Seed production needs a collaboration with MSSC ltd. (Mahabeej) for production of seeds. • During discussion with agronomist, it was observed that many of farmers who are willing to conduct the seed production programme are unaware about the formalities and documentation process required. • In some cases, due to target completion for the year, MSSCL rejected applications to register seed plots with them.	• Training about the improved seed production techniques should be imparted among the project villages with information on documentation and registration of seed plots in collaboration with MSSCL and State Agricultural Universities for promotion of this component. • Soybean and Chickpea are major self-pollinated crops grown in kharif and Rabi seasons, which creates a large opportunity to bring significant area under seed production.
FFS Host Farmer Assistance	• As part of DBT beneficiaries, Host farmers are supported with seeds of improved verities, fertilizers and other agri-inputs. • Demonstrations were regularly conducted. However, the timelines for providing Agri-inputs was not followed in some cases as reported by host farmers.	• As part of the activity, it should be ensured to provide timely assistance and inputs to the Host farmers.

Agroforestry/ Horticulture	• As part of DBT, applications from very few farmers have been received for agroforestry or horticulture.	• There is huge scope under the project to promote agroforestry and horticulture plantations. Agroforestry needs to be promoted wherever there is scope for alternate land use. • Guidance and trainings should be given to interested farmers. • Medium to light soils are found to be better for cultivation of low cost dryland fruit crops such as ber, lime, custard apple, aonla, and tamrind.
Compost (Vermi/Organic)	• Discussions with beneficiaries revealed that compost and organic manures are in high demand. However, the availability of quality manures and compost is a challenge. • Farmers demanded to subsidize the organic inputs for sustainable soil health and increasing demand of organic food.	• Organic farming is taken up by very few farmers and thus needs to be promoted with advanced low cost application of organic fertilizers, pesticides and nutrient cultures. • Extension activities on this aspect among farmers through trainings / demonstrations / Krushi melas etc. needs to be boosted.
Shade net House	• As part of the sample, two shade net beneficiaries were covered. It was observed that farmers are keen to take up the activity; however, high initial investment is one of the major challenges faced by farmers.	• How to assist the farmers regarding the high initial investment is a major challenge. • Provision should be made under project to minimize or subsidize the initial investment cost for wide adoption in this component.
Small Ruminants	• It was reported that goats were provided initially under the project to the 'landless' category. • However, it was kept on hold for the time being • During one of the visits to the beneficiary at village Malrajura, it was found that the activity is helping to generate significant profit from herd of ten goats and one Buck.	• The component is very useful for the genuine landless labourers who want to rear small ruminants and are not part of any other activity under the project.

Farmers' Field School (FFS)

Parameters	Observations	Recommendations
Process	• Facilitators contact farmers directly and take help from host farmers and VCRMC committee members to gather them for FFS. • On an average, 12-15 farmers attend the FFS. • Participation of women farmers was less. • FFS was conducted during Kharif and Rabi for cotton, soybean and chickpea crops at an interval of about 10-15 days. • Information about intercultural operations, disease and pest management, improved cultivation practices were provided as part of the FFS.	• FFS facilitators should be available for all the project villages. • FFS facilitators should be trained for improved cultivation of major crops grown in the region. • Detailed knowledge for identification and control of major pests and diseases of the crops grown in both kharif and rabi season should be given. • Information regarding FFS in the village should be disseminated in the project villages as many of the farmers said that they are unaware about the activity. • During the discussions, it came out that facilitators are providing information orally. • However, it is important to provide the crop related information in the form of reading material as a leaflet/booklet. • Information pertaining to weather forecasting must be given during the FFS sessions. • Field facilitators should be trained for location specific problems and resolving the issues pertaining to it.
FFS	• In some of the project villages, it was observed that FFS was not conducted, as the facilitator was not available. • It was observed that some of the farmers were not aware about the FFS activity implemented under the project and requested for proper guidance and information on the FFS.	
Host Farmers	• Host farmers reported that they were provided with one time support for seed and honorarium of Rs.2800/-. • These demonstrations proved beneficial for the host farmers. • The BBF sowing of soybean, seed treatment, crop rotation, use of improved seed verities and guidance about disease and pest management with use of improved agricultural implements significantly affected productivity of crops and annual farm income. • However, some of the host farmers reported challenges about timely availability of agricultural inputs and honorarium not paid on a timely basis.	

Guest Farmer	• While discussing with guest farmers about the quality of information provided as part of FFS, most of them reported that the information was beneficial. • However, some of the farmers reported that they are unaware about the FFS being conducted in their village.	

Krushi Tai

Parameters	***Observations***	***Recommendations***
Training	Due to re-election of VCRMC in some of the villages, new Krushi Tai were appointed in those villages. Newly appointees faced challenges in understanding project related aspects.	• Regular training may be conducted for the new appointees.
Remuneration	Krushi Tai in 18 villages indicated that they had not received their remuneration from VCRMC.	• Remuneration to be paid on time to the Krushi Tai to motivate them.

Component B: Post-harvest Management and Value Chain Promotion

FPOs

Parameters	***Observations***	***Recommendations***
Decision Making	In some of the FPOs, the directors' contribution was more significant than that of the group members.	• The groups should further be strengthened and 'team building' exercises may be conducted for the group in which both members and directors should participate
Business Activities	Most of the FPOs are still at a nascent stage and are involved mainly in aggregation.	• Training and capacity building for upscaling and sustaining the business is imperative.

		• Handholding support may be provided to the groups for creation of better linkages of FPOs with local market players like agri-input providers as well as marketing entities including organized wholesale and retail chains which is fundamental in sustaining their business. • Provision for logistic supports for loading and un-loading of produce on shared cost basis • Support for taking up value chain activities like sorting, grading, packing may be provided.
Awareness on standard operating procedure for Management System	For the purpose accounting, bookkeeping and marketing, some of the profit making FPOs had appointed Agriculture Officer (AO). In some of the FPOs, AOs were not appointed since they were not profit making.	• Capacity Building of members may be taken up to train them on maintain accounts, bookkeeping and marketing.
Trainings Attended	Across some of the groups, members and directors had not received any trainings while, in others, trainings were received in the initial stage only.	• Provide effective capacity building to FPOs to develop agriculture entrepreneurship skills to become economically viable and self-sustaining

SHG/FIGs

Parameters	***Observations***	***Recommendations***
Financial Discipline	• The SHG groups regularly saved small amounts. • The major purpose for borrowing were for crop loan, purchase of agriculture implements and self-consumption needs like education of children and construction of house.	• Credit Scores of individual members may be assessed on time-to-time and their repayment habits may be tracked. • SHG members may be imparted with trainings on taking up income generating activities once the saving corpus is sizeable.

Standard operating procedure for Management System	The books of records; attendance register, pass-books, savings, loan registers and other registers were maintained by the members across most SHGs. However, they required support for carrying banking operations.	All SHG members may be trained on ✓ Handling tasks related to Bank account ✓ Record keeping ✓ Maintaining ledgers ✓ Passbooks
Grading of SHGs/FIGs	None of the SHGs or FIGs were categorized based on their performance, financial discipline, democratic governance and others.	Grading of SHGs/FIGs enables lending institutions/Banks to assess the quality of groups. It enables to understand the strength and weaknesses of the groups. The major parameters for grading them are: ▪ *Regular Meetings* ▪ *Regular Savings* ▪ *Internal Loaning* ▪ *Timely Repayment* ▪ *Book-keeping*

Component C: Institutional Development, Knowledge and Policies

Parameters	***Observations***	***Recommendations***
Awareness on Social & Environmental Safeguards	• Lack of awareness amongst project functionaries at village level	• Increasing awareness among project functionaries for environmental and social safeguards
Training & Capacity Building	• Similar level of training being provided to all stakeholders	• Separate training/capacity building programs may be conducted for different stakeholders

8. Insights from PoCRA MIS Data

8.1. DBT MIS Data

Registrations

Registration Status

As per PMU guidelines, farmers and landless households willing to avail benefits under the project need to first register themselves in the mobile application exclusively developed for this purpose. It is to be noted that registration does not mean provision of services/benefits but it is the first step towards applying for any benefit under the project.

Quarterly Registration of number of beneficiaries under PoCRA Project is given in the table below. As per the project MIS Data, the registration started in November 2018 and until 30 Sep 2020, a total of 1,99,727 beneficiaries have registered under the project in the Rest of Project Area (Akola, Amravati, Buldana, Jalgaon, Wardha, Washim and Yavatmal districts). The average number of registrations per month worked out to 8684 and maximum number of registrations (63%) were made during the finical year 2019-20. The highest number of registrations were made in the June-Sep 2019 quarter (about 19.3%), followed by Jan-Mar 2020 (17.8%) and April-June 2019 (17.2%).

Table 14: Quarterly Registrations in Rest of Project Area Districts

Time Period	Registrations	
	Number	%
Nov-Dec, 2018	1,842	0.9
Jan-Mar, 2019	30,321	15.2
Apr-Jun, 2019	34,321	17.2
Jul-Sep, 2019	38,621	19.3
Oct-Dec, 2019	23,426	11.7
Jan-Mar, 2020	35,571	17.8
Apr-Jun, 2020	4,092	2.0
Jul-Sep, 2020	31,533	15.8
Total	**1,99,727**	**100.0**

Status of District wise total registrations is shown in the table below. As per the data, highest number of registrations were in Buldhana and Jalgaon district (21%). Akola (18%), Amravati (14%), Yavatmal (12%) and Washim (10%) followed this. Wardha showed the least number of registrations to only 3%.

Table 15: Total Registrations

District	Akola	Amravati	Buldhana	Jalgaon	Wardha	Washim	Yavatmal	Total
Registrations (No.)	35934	28715	42454	42587	6874	19541	23622	199727
Registrations (%)	18%	14%	21%	21%	3%	10%	12%	100%

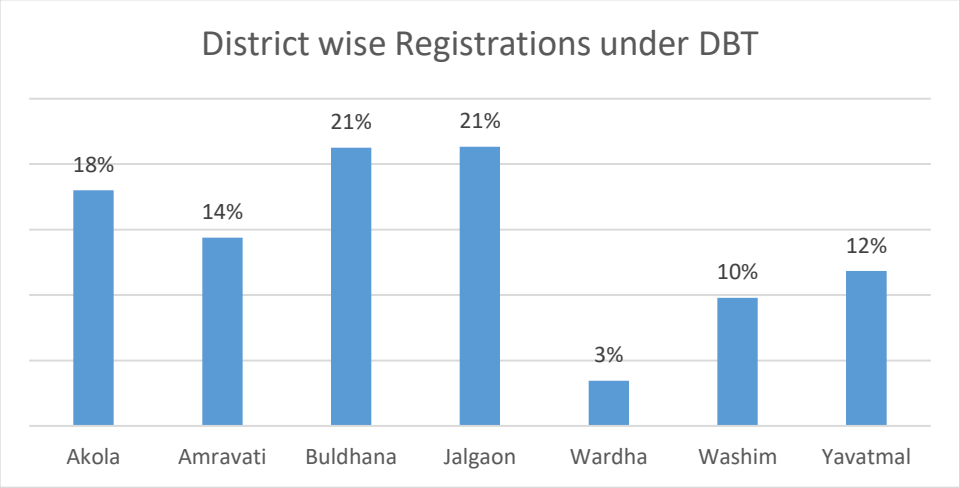


Figure 99: District wise Registrations under DBT

Out of the total registrations, 78% were males and only 22% were females. Highest percentage of female registrations were made in Jalgaon district (28%) and least was observed in Wardha district (17%).

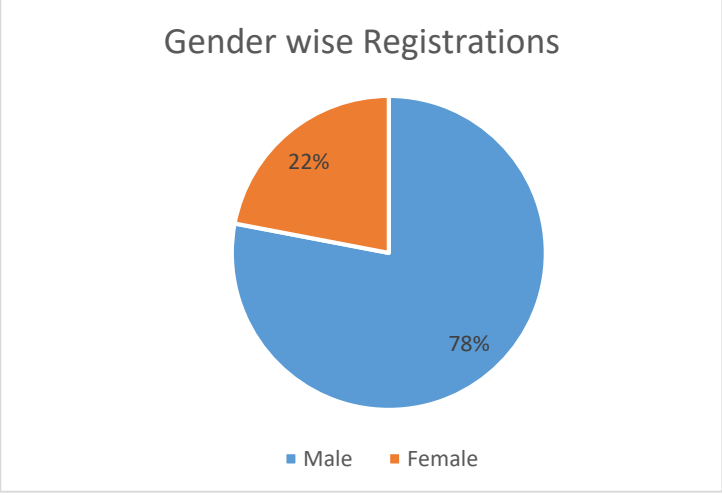


Figure 100: Gender wise Registrations

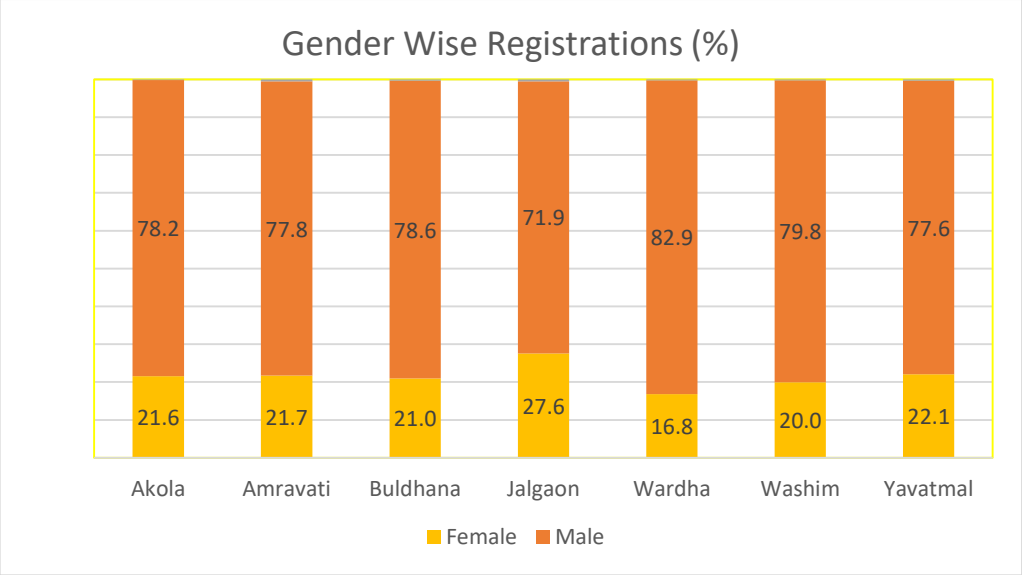


Figure 101: Gender Wise Registrations

Among the total registrations, 24% were from landless category, 24 percent from Marginal landholders, 39 percent from Small landholders and the rest 14 percent from medium/large landholders' category. They constitute 5.6 of marginal holdings, 7.4% of smallholdings and 4.6% of other holdings in the 7 districts[3] of PoCRA Project.

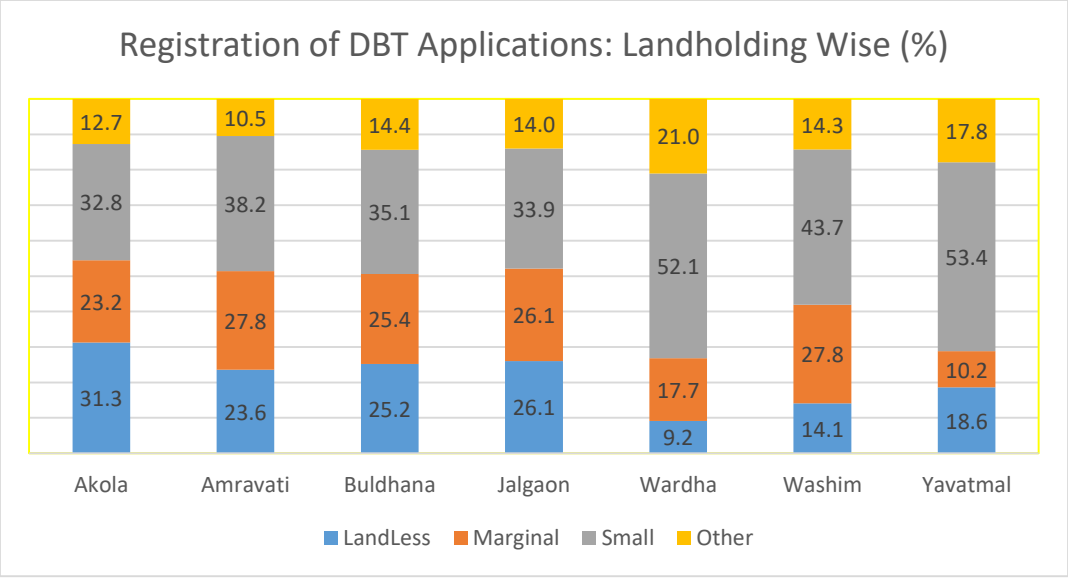


Figure 102: Landholding wise Registrations

The percent of medium and large landholders registering in DBT portal of PoCRA is more than 15 percent in the districts of Wardha (21%) and Yavatmal (18%). The proportion of small landholder is more than 50% in the districts of Wardha and Yavatmal districts while the

[3] As per the Agriculture Census 2015-16 the number of operational holding in the 7 districts are 8,50,995 Marginal holdings; 10,44,742 small holdings and 6,08,188 other holdings and 25,03,925 total holdings.

proportion of landless and marginal landholders is less than 30% in the districts of Wardha and Yavatmal.

Further, out of the total operations holdings in the districts[4], the percent of operational holders registering themselves in the PoCRA DBT portal are Akola (13%), Amravati (8%), Buldhana (9%), Jalgaon (9%), Wardha (3%), Washim (8%) and Yavatmal (5%). Clearly, the districts of Wardha and Yavatmal have the lowest registration rates among the 7 districts of rest of districts of PoCRA project.

Among all the registrations, 11 percent were from Schedule Caste (SC) and 5% were from Schedule Tribe (ST) and the remaining 84% from other social categories. Further, the proportion of SCs in total registrations is less than 10% in Jalgaon district (4%), Yavatmal (7%), Washim (9%) and Wardha (9%). Similarly, the proportion of STs in registration is very low in the districts of Akola (4%), Buldhana (3%), Washim (4%), Amravati (5%).

