IMPACT AND BASELINE STUDY

SATYAMEV JAYATE FARMER CUP

2025

REPORT

Paani FOUNDATION

CONTENTS

DISCLAIMER AND NOTICE TO READERS

- This report has been prepared exclusively for the **Paani Foundation** ("Client") following the terms of the Engagement letter/agreement dated [4th April 2024] between Client and **KPMG Assurance and Consulting Services LLP** ("KPMG" or "we") (collectively 'Contract'). The performance of KPMG's services and the report issued to the Client are based on and subject to the terms of the Contract. Our work has been limited to the specific procedures described in this Engagement Letter and is based only on the information and analysis of the data obtained through interviews of beneficiaries supported under the programme, selected as sample respondents and discussions with Paani Foundation team and stakeholders of the programme. Accordingly, changes in circumstances or information available after the review could affect the findings outlined in our report.
- Our report has been prepared solely for Paani Foundation. KPMG does not accept or assume any liability, responsibility, or duty of care for any use of or reliance on this report by anyone, other than our client, to the extent agreed in the Agreement.
- Our report by its very nature may involve numerous assumptions, inherent risks, and uncertainties, both general and specific. The conclusions drawn shall be based on the information available with us at the time of preparing the report.
- Our deliverables should not be published or distributed other than in full and complete form [as part of your annual report and/or uploading on your website]