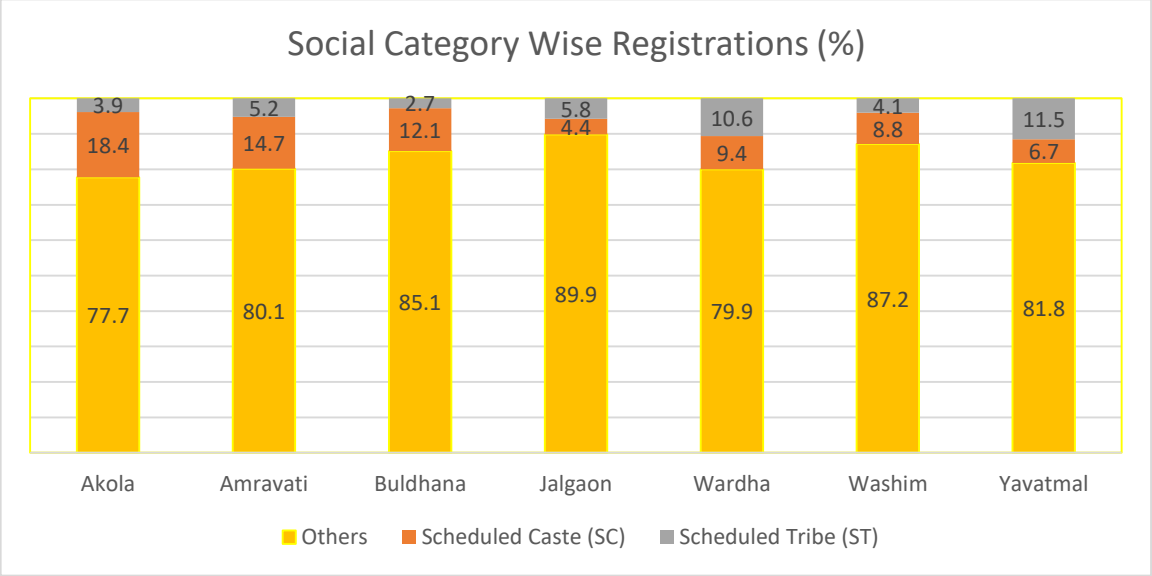


Figure 103: Social Category wise Registrations

The lower proportion of SC and ST categories in the total registrations needs special attention from the project. A special drive/campaign may be undertaken in the blocks/villages with larger concentration of SC and ST population for registering them in the DBT portal to avail benefits by registering them through PoCRA project.

Approval Status of Registrations

Out of the total registrations, 89% have been verified, 7% have been sent back to beneficiaries for amendment, 2% have been rejected and 1% are kept on hold or are pending.

[4] As per Agriculture Census 2015-15, the number of operational holdings in the districts of rest of the project area of PoCRA project are: Akola (2,73,898); Amravati (3,61,905); Buldhana (4,91,158); Jalgaon (4,78,904); Wardha (2,20,063); Washim (2,35,456); Yavatmal (4,42,541).

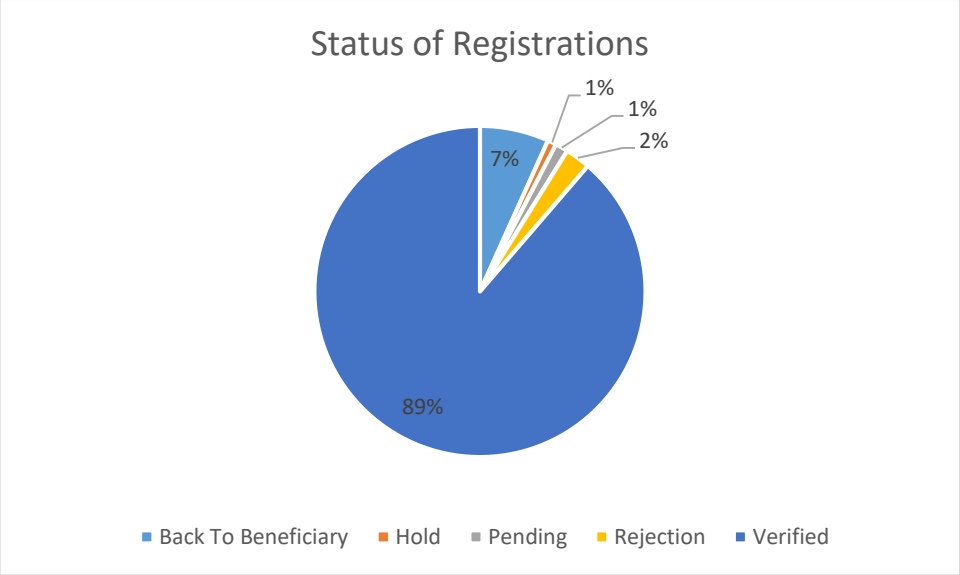


Figure 104: Status of Registrations

District wise status of registrations is shown in the figure below. It can be seen that highest registrations verification has been done in Jalgaon (20.9%) and Buldhana (20.2%). Lowest verification was observed in Wardha district (3.4%).

District wise status of registrations shows that highest verification has been done in Washim (93.8%), Akola (91.2%), Amravati (90.2%) and Yavatmal (90.2%). Lowest verification was observed in Buldhana district (84.4%).

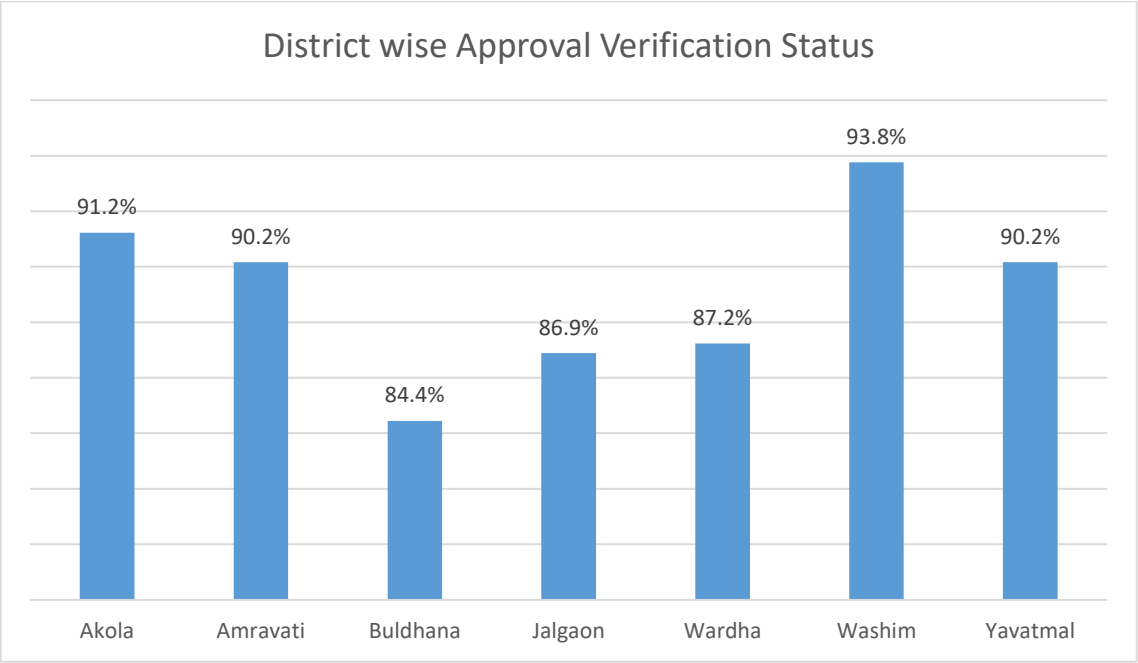


Figure 105: District wise Approval Status

Bank Linkages

As per the data obtained, 13% of female registrations did not have bank linkages as compared to 8% male registrations. District wise data showed highest number of non-linkages in Wardha and Yavatmal (12.3%), followed by Washim (11.5%).

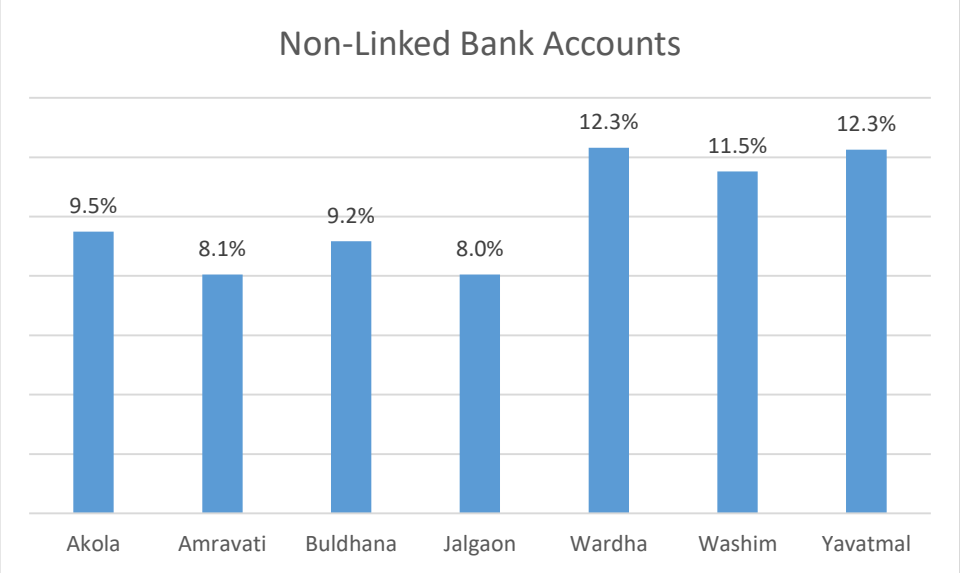


Figure 106: Non-Linked Bank Accounts

Applications

Application Status

Of the total 1,99,727 individuals registered up to September 2020, as many as 1,59,283 individuals (or 79.8%) applied for one or more benefits until September 2020 and the number of benefits applied was 3,62,613 with an average of 2.28 benefits per applicant.

The table given below gives the number and percentage distribution of applicants by number of benefit applied. Of the total applicants as many as 50% applied for only one benefit, another 21% applied for 2 benefits each. At the same time, about 13% applied for 3 to 5 benefits and an almost an equal proportion applied for 6 to 10 benefits. Yet another 4% applied for more than 10 benefits.

District-wise number of applications submitted by registered individuals is given below in table. As in the case of number of registrations, Buldana and Jalgaon districts showed the highest number of applications for benefits under the project, each 24% and in the other districts, it was 11to 14% except in Wardha district where it was just 2% only.

Table 16: Number and Percentage distribution of Applicants

Number of Applications submitted	Number of applicants	% of applicants
1	79147	49.7
2	33657	21.1
3-5	20337	12.8
6-10	19573	12.3
11+	6569	4.1
Total (Applicants)	159283	100.0
Total (Applications)	362613	-

Table 17: District wise Applications

District	Applications	Percent
Akola	52119	14.4
Amravati	42795	11.8
Buldhana	86871	24.0
Jalgaon	88511	24.4
Wardha	10588	2.9
Washim	40381	11.1
Yavatmal	41348	11.4
Total	362613	100.0

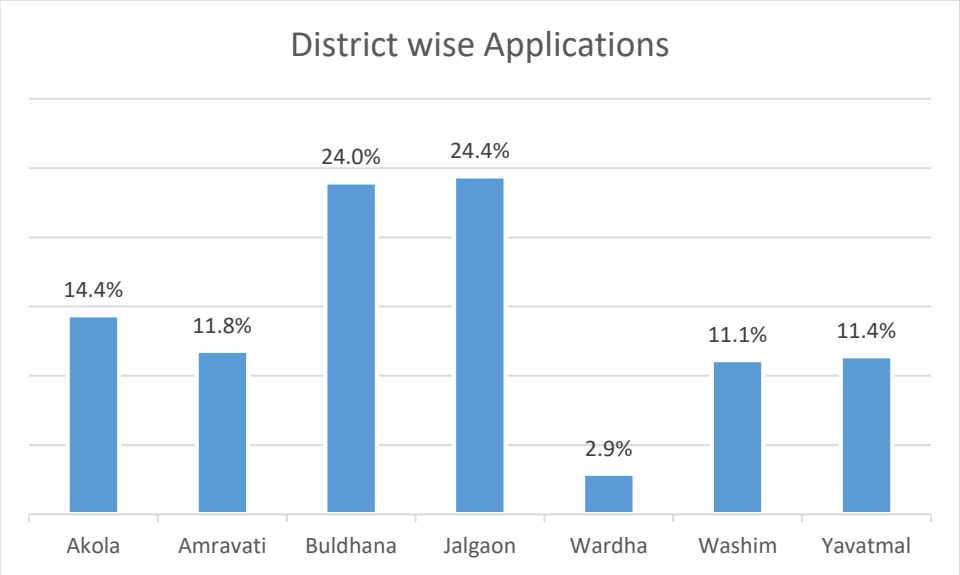


Figure 107: District wise Applications

Out of the total applications received, 79% of the applications were from males and 21% were from female beneficiaries.

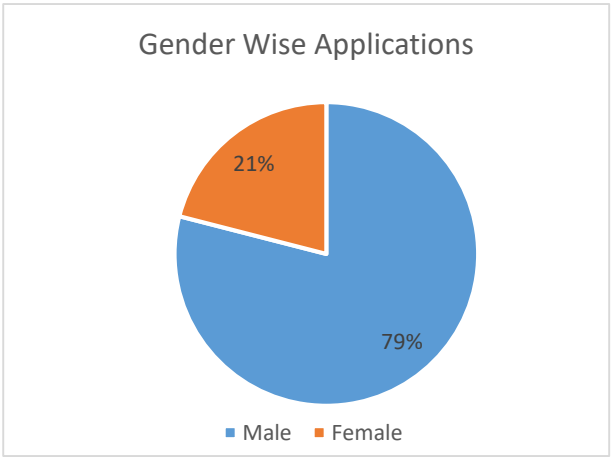


Figure 108: Gender Wise Applications

The proportion of female applicants is highest in the districts of Jalgaon (26%) and lowest in the district of Wardha (15%). In rest of the districts, the proportion of female applicants is Yavatmal (20%), Amravati (20%), Buldhana (18%), Washim (18%).

Component & Activity Wise Applications

As per the MIS data, 62% of the applications were received for component: Promoting an Efficient and Sustainable Use of Water for Agriculture, followed by 36% for Climate Smart Agriculture and Resilient Farming Systems. Improving the Performance of the Seed Supply Chain saw only 2% applications under various activities.

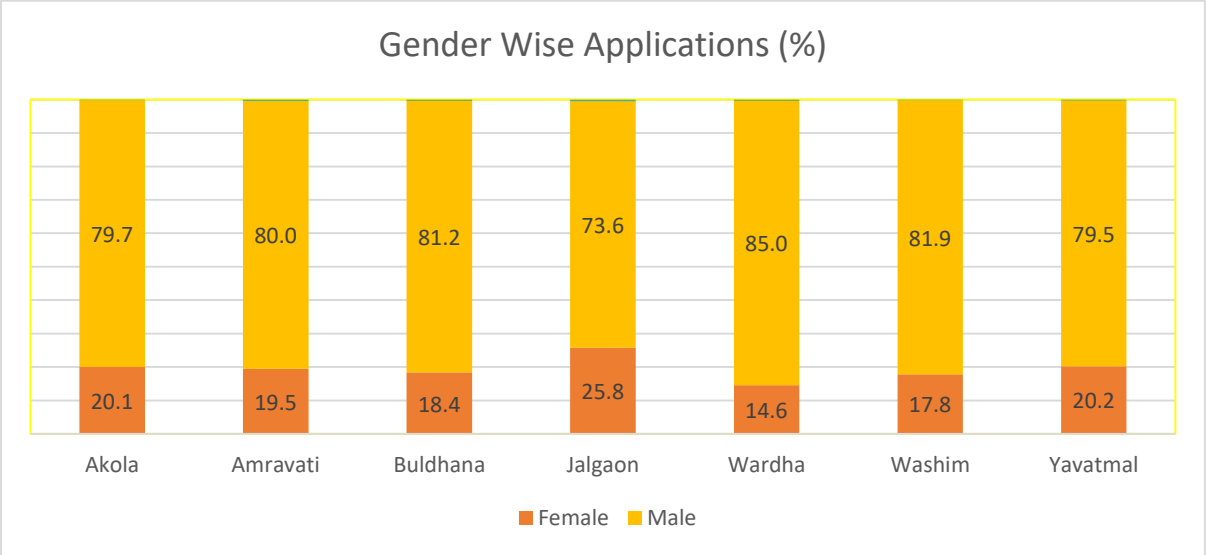


Figure 109: District wise & Gender wise Applications

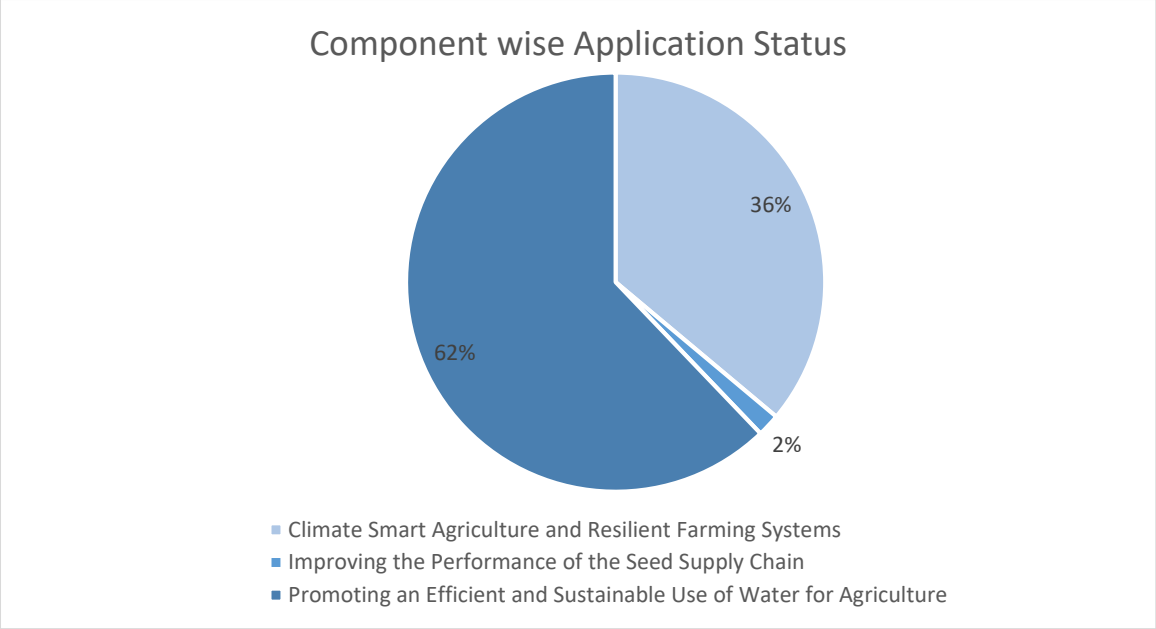


Figure 110: Component wise Applications

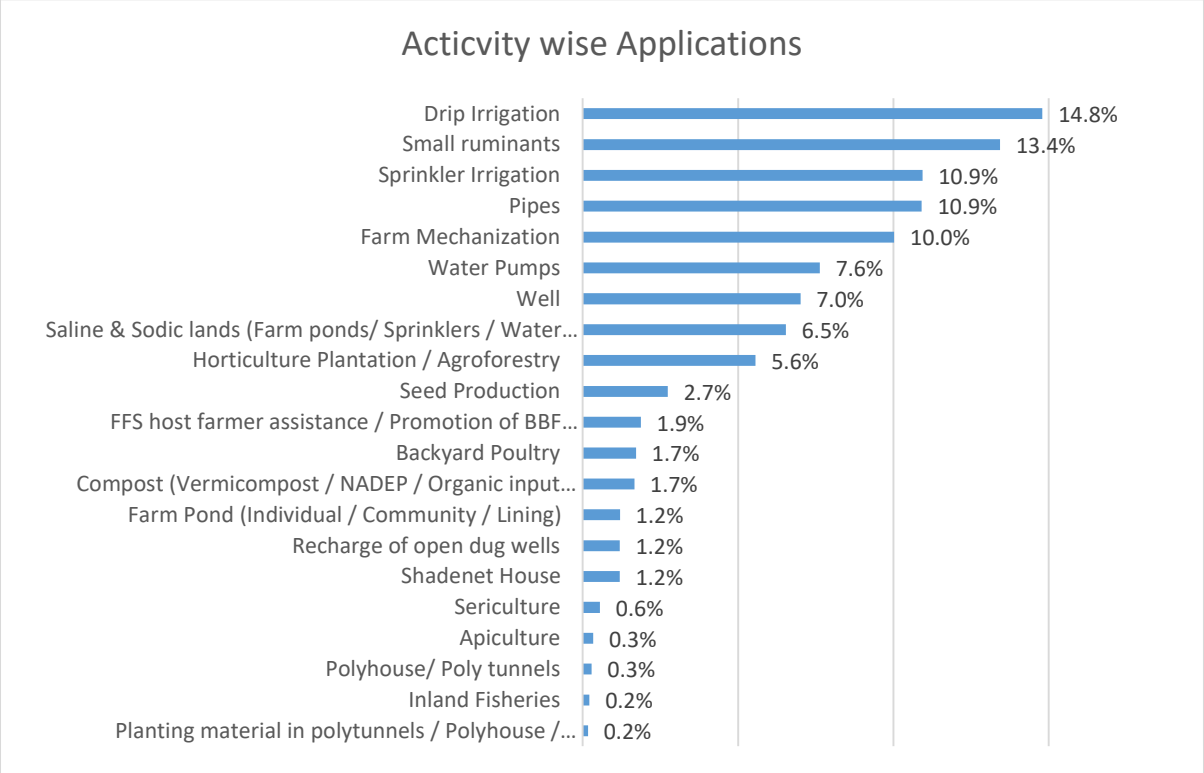


Figure 111: Activity wise Applications

As per the data for applications for different project activities, it was observed that 14.8% of the applications were for Drip Irrigation, followed by 13.4% for Small ruminants. Sprinkler Irrigation systems and pipes saw 10.9% of the applications under the project, followed by Farm mechanization at 10%. Most of the other components under the project saw less than 10% of applications as per the figure above.

The activity wise applicants showed that the proportion of female applicants is relatively higher for the activities of small ruminants (33%), Backyard Poultry (27%) and FFS Host Farmer Assistance (31%). Similarly, the proportion of female applicants is relatively lower in Farm Mechanization (16%), Saline & Sodic lands (Farm ponds/ Sprinklers / Water pump/ FFS) (17%), sprinkler irrigation (17%) and recharge of open dug wells (18%) and for rest of the activities, it is between 18 to 22 percent.

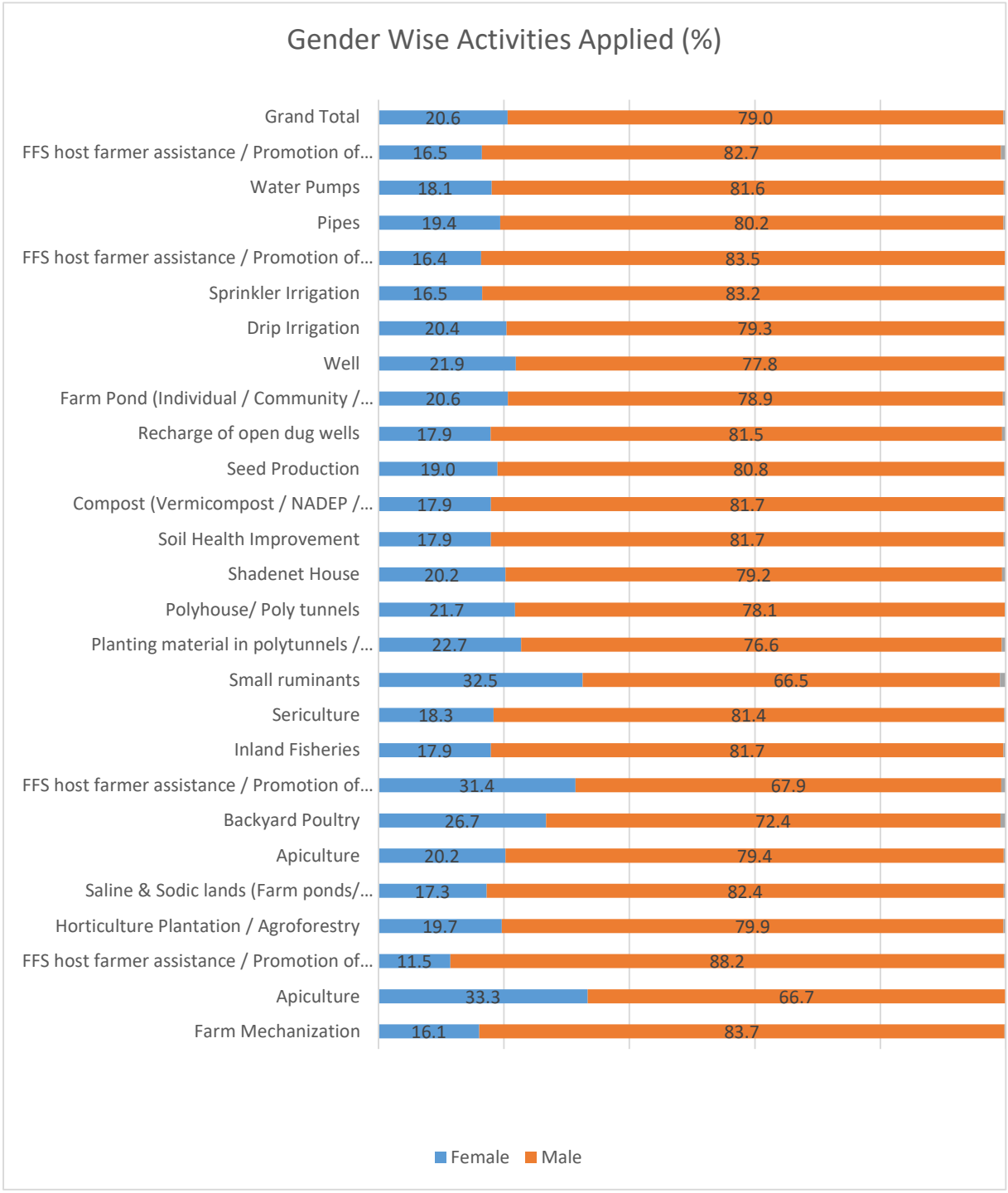


Figure 112: Gender wise Activities Applied

Among all the applicants, 9 percent were from Schedule Caste (SC) and 5% were from Schedule Tribe (ST) and the remaining 87% were from the remaining social categories. Further, the proportion of SCs in total registrations is less than 10% in Jalgaon district (4%), Yavatmal (6%), Washim (8%) and Wardha (9%). Similarly, the proportion of STs is very small in the districts of Buldhana (2%), Washim (3%), Akola (4%), Jalgaon (4%) and Amravati (4%). The lower proportion of SC and ST categories in the total registrations needs special attention of the PoCRA project.

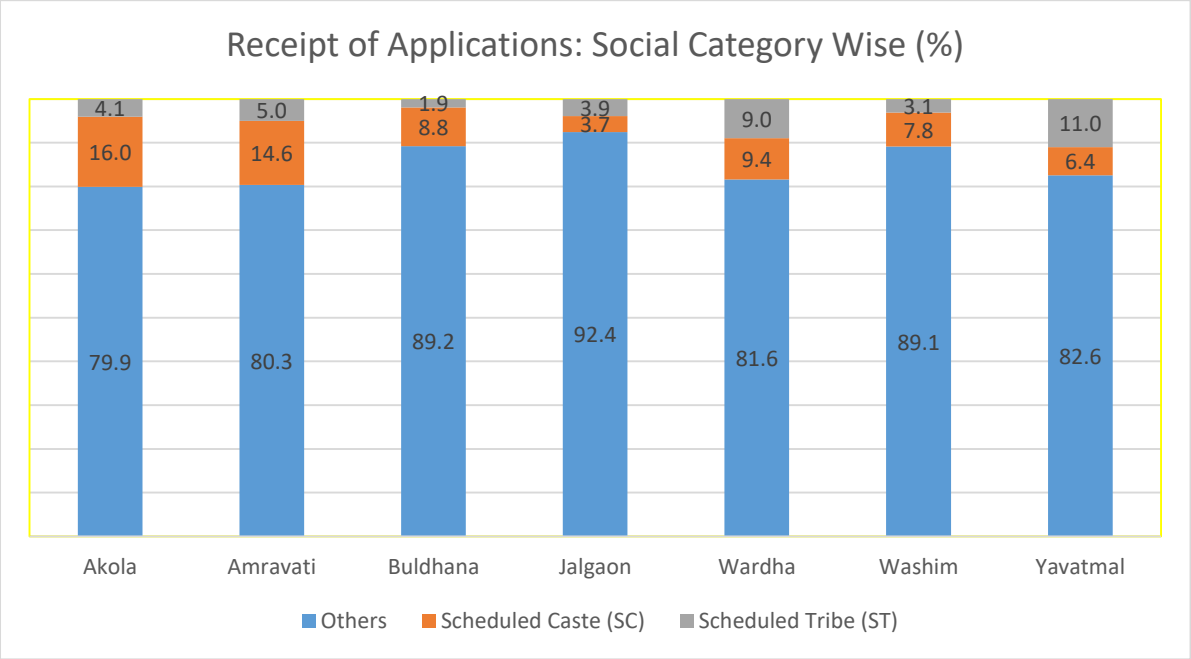


Figure 113: Social Category wise Activities Applied

The activity wise applicants i.e., the proportion of different social categories in total disbursements made showed that the proportion of disbursements is only 5% for STs. However, the proportion is relatively higher for the activities of Saline & Sodic lands (Farm ponds/ Sprinklers / Water pump/ FFS) (5%), Apiculture (10%), backyard Poultry (12%), FFS host farmer assistance / Promotion of BBF technology (12%), small ruminants (13%); wells (6.3%). Similarly, the proportion of Scheduled Tribes in total disbursements made showed that the proportion of disbursements is 9% though the proportion is relatively higher in the case of Backyard Poultry (26%), FFS host farmer assistance / Promotion of BBF technology (30%), small ruminants (27%), Saline & Sodic lands (Farm ponds/ Sprinklers / Water pump/ FFS) (9%); inland fisheries (10%); sericulture (10%), Polyhouse/Polytunnels (9%).

Disbursements

Disbursement Status

Out of 3,62,613 applications, disbursements have been made to 32,865 applicants constituting 9% of the total applications. Total amount disbursed is Rs. 8267.28 Lakhs. The proportion of disbursement to females is lowest in the districts of Wardha (13%), Washim (14%) and Yavatmal (17%) and highest disbursement to females was in Jalgaon (25%) followed by Akola

(20%).

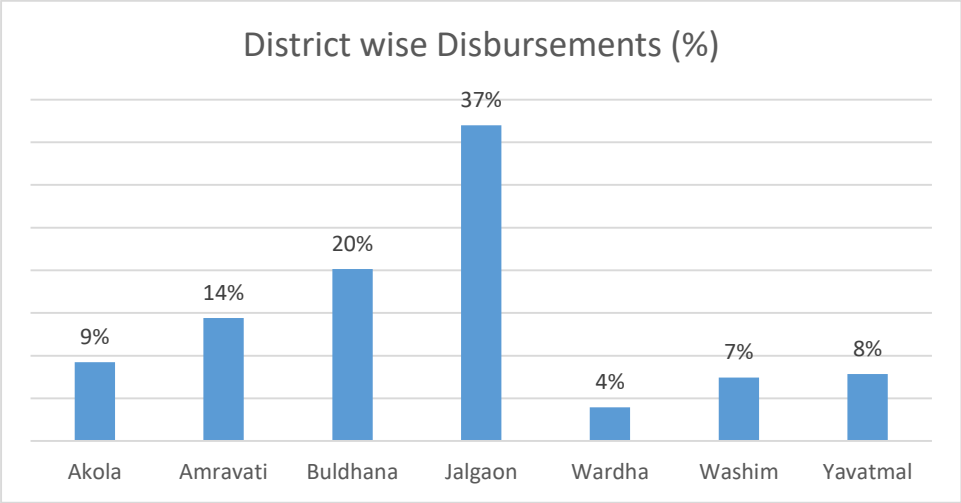


Figure 114: District wise Disbursements

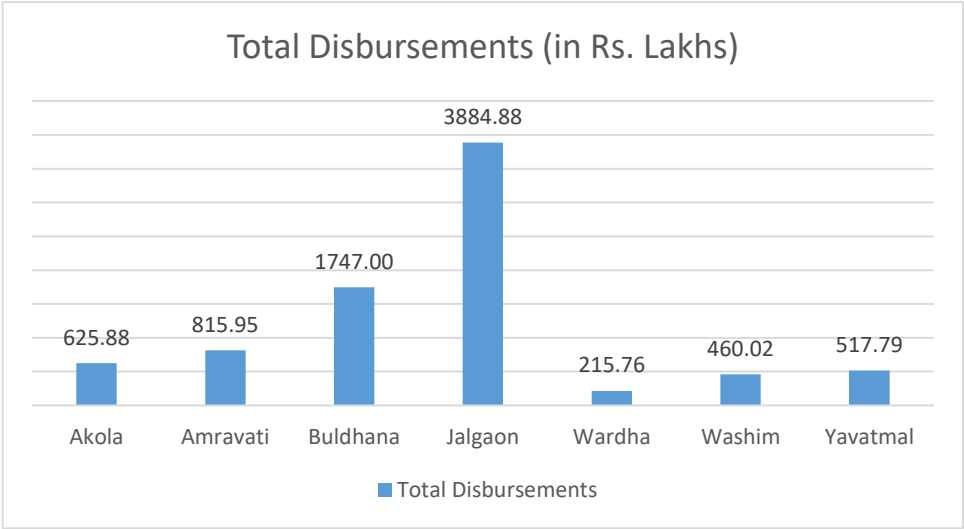


Figure 115: Total Disbursements

Activity wise disbursement status is presented in the figure below. Around 28% of the amount has been disbursed for Drip Irrigation (Rs. 2321.80 Lakhs), followed by Pipes-14.7% (Rs. 1223.19), Small Ruminants-14.79% (Rs. 1178.62), Water Pumps-12.37% (Rs. 1023.18

Lakhs) and Sprinkler Irriagtion-12.19% (Rs. 1008.20 Lakhs). Rest of the disbursements in activity was less than 10%.

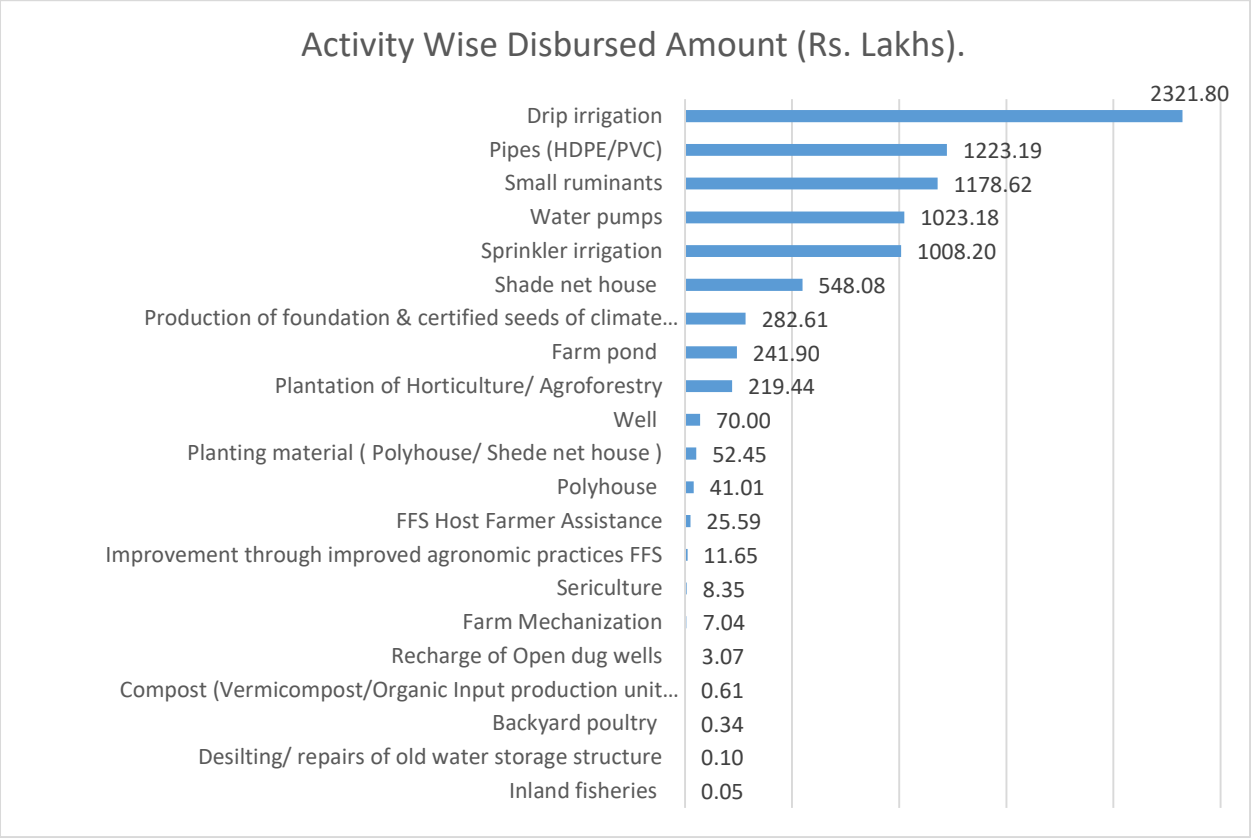


Figure 116: Activity wise Disbursement Amount

Gender wise Status

As per the data, 20% of all the disbursements in the rest of project area were made to female beneficiaries as compared to 80% to males. District wise disbursements showed highest in Jalgaon district for females (25%), followed by Akola (21%) and Amravati (18%) and Buldhana (18%). Yavatmal (16%), Washim (14%) and Wardha (13%) showed the least disbursements to female beneficiaries.

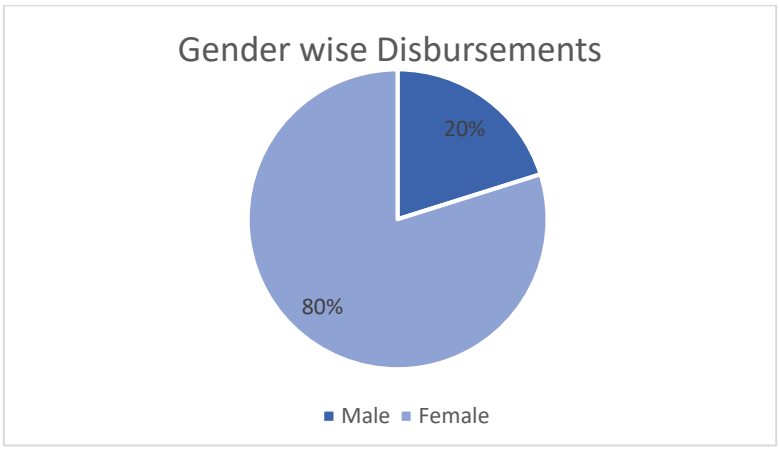


Figure 117: Gender wise Disbursements

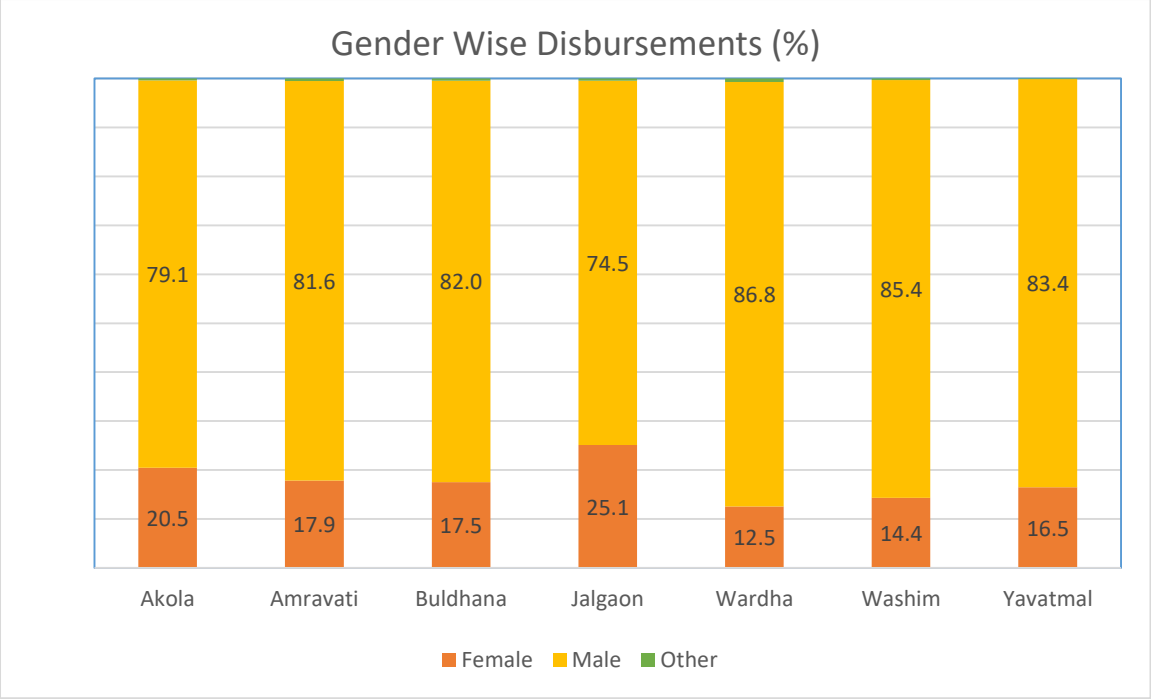


Figure 118: District wise Disbursements

Out of the total applicants, 8 percent were from Schedule Caste (SC) and 4% were from Schedule Tribe (ST) and the remaining 89% from other social categories. Further, the proportion of SCs in total disbursements is less than 10% in Jalgaon district (3%), Yavatmal (5%), Washim (7%). Similarly, the proportion of STs in registration is very low in the districts of Buldhana (1%), Washim (2%), Amravati (3%). The lower proportion of SC and ST categories in the total benefits needs special attention from the project.

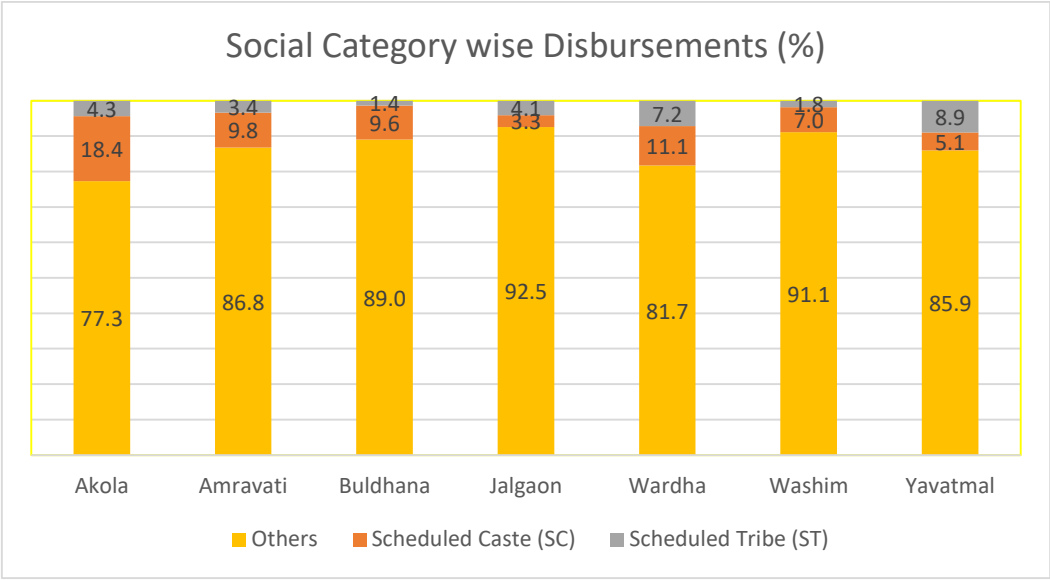


Figure 119: Social Category wise Disbursements

8.2. FFS MIS Data

Total Number of FFS Conducted

As per the MIS data, a total number of 4856 FFS were conducted in 2019 and 3454 in 2020 (till Sep 30, 2020). For 2019, highest number of FFS were conducted in Amravati (23%), followed by Akola (20%) and Buldhana (19%). Yavatamla and Jalgaon reported 14% and 13% of the total FFS conducted respectively. Washim (5%) and Wardha (4%) reported the lease number of FFS conducted. For 2020 also the pattern was similar as per the table below.

Table 18: Total FFS Conducted

District	FFS plot no. 2019				FFS plot no. 2020	
	Kharif 2019	Rabi 2019	Total	Percentage	Kharif 2020	Percentage
Akola	706	289	995	20%	775	22%
Amravati	768	361	1129	23%	765	22%
Buldhana	628	305	933	19%	677	20%
Jalgaon	448	202	650	13%	402	12%
Wardha	160	55	215	4%	152	4%
Washim	176	88	264	5%	211	6%
Yavatmal	460	210	670	14%	472	14%
Grand Total	**3346**	**1510**	**4856**	**100%**	**3454**	

For kharif season, crop wise data showed highest number of FFS conducted for Cotton (53.40%) followed by Soybean (41.49%) and Tur (2.50%). FFS for rest of the crops were less than 2% as per the table below.

Table 19: Crop wise FFS Conducted in Kharif Season

Crop Name	Kharif 2019	Kharif 2020	Total FFS	Percentage
Cotton	1728	1903	3631	53.40%
Soybean	1399	1422	2821	41.49%
Pigeon pea (Tur)	88	82	170	2.50%
Maize	99	31	130	1.91%
Others	32	16	48	0.71%
Total	**3346**	**3454**	**6800**	**-**

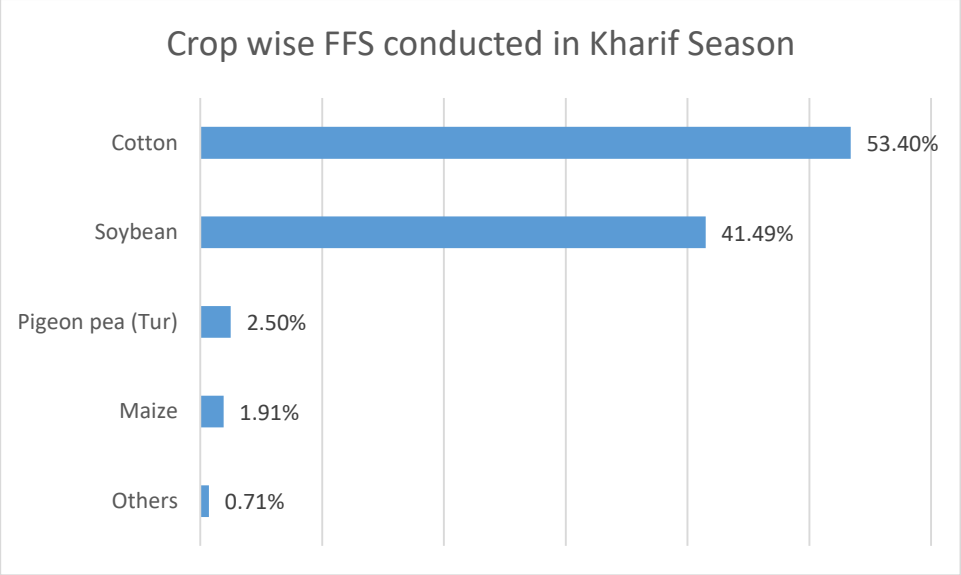


Figure 120: Crop wise FFS Conducted in Kharif Season

For Rabi season, crop wise data showed highest number of FFS conducted for Gram (95.56%) followed by Rabi Jowar (2.12%) and Vegetables (1.46%). FFS for rest of the crops were less than 1% as per the table below.

Table 20: Crop wise FFS Conducted for Rabi Season

Crop Name	Rabi 2019	Percentage
Gram	1443	95.56%
Rabi Jowar	32	2.12%
Vegetables	22	1.46%
Fodder Crop	9	0.60%
Wheat	4	0.26%
Total	**1510**	-

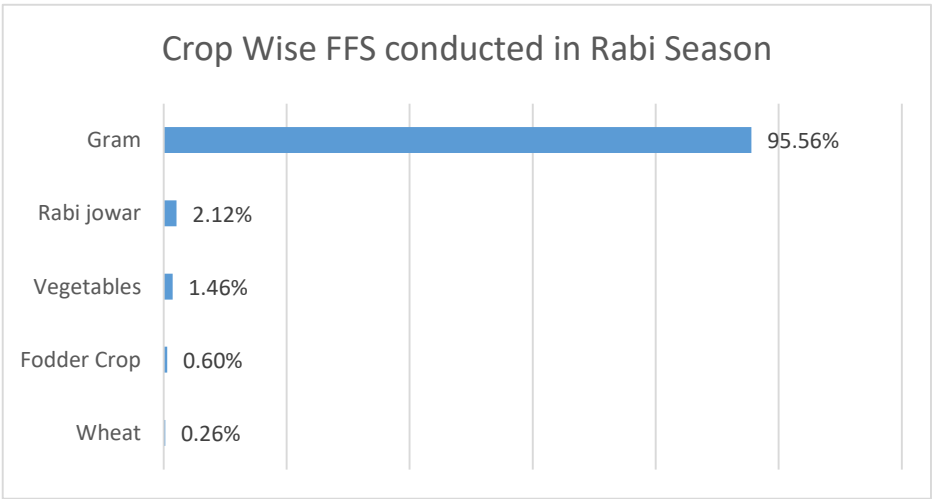


Figure 121: Crop wise FFS Conducted in Rabi Season

Yield Reported for FFS Plots

Yield data obtained for FFS plots for 2019 and 2020 was compared for both project and control plots. For 2019, the yield data for the plots is presented in the figure below indicating increase in yield in project plots over control plots in most of the cases in 2019. Maximum increase of 26% was reported in Black gram followed by 25% in Green gram. Cotton reported a 4% reduction in yield as compared to control plots.

Reasons for low productivity in cotton during 2019 can be:

Erratic rainfall during kharif 2019 which was coupled with the heavy rainfall spells resulting in stagnation of water in heavy black cotton soils (vertisols) during the month of August. This impacted the critical growth stage of crop i.e. flowering and bud formation.

Further, prolonged dry spell during October affected the boll development stage of cotton resulting in lower productivity. Prominent heavy infestation of pink bollworm spoiled the bolls and severely affected the cotton quality and yield forcing farmers to uproot the crop after first picking only.

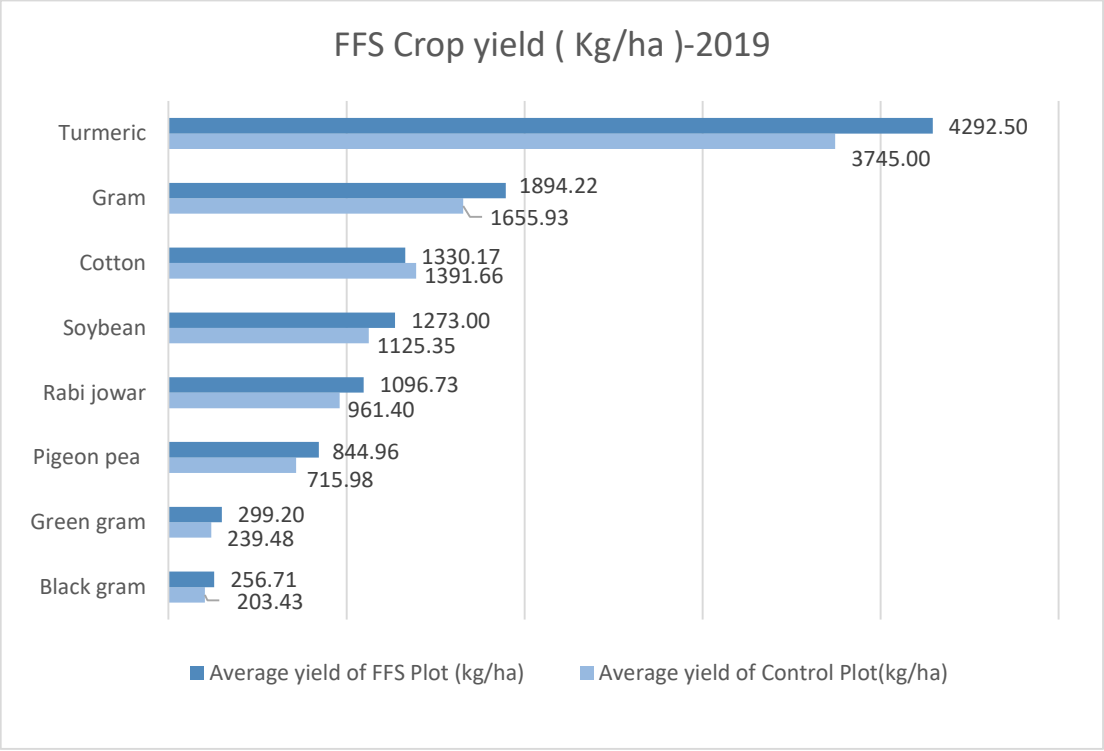


Figure 122: FFS Crop Yield (Kg/ha)- 2019

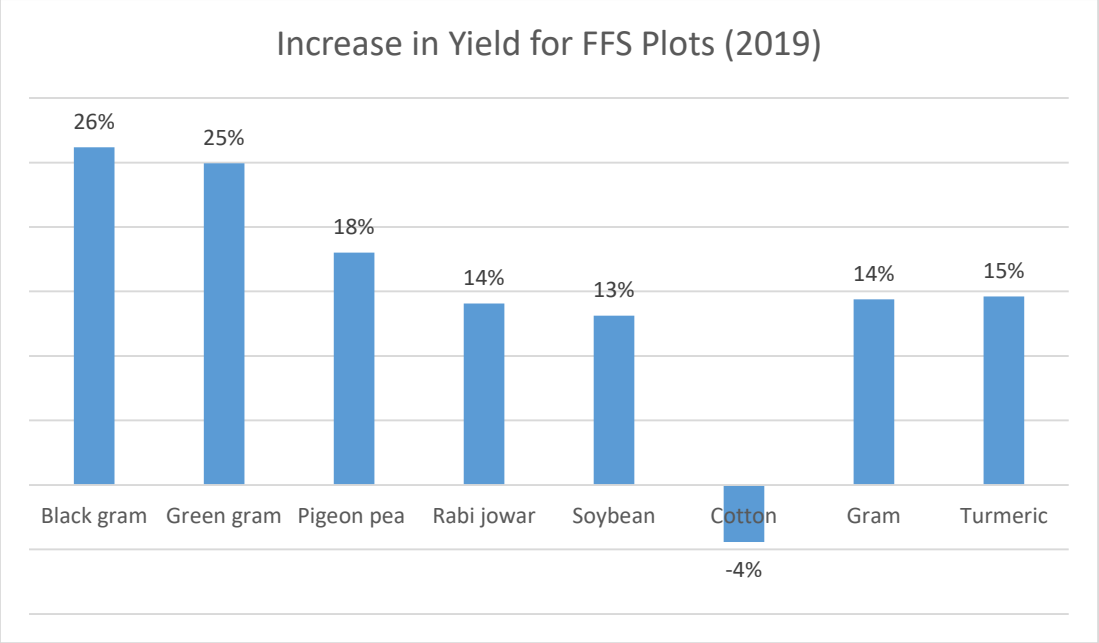


Figure 123: Increase in Yield for FFS Plots (2019)

Data for 2020 was taken till September 2020. As per the data, increase in yield for most of the crops was seen in 2020. Green Gram reported the highest increase of 28% followed by Black gram 27%. In 2020, cotton reported an increase in yield of 15% over control plots.

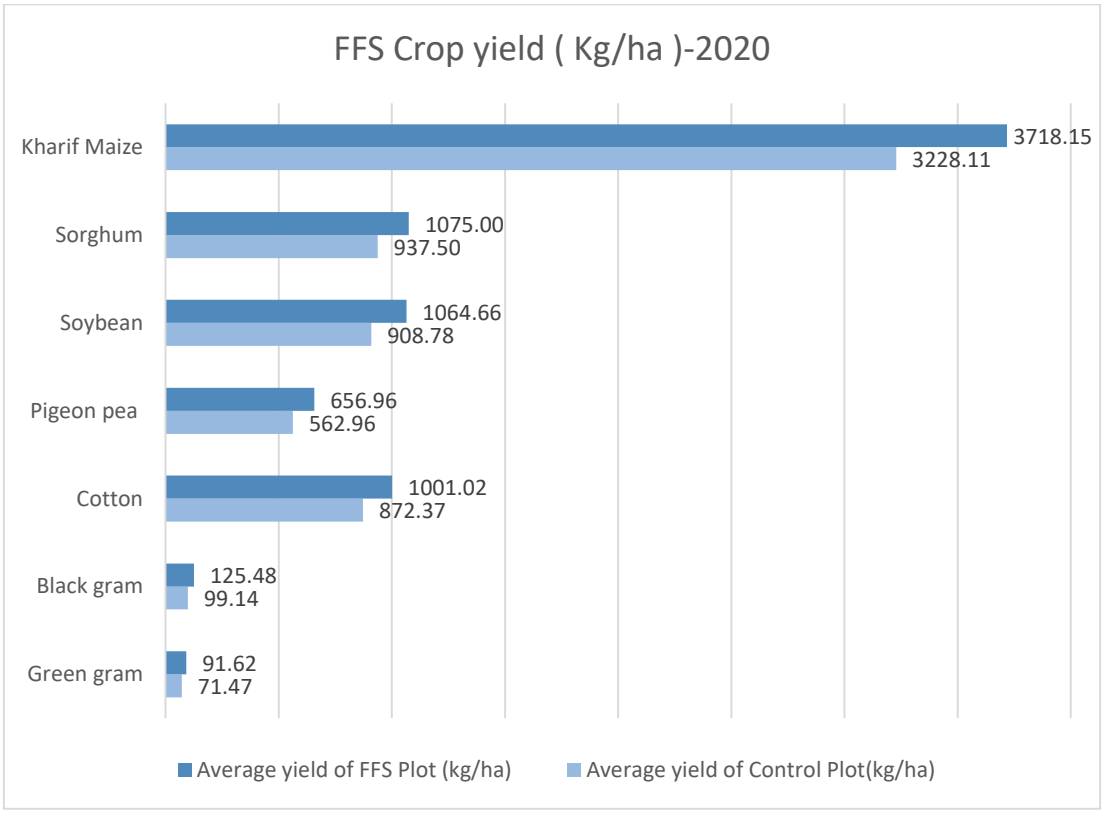


Figure 124: FFS Crop Yield (Kg/ha)-2020

Pigeon Pea and Soybean showed an increase in yield of 17%. Cotton, Sorghum and Maize reported an increase yield of 15% in FFS plots over control plots.

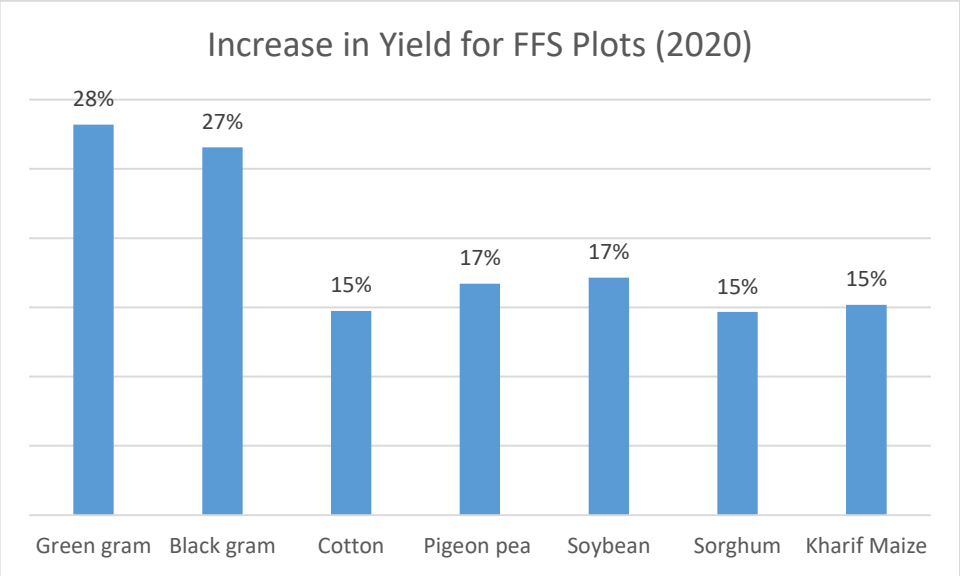


Figure 125: increase in Yield for FFS Plots-2020

Soil Testing done for FFS Plots

As per the Soil testing MIS data, 41.7% of the testing was done for Cotton plots followed by 34.7% for Soybean and 19.2% for Gram during FFS.

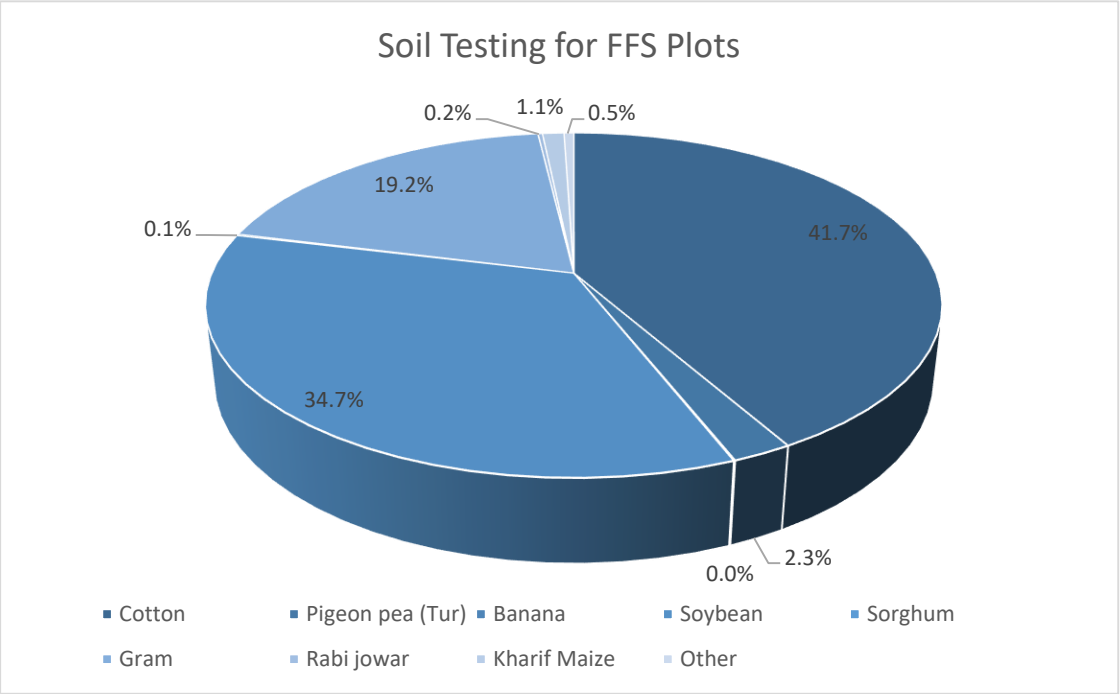


Figure 126: Soil Testing for FFS Plots

Seed Production of Climate Resilient Varieties

Seed production details of climate resilient variety season wise from 2018 to 2020 is shown in the table below.

Table 21: Seed Production of Climate Resilient Varieties

Crop Name	Variety	No. of Growers	Grower % crop variety
	Kharif 2018-19		
Black Gram	AKU-10-1, AKU-15, TAU-1,	68	9.7%
Green Gram	BM-2002-1, BM-2003-2, KOPARGAON, UTKARSHA	62	8.8%
Pigeon Pea	BSMR-736, ICP-8863, ICPL-87119, PKV TARA, VIPULA	38	5.4%
Soybean	JS-2029, JS-335, JS-9305, MACS-1188, MAUS-158MAUS-162, MAUS-71	531	75.4%
Jute	JRO-524	5	0.7%
	Total	**704**	
	Rabi 2018-19		
Gram	DIGVIJAY, JAKI-9218, PHULE VIKRAM, RAJ VIJAY, RAJ-202, RAJ-203, RAJVIJAY-202, RAJVIJAY-203, RAJVIJAY-204, VIJAY, VIRAT	424	86.0%
WHEAT	GW-496, HI-8663, LOK-1, LOK-2, MACS-6222PDKV-SARDAR, RAJ-4037	59	12.0%
IMP JOWAR	PKV-KRANTI	3	0.6%
IMP RABI JOWAR	REVATI	7	1.4%
	Total	**493**	
	Kharif 2019-20		
Black Gram	AKU-10-1, AKU-15, JS-335, MU-44, TAI-1TAU-1, UNNATI, VIJAY	220	11.2%
COTTON	AKH 081,RAJAT BT	6	0.3%
Green Gram	BM-2003-02, BM-2003-2, MAUS-158, MAUS-71, PKV-AKM-4PKVM-8802, UTKARSHA	169	8.6%
HY. COTTON	BN-1 BT	4	0.2%
JUTE	JRO-524	34	1.7%
LITTLE MILLET	Phule Ekadashi	1	0.1%
Pigeon Pea	BDN-716, BMSR-736, ICP-8863, ICPL-87119, PKV TARA	144	7.3%

Soybean	JS-2029, JS-335, JS-9305JS-93-05, MAC-S1188, MAUS -71,MAUS-158,MAUS-162,NRC-86	1382	70.3%
TIL	JLT-408	6	0.3%
	Total	**1966**	

	Rabi 2019-20		
Gram	PHULE SAMADHAN, DIGVIJAY, JAKI-9218, PHULE VIKRAM, RAJ VIJAY, RAJ-202,RAJ-203,RAJVIJAY-204, VIJAY, VIRAT , M-35 , Phule Revati	904	81.2%
Wheat	NIAW-1415, GW-496, HI-8663, LOK-1, LOK-2, MACS-6222,PDKV-SARDAR, RAJ-4037, Phule Netravati	124	11.1%
Jawar	PBN.MOTIPHULE ,REVATI , PHULE SUCHITRA, PHULE VASHUDHA	85	7.6%
	Total	**1113**	
	Kharif 2020 -21		
Black Gram	AKU-10-01, AKU-15, TAI-1	425	11.6%
COTTON	AKA-5, AKA-7, RAJAT-BT	7	0.2%
Green Gram	AKM-8802, BM-2003-02, PKVM-4, Utakarsha	481	13.1%
HY COTTON	AC-738 BT, BN-1 BT	4	0.1%
IMP COTTON	AKA-5, RAJAT BT	25	0.7%
Jute	JRO-524	185	5.0%
Pigeon Pea	BDN 716, , BSMR 736, ICP8863, ICPL 87119, MPV-106, P. RAJESHWARI, PKV Tara	262	7.1%
Soybean	JS-2029, JS-335, JS-9305,JS-93-05, MACS-1188, MAUS 158, MAUS -71,MAUS-162,MAUS-612,NRC-86	2256	61.4%
Til	JLT-408	28	0.8%
	Total	**3673**	

Area under Seed Production

Area under seed production for major crops is given in the figures below. Total area in Karif 2018-19 was 1860.4 Ha whereas in Rabi it was 1278.8 Ha. Majority of the area was under Soybean.

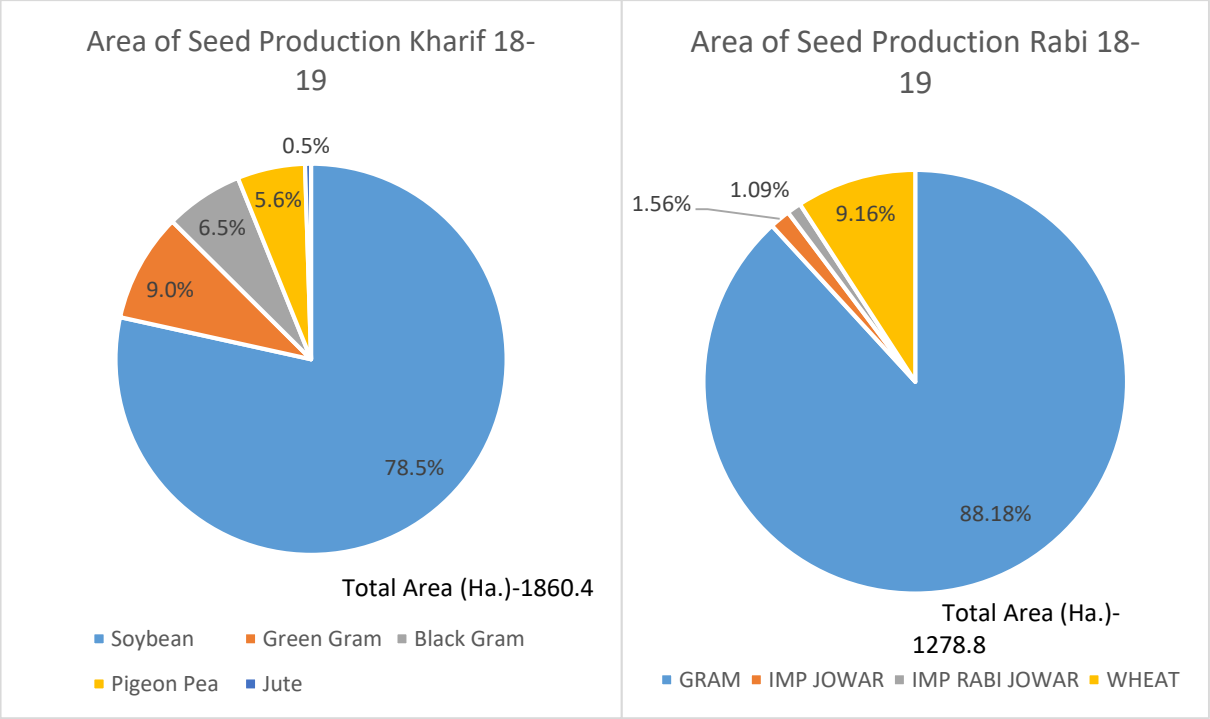


Figure 127: Area under Seed Production (2018-19)

Area under seed production for 2019-20 Kharif and Rabi season was 5177.09 Ha and 3375.68 ha respectively, signifying an increase of around 178% in Kharif and 164 % in Rabi season. This is possible due to the extensive awareness and project activities done as part of the project.

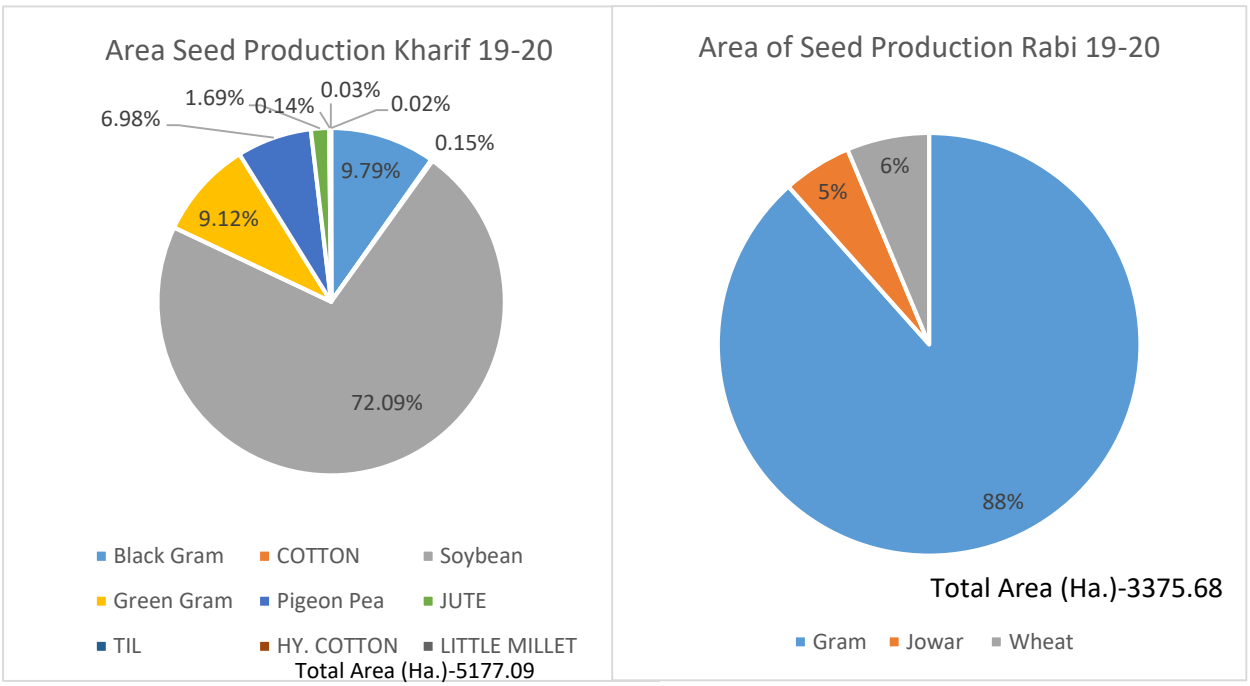


Figure 128: Area under Seed Production 2019-20

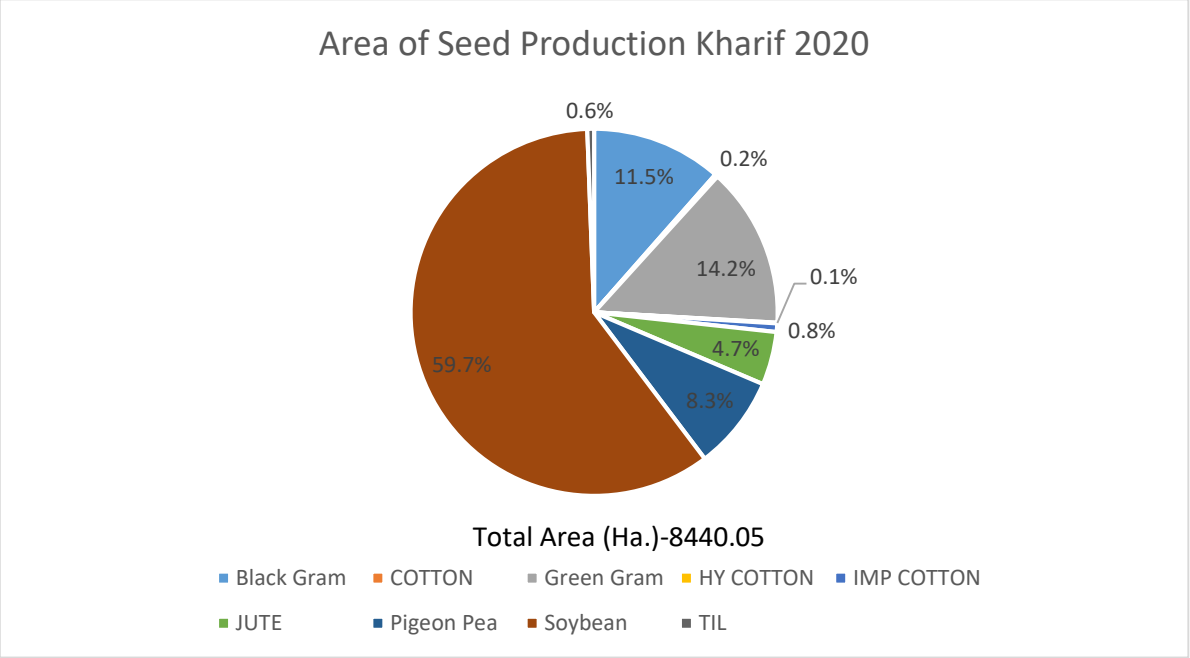


Figure 129: Area under Seed Production 2020 Kharif

Value of Soil Nutrient as per soil sample collected

Values	Akola	Amravati	Buldhana	Jalgaon	Wardha	Washim	Yavatmal
Average of pH	7.36	8.02	41.21	7.94	7.54	7.75	7.33
Max of pH	8.90	8.99	6050.00	8.76	7.81	8.85	8.48
StdDev of pH	0.60	1.06	449.16	0.76	0.09	0.84	1.58
Average of Electric Conductivity (EC)	0.33	0.52	0.51	0.31	0.57	0.61	6.55
Max of EC	2.03	35.00	9.00	3.36	5.00	0.99	347.00
StdDev of EC	0.29	1.49	0.96	0.32	0.31	0.33	39.48
Average of Organic Carbon(OC)	0.66	0.32	0.62	0.40	0.71	0.58	0.49
Max of OC	28.10	8.71	9.00	0.85	37.00	1.04	8.50
StdDev of OC	2.30	0.45	0.95	0.14	2.46	0.17	0.89
Average of Nitrogen(N)	68.17	21.92	156.43	66.09	360.07	141.00	144.43
Max of N	545.00	459.92	409.92	561.00	695.00	632.60	1680.00
StdDev of N	124.87	42.03	120.90	83.60	176.03	199.72	203.61
Average of Phosphorus (P)	41.30	27.00	15.43	19.54	34.15	19.85	34.39
Max of P	911.08	1488.00	146.93	81.25	122.54	249.47	727.00
StdDev of P	116.16	123.28	10.71	14.29	22.78	31.40	60.89
Average of Potassium (K)	723.27	888.68	579.19	580.58	745.73	491.66	356.01
Max of K	1870.90	2755.20	1177.60	971.67	1592.00	1510.20	35065.00
StdDev of K	343.81	432.64	196.46	224.37	326.64	296.78	1280.97
Average of Sulphur (S)	13.11	10.79	8.05	16.64	0.00	1.08	3.80
Max of S	70.40	703.10	27.62	507.80	0.00	6.80	355.00
StdDev of S	16.31	64.24	6.33	72.94	0.00	1.31	20.14
Average of Zinc (Zn)	2.44	1.08	1.04	0.90	0.41	0.71	0.96
Max of Zn	14.70	44.00	43.00	7.46	1.59	3.10	13.40
StdDev of Zn	4.06	4.34	3.31	0.82	0.24	0.52	1.95
Average of Boron (B)	1.87	0.09	0.69	2.12	0.00	0.74	0.47
Max of B	18.20	12.70	12.70	11.70	0.00	6.35	10.80
StdDev of B	2.95	0.83	1.74	3.09	0.00	1.06	1.40
Average of Iron (Fe)	2.95	0.72	2.64	6.70	1.67	3.08	0.82
Max of Fe	21.20	48.50	12.30	14.50	28.40	43.50	8.47
StdDev of Fe	2.92	2.76	1.83	3.28	3.57	5.91	1.51
Average of Manganese (Mn)	8.64	3.40	12.66	13.23	7.70	16.09	1.45
Max of Mn	19.50	43.80	80.50	33.00	21.70	87.30	19.40
StdDev of Mn	6.62	4.92	9.45	8.31	4.54	16.44	2.99
Average of Copper (Cu)	2.47	2.39	1.07	2.58	1.77	4.43	0.42
Max of Cu	15.90	68.00	9.00	6.50	14.40	12.20	9.00
StdDev of Cu	2.25	8.17	0.95	1.37	1.49	2.26	1.03

8.3. FPOs/SHGs

In this sub section, the status of support received by FPOs during the aforementioned period of concurrent monitoring is presented. The figure below highlights the number of proposals that were identified and pre-sanctioned.

The highest number of proposals were from Washim (13); out of which 11 were pre-sanctioned. The lowest number of identified proposals were from Jalgaon (2) and the lowest number of pre-sanctioned proposals were from Akola (2). In Jalgaon district, no proposal that were identified could be pre-sanctioned.

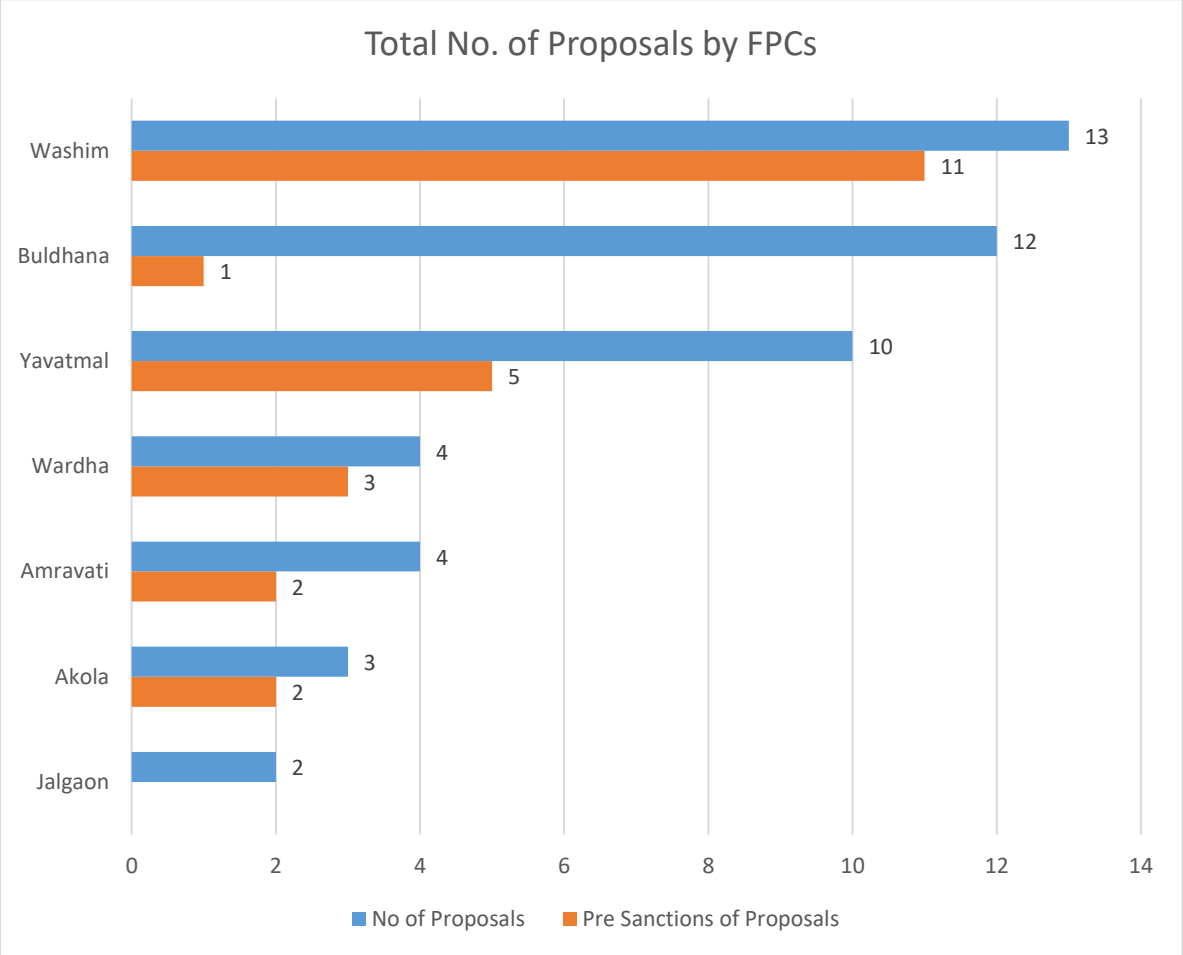


Figure 130: Total No. of proposals by FPCs

In this sub section status of support received by SHGs during the aforementioned period of concurrent monitoring. The figure below highlights the number of proposals that were identified and pre-sanctioned.

The highest number of proposals were from Akola (29); out of which 24 were pre-sanctioned. The lowest number of identified proposals were from Yavatmal (1) and the lowest number of pre-sanctioned proposals were from Amravati (1) and Yavatmal (1).

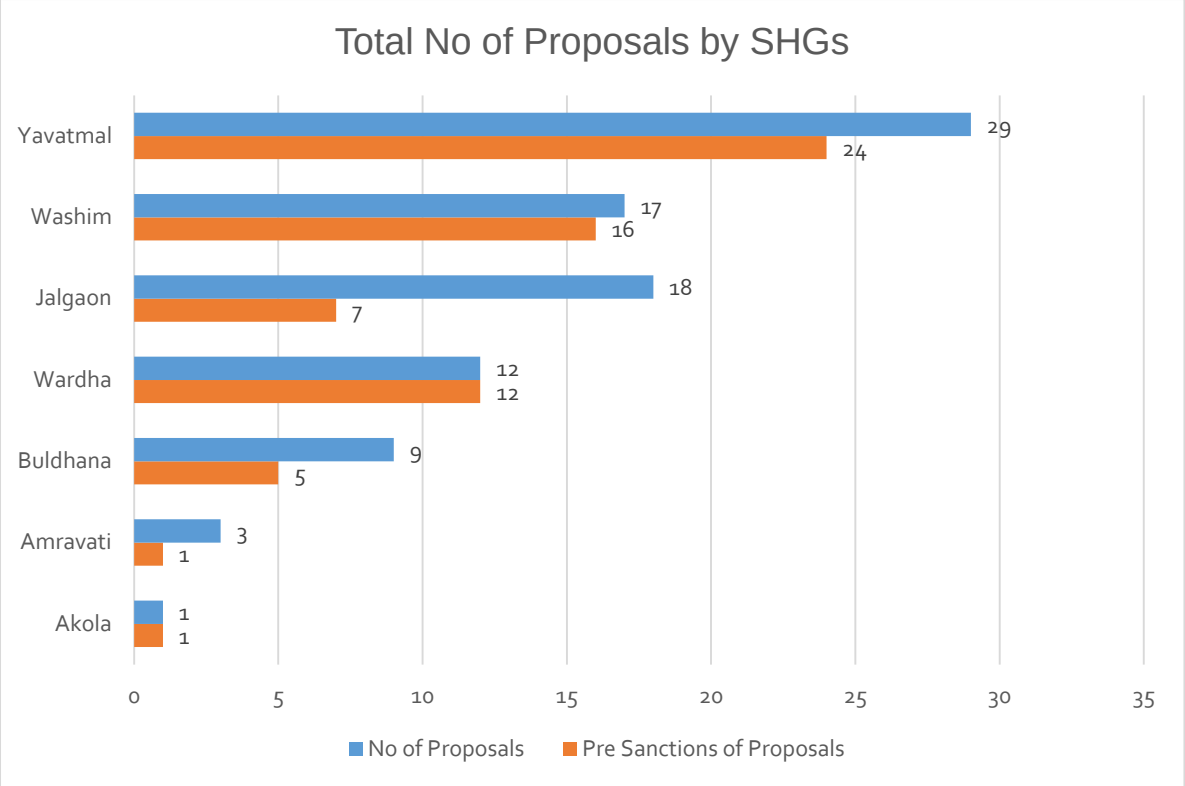


Figure 131: Total No. of Proposals by SHGs

It can be studied from the table presented below that a total of 24 FPOs and 66 SHGs were provided with pre-sanctions worth INR 1144.728 lakhs and INR 1215.32 lakhs respectively. The maximum amount and investment that was requested in case of FPOs was for setting up of Godown (Rs. 406.178).

Table 22: Total Proposals Pre-Sanctioned- FPCs

Type of Business Activity	No of FPOs (Pre-sanctioned)	Total Cost of Proposal Sanctioned (Rs. Lakhs)
Implement Bank	8	183.5
Godown	6	406.178
Grading Centre	2	57.1
Agriculture Processing	3	244.87
Other	5	158.73
Total	**24**	**1144.728**

The maximum amount and investment that was requested in case of SHGs was for setting up of Implement Bank (Rs. 873.06).

Other Business activities for which loan have been requested are Grading Centre, Dal Mill, Fruit Ripening Centre, Seed processing centre, Silage making and agriculture processing.

Table 23: Total Proposals Sanctioned-SHGs

Type of Business Activity	No of SHGs (Pre-sanctioned)	Total Cost of Proposal Sanctioned
Implement Bank	53	873.06
Godown	7	258.56
Dal Mill	1	14.99
Silage Making	3	48.72
Other	2	19.99
Grand Total	**66**	**1215.32**

8.4. VCRMC & Krushi Tai

In total, 1697 Gram Panchayats and 1653 VCRMCs were formed across 2514 villages. From the table below, it can be observed that majority of the VCMRCs (59.9%) and majority of the Gram Panchayat (58.45%) were formed in were formed in the Phase II.

Table 24: Status of VCRMC formed in Phase-I/II/III

S.N	Districts	Phase-I			Phase-II			Phase-III			Total		
		Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed
1	Akola	112	70	70	341	209	209	45	31	30	498	310	309
2	Buldana	121	97	97	275	200	200	45	34	26	441	331	323
3	Jalgaon	126	93	93	229	183	183	105	84	70	460	360	346
4	Wardha	39	19	19	71	35	35	15	11	11	125	65	65

5	Amravati	205	127	127	327	167	167	0	0	0	532	294	294
6	Washim	29	23	23	81	57	57	39	37	29	149	117	109
7	Yavatmal	76	50	50	195	141	140	38	29	17	309	220	207
TOTAL		**708**	**479**	**479**	**1519**	**992**	**991**	**287**	**226**	**183**	**2514**	**1697**	**1653**

It can be observed that Administrators have been appointed in 50.6% of the villages, highest appointment being in Yavatmal (80%) and lowest in Wardha (12.3%).

Table 25: Status of Appointment of Administrators

S. No	Districts	Villages	Gram Panchayat	Old VCRMC Status	Administrator appointed in total no. of GPs	% of GP in which Administrator appointed
1	Washim	149	117	109	**37**	31.6
2	Buldana	441	331	323	136	41.1
3	Yavatmal	309	220	207	176	80
4	Wardha	125	65	65	8	12.3
5	Amravati	532	294	294	187	63.6
6	Akola	498	310	309	110	35.5
7	Jalgaon	460	360	346	204	56.7
OVERALL		**2514**	**1697**	**1653**	**858**	**50.6**

8.5. Training and Capacity Building

Training of VCRMC members

The details of trainings attended by the VCRMC members is indicated in the Table below. In total 24997 members of 1459 VCRMCs had attended the training programme and livestreaming across the study districts. Of the total members who attended trainings, 53.3% were male and 46.7% of them were female members.

The capacity building of various stakeholders were conducted on the recommendation of a CENA (Capacity Enhancement & Need Assessment) report along with various training organized (Example Training on silage technology, BBF technology etc.)

The capacity building of VCRMC members were also conducted in series as orientation, refresher and advance cum workshops. The capacity building included training as well as exposure visits of VCRMC members.

Table 26: Training of VCRMC Members

Districts	VCRMC attended	Male	Female	Total	% of male of Total	% of Female of the total
Akola	277	2997	2117	5114	58.6	41.4
Amaravati	288	2109	1557	3666	57.5	42.5
Buldana	294	2938	2464	5402	54.4	45.6
Jalgaon	276	1990	1669	3659	54.4	45.6
Wardha	54	1267	1074	2341	54.1	45.9
Washim	81	1088	983	2071	52.5	47.5
Yavatmal	189	925	1819	2744	33.7	66.3
TOTAL	**1459**	**13314**	**11683**	**24997**	**53.3**	**46.7**

Training of other Stakeholders

Trainings were organized for different stakeholders, farmers, SHGs, FPOs, VCRMC members, Krushi Tai and others, under the Project. In total, 1836 trainings were organized for 11642 participants. Out of the total participants, 57.6% were male and 42.4% of them were female.

Table 27: Trainings attended by other stakeholders

District	No. of trainings	Male	Female	Total Participants	% of male of Total	% of female of the total
Akola	161	1760	802	2562	68.7	31.3
Amaravati	459	329	949	1278	25.7	74.3
Buldana	598	1066	468	1534	69.5	30.5
Jalgaon	146	383	358	741	51.7	48.3
Wardha	108	1524	661	2185	69.7	30.3
Washim	167	802	822	1624	49.4	50.6

Yavatmal	197	847	871	1718	49.3	50.7
TOTAL	**1836**	**6711**	**4931**	**11642**	**57.6**	**42.4**

Workshops Conducted

In total, 449 workshops were organized for 10270 participants. Out of the total participants, 67.3% were male and 32.7% of them were female.

Table 28: Workshops Conducted

District	No. of workshops	Male	Female	Total Participants	% of male of total	% of female of the total
Akola	4	100	55	155	64.5	35.5
Amaravati	74	207	1300	1507	13.7	86.3
Buldana	228	271	43	314	86.3	13.7
Jalgaon	100	2903	1209	4112	70.6	29.4
Wardha	10	889	83	972	91.5	8.5
Washim	8	1346	279	1625	82.8	17.2
Yavatmal	25	1196	389	1585	75.5	24.5
TOTAL	**449**	**6912**	**3358**	**10270**	**67.3**	**32.7**

Exposure Visits

In total, 54 exposure visits were organized for 647 participants. Out of the total participants, 57.3% were male and 42.7% of them were female.

Table 29: Exposure Visits

District	No. of Exposure visits	Male	Female	Total Participants	% of male of total	% of Female of the total
Amaravati	6	45	36	81	55.6	44.4
Buldana	34	203	149	352	57.7	42.3
Wardha	14	123	91	214	57.5	42.5
TOTAL	**54**	**371**	**276**	**647**	**57.3**	**42.7**

Online Webinars Conducted

Online webinars were conducted under the Project for Krushi Tai, FPO/SHG, Water Balance, FFS and for management of Saline Soils. Overall, 35387 participated in the webinars. Of the total participants, 57.8% were FPOs/SHGs, 21.7% of them were Krushi Tai, 11.7% of them were FFS coordinators and facilitators, and 0.6% of them were for management of saline soils.

Table 30: Online Webinars Conducted

S. No	Participants	No of participants	% of total
1	Krushi Tai	7662	21.7%
2	FPO/SHG	20445	57.8%
3	Water Balance	2945	8.3%
4	FFS	4125	11.7%
5	Management of Saline Soils	210	0.6%
	TOTAL	**35387**	**100%**

9. RFID Indicators for CM-II

Table 31: RFID Indicators for Concurrent Monitoring-II

PDO Level Indicators

S No (as per PAD)	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
5	**Direct project beneficiaries: number of farmers reached with agricultural assets of services** *Number of farmers reached with agricultural assets or services (% of female)*	*This indicator measures the number of farmers who were provided with agricultural assets or services as a result of project support.*	• The list of total beneficiaries under the project in Rest of Project area is taken from the MIS data till Sep 30, 2020 • For DBT beneficiaries, FFS beneficiaries (HF & GF), Training/Exposure visits conducted • Out of this, total female beneficiaries are filtered and % is calculated accordingly	Semi Annual	**Overall: 3, 70,623 (Females-19%)** • Total DBT Farmers: 24,260 (Females-21%) • Total Host Farmers: 8562 (Females- 10%) • Total Guest Farmers: 1, 97,935 (Females-12%) • Total Participants in trainings/exposure visits: 1, 39,666 (Females-29%)

Intermediate Outcome Indicators - Component A: Promoting Climate-resilient Agricultural Systems

No	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
6	**Farmers adopting improved agricultural technology** *Farmers adopting improved agricultural technology promoted*	*This indicator measures the number of farmers who have adopted an improved agricultural technology promoted by activities supported by the project*	• The calculations are done from the primary data captured through beneficiary questionnaire in Project & Control Villages • Adoption of at least one of the improved agriculture technology is considered including Intercropping, IPM, Seed Treatment, Vermi-Composting, Contour Bunding, Adoption of Micro-Irrigation & Use of BBF/other technology • Total of the technology adopted is calculated and % calculated with overall total beneficiaries surveyed	Annual	**P-52%, C-75%** *(These results are based on field survey in 32 project & 16 control villages)*
7	**Improved water-use efficiency at farm level** *Area provided with new/improved irrigation or drainage services (in ha)*	*This indicator measures in ha the total area of land provided by the project with new or improved irrigation or drainage services*	• The list of Activity under Improved water-use efficiency (Sprinkler, Drip, Pipes, Water Pumps, Farm Ponds, Wells & Recharge Structures) activity under the project is taken from the MIS data till Sep 30, 2020 • For Sprinkler & Drip Irrigation, the maximum area mentioned under the activity is taken	Annual	**Total Area- 27,751.8 ha** • Area under Sprinkler: 7823.4 ha • Area under Drip: 5611.4 ha • Area under Water pump & sprinkler: 399 ha • Area under Pipes: 6676 ha • Area under pumps: 7041 ha • Area under farm ponds: 138 ha • Area under well & recharge structure: 63 ha

No	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
			• For Pipes, Water Pumps, Farm Ponds & Well Recharge, an area of 1ha has been assumed • Total area under all the above activities mentioned is calculated		
8	**Improved availability of surface water for agriculture** *Surface water storage capacity from new farm and community ponds (in 1,000 m3)*	*This indicator measures the surface water storage capacity created with to project supported farm and community ponds.*	• The list of individual new farm ponds constructed under the PoCRA project is taken from the MIS data till Sep 30, 2020 • Volume for total 83 farm ponds & 55 community farm ponds was calculated individually as per the standard guidelines under PoCRA • Total volume was taken as the Storage Capacity under new & community farm ponds created	Semi Annual	**Total Storage Capacity under new & community farm ponds: 475.7 (1000 m^3)** Storage Capacity under New Farm Ponds: 131.75 (1000 m^3) Storage Capacity under Community Farm Ponds: 344 (1000 m^3)
9	**Enhanced Soil Health at Farm Level** *Area with GAPs for improved management of saline and sodic soils (in ha)*	*This indicator tracks the farm production area in ha where Good Agricultural Practices (GAP) are applied by*	• The list of saline & sodic activities under the PoCRA project is taken from the MIS data till Sep 30, 2020 • In Saline & Sodic villages, GAPs are taken as FFS Conducted, Drip, Sprinkler, Farm Ponds & Water Pumps	Semi Annual	**22,778.88 ha**

No	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
		farmers for improving management of saline and sodic soils in project villages	• For Sprinkler & Drip Irrigation, the maximum area mentioned under the activity is taken • For Pipes, Water Pumps, an area of 1ha has been assumed • Total area covered under the above activities is taken as the GAPs adopted in Saline & Sodic Villages		

Intermediate Outcome Indicators -Component B: Climate-smart Post-Harvest Management and Value-chain Promotion

No	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
10	**Seeds supply: Promotion of climate resilient crop varieties** *Oilseeds (soybean), Pulses (pigeon, chickpea) production area under cultivation w/ certified seeds of improved varieties (Share in %)*	*This indicator measures the share of production area in the project with oilseeds and pulses that is cultivated using certified seeds of improved varieties.*	• The calculations are done from the primary data captured through beneficiary questionnaire in Project & Control Villages • Area under Climate Resilient Variety for three major crops (Chickpea, Pigeonpea & Soybean) is determined from total responses • Total area under the three crop is taken • % is calculated by dividing (Area under Climate Resilient Variety/Total Area under the three Crop)	Annual	**Soybean** P-88%, C-85% **Pigeon pea** P- 71%, C-91% **Chickpea** P-79%, C-76% *(These results are based on field survey in 32 villages)*

No	Indicator(s)	Definition	Methodology	Frequency of Measurement	CM-II Value (till 30th Sep 2020)
14	**Number of approved participatory mini watershed plans implemented**	This indicator reports the number of approved participatory mini watershed plans implemented	• The list of CDPs & VDPs approved under the PoCRA project in Rest of Project area is taken from the MIS data till Sep 30, 2020 • The data is taken for Phase-I villages where Micro-planning has been completed	Semi Annual	**No. of Approved Participatory mini watershed plans: 68** (Total 687 villages as part of Phase-I)

Annexure-I: Detailed Observations & Recommendations from Experts' Visit

Project Specific Observations from the CM-II Survey

1. Farmers had basic awareness about PoCRA Project. However, they stated that they would be benefitted more if they were provided with awareness on project activities, especially under DBT.
2. In Shivar village, the farmers were unaware about institutional bodies like VCRMC and their roles & responsibilities
3. The VCRMC members are meeting once in a month. Cluster assistant is keeping records of the VCRMC meeting.
4. The details of receipt of applications from beneficiary, online registrations, pre-sanction details and DBT executed under the project etc. is recorded in a register by cluster assistant and taking the signatures of the VCRMC members.
5. The beneficiaries who could complete the activity were satisfied with the project because subsidy amount was released on time.
6. Due to financial crisis, farmers have not implemented the activities though they have been given pre-sanction.
7. Most of the farmers are of small and marginal. Due to lack of finances, they are not able to purchase the materials and then apply for the disbursement.
8. Some of the activities like wells, pipes and motor pump are currently kept on hold.
9. Rain Water Harvesting Structures like dug wells, Farm ponds and community ponds are used as rainwater harvesting structures and irrigation. Farmers have applied for dug wells but the activity has been currently put on hold.
10. Construction of farm ponds and community ponds have not commenced, as observed in some villages.
11. It was informed that neelgais and deer from nearby forest areas attack the fields during nights and destroy the crops. This loss is approximately 20-25%.
12. Pest infestation in Cotton crops (Pink bollworm, red bugs, Aphids) and blight in Tur at flowering stage due to untimely rainfall was observed
13. The farmers informed that they sowed BT Cotton seeds, which is claimed to be bollworm resistant. Despite this, the pink bollworm attacked and they have to use pesticides and yield is lesser.
14. Most of the farmers had stopped cultivating oilseeds due to animal attacks
15. Pheromone traps and lights traps have been taken up by farmers as a measure to mitigate losses due to pests

16. Most farmers have not mechanized harvesting since intercropping disables it. Even sowing activity is not mechanized due to unwillingness amongst farmers to change their method.
17. Some of the farmers reported to be applying Gypsum as a measure of 'Soil Treatment'. Around 150 kg/acre of gypsum is applied. However, it is expensive for farmers, hence; mainly large farmers had taken it up.
18. Some of the farmers had been burying the waste after crop cutting into the soil to fill the gaps
19. Farmers reported that no storage facility was available due to which agriculture produce was being wasted.
20. Most of the families were interested in taking up dairy related enterprise/activity. However, due to lack of financial assistance/support and technical knowledge, they were unable to take it up.
21. It was reported that goats were being provided under the project to the 'landless' category. Due to the activity, income of landless has significantly increased. Farmers demanded that this activity should be continued.
22. Most of the farmers were not using safety process or kits while application of chemical fertilizers, pesticides, etc.
23. Some of respondents had stated that they have been using chemical fertilizers since pheromone traps are not easily accessible and expensive. However, since most of the farmers do not use it, pests attack from nearby fields.
24. Basic level training programme for SHGs had been conducted in which information regarding the following was provided

- Member selection
- Passbook keeping
- Record keeping
- Minutes recording
- Attendance recording
- Some of the women had taken up economic activities through loans from internal lending. The activities involved in were tailoring, agriculture, etc.

25. FFS for Cotton, Soybean, Tur and Gram was conducted under PoCRA. The topics covered in the FFs were Seed treatments, IPM and INM, cultivation practices. Most of the farmers had taken up seed treatments post FFS.

26. Micro planning under the project has not taken up in some of the villages.
27. As per the Agricultural Assistant (AA) in Gaiwal Village,Washim district, micro planning was done two years ago. Works for Catchment Area Treatment and Drainage Line Treatment included in the DPR are Deep CCT (in 23 hectares), Earthen Bundh, Cement Nallah Bundh (4 No), Nala Deepening (12 Places), Rain Water Harvesting Structures (44 No), Farm Ponds (4 No), Guide Bundhs, Plantation - horticulture (26 hectares) and Sprinkler Sets (52 Sets).
28. These Construction works are to be completed before 31.05.2021. As per the AA, Plantation in 8.60 hectares have been completed and 26 No sprinkler sets have been given to the farmers. However, construction works for Catchment area treatment and drainage line treatment have been delayed due to lockdown.
29. Complete set of Pipes, Pump and Sprinkler Set and Electricity Connection not available simultaneously. Farmers have to lay pipes from the irrigation pond to their farms. The department gives subsidy to farmers for laying pipes, motor pump and sprinkler system. It was informed that two farmers had received pipes for sprinkler system. However, they received the pipes for laying from pond to their farms later on, when other farmers from whose fields they have to lay the pipeline, have sown their crops. Now they can lay the pipes from the pond to their respective farms after harvesting of crops. The visiting team was shown the pipes lying at their houses.
30. Further getting an electricity connection is also time consuming. If a farmer does not get the connection until the pipes are laid, he will not be able to use the water and sprinkling system.
31. There is a proposal for construction of a 336 MT capacity godown. For its construction, a subsidy of 60% is available. As per the AA, Department can provide maximum of 36 Lakhs subsidy and the balance amount is to be contributed by the farmers. This activity has not commenced.
32. There is a proposal to construct 4 No community ponds. These are yet to be constructed.
33. Progressive Farmers have planted lime, orange, custard apple, ber and mango trees as per practices followed by Israel viz lesser spacing of plants and micro irrigation.
34. A progressive farmer was visited by the team. He has planted lime and orange plants and is growing intermixed crops along with plantation and also growing crops / plantation on the bundhs. Drip irrigation is used for horticulture plants.

35. Further, he has installed solar panels for generating electricity and running of pumps. He has a dug well for irrigation and rain water harvesting. He had a nursery of plants and these plants are sold to other farmers. All agricultural waste from the field is collected at one place and converted into bio- compost. Such farmers have created examples by using environment friendly agricultural practices and received profits from the agriculture.
36. It was informed that there is proposal to dig 100 farm ponds in each village of Akola district. These farm ponds will be used for rainwater harvesting and water so collected will be used for irrigation. It was intimated that the Agency to execute the work has been finalised. This work has not commenced on ground
37. FFS was sanctioned and field demonstrating was conducted for Cotton and Soybean in the village.

- For Cotton, FFS demonstration was conducted for integrated pest management, use of Pheromone traps. Cottonseed varieties including Raasi-659, Ankur-3028 was used in the farm field school. Ten to Eleven farmer had adopted the variety.
- The expected yield of cotton from the seed variety is 11 Quintal per acre. However, the yield was between 2 to 3 quintals per Acre. The yield in the FFS was also affected because of pink bool work.
- In the Soyabean FFS, the use of Broad Based Furrow method of cultivation was demonstrated.
- The seed varieties including JS-335, JS-9305 was used in the farm field school. However, had to be abandoned midway because of heavy rain during the harvest season.

38. Amadi Villages in Yavatmal district has 15 Self Help Group. Interactions were done with two of Groups.

- One of the group has 9 members and the other has 11 members. Both the group are more than 5 years old.
- One of the SHG group has a credit limit of Rs.1.0 Lakh and the other group has a credit limit of Rs.3.0 Lakhs.
- One of the two groups wanted to start non-farm based livelihood (saree business). They want to procure saree from Surat town and sell in their village and the neighboring village. They had
- Approached the local branch of Bank of Maharashtra for enhancing the credit limits but their request for higher amount of loan was not approved.

39. A farmer Shri Pradeep Yaswantrao Bhagat has 6 Acres of land and also leased-in 4 acres of land. He has grown 4 acres of Cotton, 1 acre of Pigeon Pea, 2 acres of Soyabean and 4 acres of Chick Pea. He had applied for sprinkler irrigation system plus motor pump and got his pre-sanction. He had purchased Motor pump (from a dealer of KRL company) and sprinkler set (from dealer of Premier company) (Rs. 58,000/-) and paid for Electricity Connection (Rs. 7,000/-) in August 2020 and received Rs. 32,000/- subsidy amount in December 2020. He is yet to install and run the sprinkler because electricity connection is yet to be sanctioned by the department to the farmer

Project Specific Recommendations from the CM-II Survey

1. Many of the farmers have registered for dug Wells construction as part of the PoCRA project. However, the activity has been kept on hold. The open dug wells are also used for rain water harvesting. Since the provision exist and if found feasible, construction of open dug wells and farm ponds may be allowed with the condition that irrigation should be done through Drip / Sprinkler Irrigation only.
2. Extension of Time for Construction of Works of Catchment Area Treatment and Drainage Line Treatment: All efforts should be made to complete the NRM works within the scheduled time. In case it appears difficult to complete the works within time, requisite time extension may be sought from the concerned authorities well in advance.
3. Installation of Fencing. High fencing with or without electric current can be installed around the forest boundary or the cluster of farms (as may be economical) to avoid entry of wild animals into farms and subsequent damage to the crops during night.
4. Support of Agricultural Department for Planting Fruit Trees. Agriculture Department may identify the other fruit varieties suitable for black cotton soil and light soil and local climatic conditions. Suitable fruit varieties may be recommended to the farmers and necessary guidelines may be given to plant the same. This may be helpful in progress of the farmers.
5. Showcasing Success Stories of Farmers adopting new technology and Environment friendly agriculture. Further, the success stories of farmers who have already adopted new technologies and environment friendly agriculture should be shown to other farmers. This would inspire them to adopt new technologies.
6. Use of Biofertilizers / Vermicompost. Since a lot of farm waste and animal dung is available, there is a need to properly educate the farmers to convert this into biofertilizers. This will reduce their expenses on chemical fertilizers.

7. Use of Solar Power. As electricity is available for lesser time, the farmers should be briefed about the solar power and schemes available for installing solar power at subsidized rates.
8. Reduction in Post Harvesting Losses. Post harvesting losses shall be reduced. Suitable storage structures / warehouses shall be constructed in / near the villages to store the grains.
9. Helping Farmers through Knowledge and Finances. It was observed that small farmers cannot get the full benefits of the project as either they do not know the total facilities available in the project or due to lack of funds to be invested before getting the available subsidy. Medium and big farmers may have sufficient money and hence can choose the scheme and invest from their own resources. They can afford to get the subsidy later on, whereas small farmers cannot do so. Accordingly, complete information of the project components be given to the farmers so that they can choose the suitable component. A cooperative bank or financing institute may be roped in to help them for getting finances. This way small farmers too can get the full benefits of the Project.
10. Training / Interaction with Farmers. There is need to provide training / interaction with the farmers to apprise them about the Project, its components, various schemes regarding saving of water and energy, drip irrigation, sprinkler irrigation, solar power, bio fertilizers, soil health card, etc.
11. Dairy related activities can be promoted under the project. Initiative for development of veterinary services or para-vets can be taken up. Convergence with Department of Animal Husbandry and Dairy Development Department can be done to support the dairy sector
12. The District Agriculture Officer stated that skill development trainings and capacity building exercises might be taken up so that goat rearers can get supplemental income.
13. If provided with support for pheromone traps, farmers had responded that they would stop using chemical fertilizers
14. Electricity Connections may be expedited. Department officers can liaison with Electricity Department officers to provide the electricity lines and connections to their fields. Otherwise, farmers will not be able to use pumps and sprinkler / drip irrigation from their farm ponds.
15. Use of Solar Power. Farmers should be briefed about various schemes of state and central government available for installing solar power at subsidized rates.
16. Scientific storage practices may be taught as part of farmer training programs and farm field school.
17. Warehousing capacity at the level of block or at the PACS level may be enhanced.

18. The existing Cluster Assistant (CA) is reported to be covering 12 villages and is visiting the village once in a fortnight. There were complaints of non-availability of the CA by the villagers. Ways of reducing the workload of the Cluster Assistant may be looked into.
19. Lack of information about why the applications were not sanctioned is noticed. Many of the applications relate to support from project for digging wells in their fields.
20. Getting connection for electricity from the electricity department is reported as a constraint. Needs support from the project for facilitating the same from electricity department.
21. There was lot of demand from villagers for financial support for digging of wells in their farms. Many of the application for support are pending clearance. This issue was raised by households during interactions with a request to clear the pending applications.
22. Strengthening of VCRMC through training programs and involvement of members in the decision-making processes relating to identification and selection of beneficiaries may be considered.
23. In the absence of FPO/FPCs from the village, formation of commodity interest groups/Farmer Interest Groups may be considered.
24. The FFS coordinator has reported that the machinery required for promoting BBF was not currently available in the village and provision of same will strengthen the demonstration on usefulness of the method to farmers.
25. Strengthening of VCRMC through training programs and involvement of members in the decision-making processes relating to identification and selection of beneficiaries may be considered.

Annexure-II: List of Project & Control Villages Surveyed

List of Project Villages

Sl No	District	Taluk	Village	CenCode	Cluster Code	Index	Phase	Kharpan
1	Buldana	Khamgaon	Nagapur	528878	500_ptmb-1_01	0.60609775	1	No
2	Buldana	Shegaon	Machhindrakhed	528407	500_ptgid-1_01	0.50169275	1	Yes
3	Jalgaon	Parola	Kolpimpri	527568	499_te-43_02	0.62547025	1	No
4	Wardha	Arvi	Dighi	533827	504_wr-27_01	0.57005524	1	No
5	Akola	Akola	Sanglud Kh	530057	501_pt-18_04	0.58862824	1	Yes
6	Akola	Patur	Malrajura	530425	501_ptr-3_04	0.53174124	1	No
7	Amravati	Chandur Railway	Kawtha Kadu	533221	503_wrbk-2_02	0.6356335	1	No
8	Buldana	Chikhli	Ancharwadi	529220	500_gp-7a_03	0.56105475	1	No
9	Buldana	Shegaon	Khatkhed	528415	500_ptm-1_04	0.50917275	1	Yes
10	Washim	KARANJA	Gaiwal	530988	502_pga-2_03	0.551977	1	No
11	Yevatmal	Kalamb	Wandli	542257	510_wr-2a_01	0.51597224	1	No
12	Jalgaon	Muktainagar	Kund	527029	499_pt-13_02	0.54267525	2	Yes
13	Wardha	Seloo	Shivangaon	534039	504_wrw-3_02	0.60679924	2	No
14	Yevatmal	Ghatanji	Amdi	543349	510_pgw-5_01	0.48356824	2	No
15	Yevatmal	Umarkhed	Limgavhan	542964	510_pg-2_04	0.50676224	2	No
16	Akola	Akola	Wairat Rajapur	529976	501_pt-18_01	0.47493724	2	Yes
17	Akola	AKOT	Asegaon Bajar	529794	501_ptsp-1_05	0.55087124	2	Yes
18	Akola	Murtizapur	Sultanpur	530293	501_ptu-2_02	0.56583024	2	Yes
19	Amravati	Anjangaon	Malkapur Kh.	531841	503_ptc-2_02	0.5720645	2	Yes
20	Amravati	Bhatkuli	Umartek	532744	503_pt-20a_02	0.5964445	2	Yes
21	Amravati	Daryapur	Ghada	532953	503_ptcs-2_01	0.5752505	2	Yes
22	Amravati	Daryapur	Shiwar Bk.	532937	503_ptc-3_02	0.6167745	2	Yes
23	Buldana	Lonar	Jambul	529578	500_gp-4a_03	0.52212075	2	No
24	Buldana	Nandura	Palsoda	528484	500_pt-16_01	0.52022775	2	Yes
25	Buldana	Sangrampur	Niwana	528352	500_pt-10_06	0.48822275	2	No
26	Jalgaon	Bhadgaon	Vasantwadi	527677	499_te-32_02	0.62254625	2	No
27	Jalgaon	Chalisgaon	Dasegaon Bk	527739	499_te-51_02	0.60564525	2	No
28	Jalgaon	Erandol	Kharchi Kh.	527267	499_te-26_03	0.56984925	2	No
29	Jalgaon	Muktainagar	Umare	527001	499_pt_01	0.56021625	2	No
30	Jalgaon	Raver	Chorwad	526881	499_te-2'_03	0.44837625	2	No
31	Wardha	Deoli	Aloda	534325	504_wry-4_04	0.58229424	2	No
32	Washim	MANORA	Nainy	531033	502_pga-4_01	0.544065	2	No

List of Control Villages Surveyed

Sl No	District	Taluk	Village	CenCode	Cluster Code	Index
1	Buldana	Khamgaon	Ambikapur	528884	500_ptmm-1_05	0.57447574
2	Jalgaon	Amalner	Kalamsare	527403	499_te-55_02	0.62153125
3	Akola	Akola	Dhaga	530082	501_ptk-1_02	0.58566624
4	Amravati	Warud	Beskheda	532425	503_wr-1_04	0.6275795
5	Buldana	Chikhli	Amkhed	529202	500_pgkd-1_02	0.53835675
6	Yevatmal	Kalamb	Sawalapur	542217	510_wr-2a_02	0.51146324
7	Wardha	Samudrapur	Kora	534733	504_wrwpl-1_02	0.59370624
8	Yevatmal	Mahagaon	Chilli Ijara	543187	510_pg-5_02	0.50501124
9	Akola	Murtizapur	Dhamori Bk.	530291	501_ptu-2_02	0.56583024
10	Amravati	Anjangaon	Bramhanwada	531846	503_ptg_02	0.5714995
11	Amravati	Achalapur	Walmikpur	531959	503_ptc-2_01	0.5888285
12	Buldana	Lonar	Dhad	529589	500_gp-4a_02	0.48854675
13	Jalgaon	Bhadgaon	Rupnagar	527667	499_te-33_02	0.59959025
14	Jalgaon	Pachora	Vadgaon Aseri	527879	499_te-28_05	0.56092225
15	Wardha	Deoli	Bopapur	534317	504_wry-6_04	0.58895424
16	Washim	MANORA	Dhoni	531136	502_pgp-2_03	0.542828

Annexure-III: List of FPOs Interviewed

S.N.	Name of FPC	Village Name	Taluka	District
1	Rahuba Agro Producer Company	Pimpri Bodade	Nandgaon Kh.	Amravati
2	Kripami Agro Producer Company	Hartala	Bhatkuli	Amravati
3	Akot Agro Farmer Producer Company	Akot	Akot	Akola
4	Agristock Farmer Producer Company	Ural Kh.	Balapur	Akola
5	Chandol Farmers Producer Company	Sawali	Bauldhana	Buldhana
6	Dharatisamruddhi Farmers Producers Company	Sawali	Chikhali	Buldhana
7	Ruj Farmers Producer Company	Ajani Bk.	Mehkar	Buldhana
8	Jai Sardar Krushi Farmers Producers Company	Talani	Malkapur	Buldhana
9	Chandansheh Farmers Producer Company	Sawana	Chikhali	Buldhana
10	Tujabhawani Farmers ProducersCompany	Dhanora Vithari	Nandura	Buldhana
11	Sonpaul Farmers Producers Company	Anjani Kh.	Lonar	Buldhana
12	Rahanitai Deshmukh Farmers Producers Company	Bhadgaon	Bhadgaon	Jalgaon
13	Balnath Farmers Producer Company	Balkheda	Risod	Washim
14	Vrushivat Farmers Producer Company	Karda	Risod	Washim
15	Krushisamrajya Farmers Producer Company	Saykheda	Manglurpir	Washim
16	Krushimauli Farmers Producer Company	Chambhai	Manglurpir	Washim
17	S.N. Farmers Producer Company	Someshwar Nagar	Manora	Washim
18	Greenza Farmers Producer Company	Bhambarda	Karanja	Washim
19	Mapari Farmers Producer Company	Dhanora	Washim	Washim
20	Wagheda Farmers Producer Company	Wagheda	Samudrapur	Wardha
21	Joyas Agrivision Producer Company	Ner	Ner	Yavatmal
22	Bhukranti Farmers Producer Company	Tiwarang	Mahagaon	Yavatmal
23	Star Farmers Producer Company	Marlegaon, Umarkhed	Umarkhed	Yavatmal

Annexure-IV: List of SHGs Interviewed

S.N.	Name of SHG	Village Name	Taluka	District
1	Kumkum Self Help Group	Dhaga	Nandgaon Kh.	Amravati
2	Hare Krishna Shetkari Utpadak Gat	Dahigaon	Akola	Akola
3	Mahant Maharaj Sketkari Utpadak Gat	Dhotardi	Akola	Akola
4	Shivaji Maharaj Sketkari Utpadak Gat	Bhaurad	Akola	Akola
5	Jaibhavani Shetkari Utpadak Gat	Khadaki Takali	Akola	Akola
6	Jaihanuman Sketkari Utpadak Gat	Khadaki Takali	Akola	Akola
7	Narnala Male Selp Help Group	Khaparwadi	Akola	Akola
8	Gurudev Shetkari Utpadak Gat	Ghusar	Akola	Akola
9	Jai Bajarang Shetkari Utpadak Gat	Pailpada	Akola	Akola
10	Mauli Shetkari Utpadak Gat	Nimbhora	Akola	Akola
11	Sant Sakharambaba Shetkari Utpadak Gat	Akhatwada	Akola	Akola
12	Dattakrupa Shetkari Utpadak Gat	Keliveli	Akola	Akola
13	Jainagenath Shetkari Utpadak Gat	Chandur	Akola	Akola
14	Kranti Surya Self Help Group	Kherda	Jalgaon Jamod	Buldhana
15	Jai Bhol Self Help Group	Phofali	Motala	Buldhana
16	Krushi Sanjivani Self Help Group	Chichkhed	Deulgaonraja	Buldhana
17	Sant Krupa Self Help Group	Jalka Teli	Khamgaon	Buldhana
18	Shiv Chhatrpati Self Help Group	Anturli	Bhadgaon	Jalgaon
19	Jaibalaji Self Help Group	Loni Kh.	Parola	Jalgaon
20	Mauli Self Help Group	Tawase	Chopda	Jalgaon
21	Pragati Self Help Group	Gondegaon	Washim	Washim
22	Jai Mata Di Self Help Group	Bhidi	Deoli	Wardha
23	Samaruddhi Self Help Group	Bhidi	Deoli	Wardha
24	Satya Sai Self Help Group	Bhidi	Deoli	Wardha
25	Meharbaba Self Help Group	Bhidi	Deoli	Wardha
26	Savitribai Phule Self Help Group	Bhidi	Deoli	Wardha
27	Rajmata Jijau Self Help Group	Bhidi	Deoli	Wardha
28	Ahilyabai Self Help Group	Bhidi	Deoli	Wardha
29	Renuka Self Help Group	Bhidi	Deoli	Wardha
30	Krantisurya Shetkari Utpadak Gat	Junona	Seloo	Wardha
31	Shri Nagaji Maharaj Shetkari Self Help Group	Tembha	Hinganghat	Wardha
32	Unnat Shetkari Self Help Group	Kanholi	Hinganghat	Wardha

Annexure-V: Details of Information Boards & Grievance Boxes in Project Villages

District	PoCRA Village	Block	Phase	Project board & office Chart available (Yes/No)	Grievances box available (Yes/No)
Amravati	Malkapur Kh.	Anjangaon Surji	II	No	Yes
	Umartek	Bhatkuli	II	Yes	Yes
	Kawtha Kadu	Chandur Rly	II	Yes	Yes
	Ghada	Daryapur	II	Yes	Yes
	Siwar Bk.	Daryapur	II	Yes	No
Total	**5**			**4**	**4**
Akola	Sanglud Kh.	Akola	I	No	Yes
	Malrajura	Patur	I	No	No
	Sultanpur	Murtizapur	I	No	No
	Wairat Rajapur	Akola	II	No	No
	Aasegaon Bajar	Akot	II	No	No
Total	**5**			**0**	**1**
Buldhana	Nagapur	Khamgaon	I	Yes	Yes
	Machhindrakhed	Shegaon	I	Yes	Yes
	Ancharwadi	Chikhali	II	Yes	Yes
	Khatkhed	Shegaon	II	Yes	Yes
	Jambul	Lonar	II	Yes	Yes
	Palsoda	Nandura	I	Yes	Yes
	Niwana	Sangrampur	I	Yes	No
Total	**7**			**7**	**6**
Jalgaon	Kolpimpri	Parola	I	Yes	No
	Kund	Muktainagar	II	Yes	No
	Vasantwadi	Bhadgaon	II	No	No
	Dasegaon Bk	Chalisgaon	II	No	No
	Kharchi Kh.	Erandol	II	Yes	No
	Umare	Muktainagar	II	Yes	No
	Chorwad	Raver	II	No	No
Total	**7**			**4**	**0**
Washim	Gaiwal	Karanja Lad	I	No	Yes
	Naini	Manora	II	No	Yes
Total	**2**			**0**	**2**
Wardha	Dighi	Arvi	I	Yes	Yes
	Shivangaon	Seloo	II	Yes	Yes
	Aloda	Deoli	II	Yes	No
Total	**3**			**3**	**2**
Yavatmal	Wandli	Kalamb	II	No	No
	Amdi	Ghatanji	II	Yes	Yes
	Limgavhan	Umarkhed	II	No	No
Total	**3**			**1**	**1**
Total	**32**			**19**	**16**

Annexure-VI: Details of VCRMC & Krushi Tai Interviewed

District	PoCRA Village	Block	Phase	Krushi Tai (Checklist Covered) (Yes/No)	VCRMC Visited (Yes/No)?
Amravati	Malkapur Kh.	Anjangaon Surji	II	Yes	Yes
	Umartek	Bhatkuli	II	Yes	Yes
	Kawtha Kadu	Chandur Rly	II	Yes	Yes
	Ghada	Daryapur	II	Yes	Yes
	Siwar Bk.	Daryapur	II	No*	Yes
Sub -Total	**5**			**4**	**5**
Akola	Sanglud Kh.	Akola	I	Yes	Yes
	Malrajura	Patur	I	Yes	Yes
	Sultanpur	Murtizapur	I	Yes	Yes
	Wairat Rajapur	Akola	II	Yes	Yes
	Aasegaon Bajar	Akot	II	Yes	Yes
Sub -Total	**5**			**5**	**5**
Buldhana	Nagapur	Khamgaon	I	Yes	Yes
	Machhindrakhed	Shegaon	I	No#	Yes
	Ancharwadi	Chikhali	II	Yes	Yes
	Khatkhed	Shegaon	II	Yes	Yes
	Jambul	Lonar	II	Yes	Yes
	Palsoda	Nandura	I	Yes	Yes
	Niwana	Sangrampur	I	No#	Yes
Sub -Total	**7**			**5**	**7**
Jalgaon	Kolpimpri	Parola	I	Yes	Yes
	Kund	Muktainagar	II	Yes	Yes
	Vasantwadi	Bhadgaon	II	Yes	Yes
	Dasegaon Bk	Chalisgaon	II	Yes	Yes
	Kharchi Kh.	Erandol	II	Yes	Yes
	Umare	Muktainagar	II	Yes	Yes
	Chorwad	Raver	II	Yes	Yes
Sub -Total	**7**			**7**	**7**
Washim	Gaiwal	Karanja Lad	I	Yes	Yes
	Naini	Manora	II	Yes	Yes
Sub -Total	**2**			**2**	**2**
Wardha	Dighi	Arvi	I	Yes	Yes
	Shivangaon	Seloo	II	Yes	Yes

	Aloda	Deoli	II	Yes	Yes
Sub -Total	**3**			**3**	**3**
Yavatmal	Wandli	Kalamb	II	Yes	Yes
	Amdi	Ghatanji	II	Yes	Yes
	Limgavhan	Umarkhed	II	Yes	Yes
Sub -Total	**3**			**3**	**3**
Gr. Total	**32**			**29**	**32**

* Krushi Tai resigned from the post

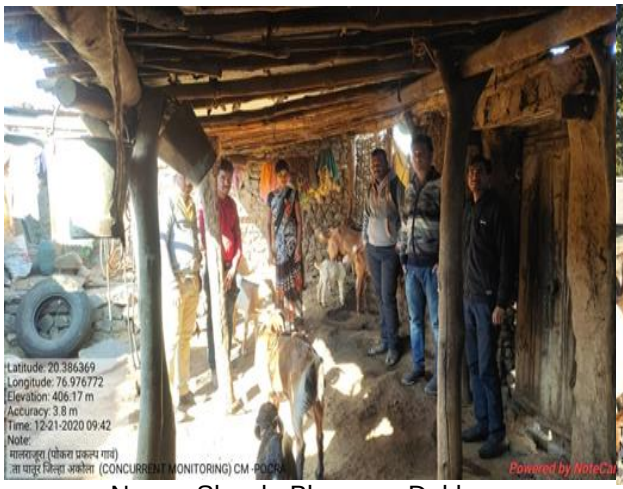
Krushi Tai was not available in the village

Annexure- VI: Details of Field Visit Conducted by Experts for CM- II

S.N.	Name of the Expert	Position	District	Place of Visit
1	Sh. Sanjay Dhanphule	Team Leader	Amravati	Project Villages: Kawatha Kadu, Umartek & Siwar Bk.
				Control Villages: Brahmanwada & Walmikpur
			Buldhana	Project Villages: Nagapur
			Jalgaon	Project Villages: Kolpimpri & Kharachi Kh.
			Wardha	Project Villages: Aloda & Dighi
				Control Villages: Kora & Bopapur
			Yavatmal	Amadi & Wandli
2	Sh. Ravikiran Mali	Agronomy Expert	Akola	Project Villages: Malrajura, Nimbhora & Pailpada
			Buldhana	Project Village: Nagapur
			Jalgaon	Project Villages: Kolpimpri & Kharachi Kh.
3	Dr. Akhilesh Singh	Agri-Business Expert	Buldana	Project Villages: Khatkhed & Niwana
4	Dr. D. Suresh Kumar	Agri-Economic Expert	Amravati	Project Village: Kawatha Kadu
5	Sh. L. S. Reddy	Social Development Expert	Wardha	Project Villages: Shivangaon & Aloda
			Yavatmal	Project Villages: Wandli & Amadi
6	Dr. Rajretnam	Stastical Expert	Wardha	Project Villages: Shivangaon & Aloda
			Yavatmal	Project Villages: Wandli & Amadi
7	Dr. Suraj Pandey	GIS/MIS Expert	Wardha	Project Villages: Shivangaon & Aloda
			Yavatmal	Project Villages: Wandli & Amadi
8	Dr. Syed Ismail	Agricultural Engg. Expert	Amravati	Project Villages: Umartek & Siwar Bk.
9	Sh. Anand Ojha	Hydrology Expert	Akola	Project Villages: Sanglud Kh. & Malrajura
			Washim	Project Villages: Gaiwal & Naini
10	Dr. Nutan Gupta	Environment Expert	Akola	Project Villages: Sanglud Kh. & Malrajura
			Washim	Project Villages: Gaiwal & Naini
NABCONS Zonal Office Team				
1	Dr. K. Inkarsal	VP	Amravati	Project Villages: Umartek & Siwar Bk.
2	Sh. Siddharth Bhatia	Consultant	Wardha	Project Villages: Shivangaon & Aloda
			Yavatmal	Project Villages: Wandli & Amadi
3	Poulomi Majumdar	Consultant	Amravati	Project Villages: Umartek & Siwar Bk.
4	Sh.Rahul Hiwale	PMU Coordinator	Jalgaon	Project Villages: Vasantwadi, Kolpimpri & Kharachi Kh.
			Buldhana	Project Villages: Khatkhed & Niwana

Field Visit Photographs

DBT Beneficiaries



Name: Sharda Bhagwan Dakhore
Village: Malrajura, Dist. Akola, Activity-Goat Rearing

Name: Ravindra Jagannath Telgote
Village: Malrajura, Dist. Akola Activity-Goat Rearing

Name: Ganesh Vishwanath Raut
Village: Sanglud Kh, Tal & Dist. Akola
Activity-PVC Pipes

Name: Janardhan Khanduji Lathad
Village: Gaiwal, Tal-Karanja Lad, Dist. Washim-
Activity- Water Pump

Name: Sangita Sanjay Shinde
Village: Limgavhan, Tal-Umarkhed,
Dist. Yavatmal, Activity-Drip Irrig.

Name: Swapnil Shyamkishor Jaiswal
Village: Sanglud Kh, Tal & Dist.
Akola, Activity-Seed Production Plot

Name: Vandana Rajendra Amritkar
Village: Dasegaon Kh, Tal-Chalisgaon, Dist. Jalgaon, Activity-Drip Irrigation

Name : Dipali Himmat Gaikwad, Village: Gaiwal, Tal-Karanja Lad, Dist. Washim, Activity-Sprinkler Irrigation

Beneficiary Name: Baburao Patil
Village: Rupnagar, Tal-Bhadgaon, Dist. Jalgaon
Activity-Drip Irrigation

Beneficiary Name: Ishwar Patil

Village: Wadgaon Aseri, Tal-Pachora, Dist. Jalgaon
Activity-Drip Irrigation

FFS Beneficiaries

Beneficiary Name: Gopal Vasantrao Borde, Village: Vairat Rajapur, Tal & Dist. Akola Activity-FFS Host Farmer

SHG beneficiaries

Name: Jai Bhavani SHG, Village: Khadki Takali, Tal & Dist. Akola, Activity-Godown

Name: Shri Mahant Maharaj SHG Village: Dhotardi, Tal & Dist. Akola Activity-Tractor with Agri. Implements

Name: Shiv Chhatrapati SHG

Village: Anturli Bk, Tal-Bhadgaon, Dist. Jalgaon Activity-Tractor & Agri. Implements

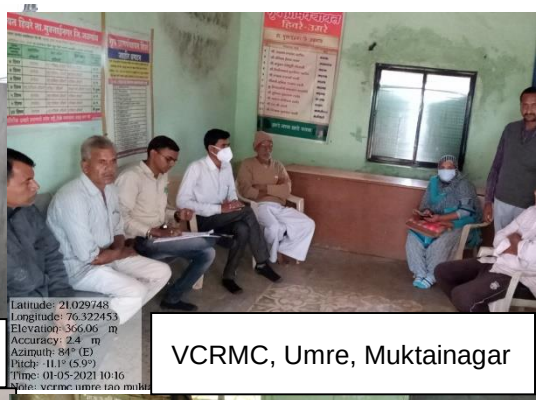
FPO Beneficiaries

Beneficiary Name: Akot Agro FPC, Village: Akot, Dist. Akola Activity-Processing Unit (Pre-sanctioned unit)

Beneficiary Name: Krishami Agro Producer Co. Ltd. Village: Hartala, Tal-Bhatkuli, Dist. Amravati Activity-Agri. Input Centre

KII Interviews

TAO – Chalisgaon,



VCRMC, Umre, Muktainagar

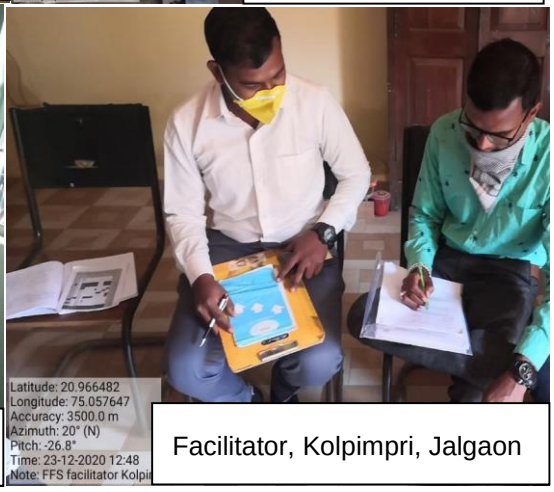
SDAO, Amlaner, Jalgaon

Agri. Supervisor, Murtizapur

TAO, Chikhali, Buldhana

DSAO, Yavatmal

Agri. Supervisor, Shegaon



Facilitator, Kolpimpri, Jalgaon

Expert Team Members & VP-NABCONS visited at Umartek, Tal. Bhatkuli, Dist. Amravati Activity-Field Visit

Expert Team Members of NABCONS visited at Gaiwal, Tal. Karanja Lad, Dist-Amravati Activity-Field Visit

Expert Team Members of NABCONS visited at Gaiwal, Tal. Karanja Lad, Dist-Amravati Activity-Field Visit

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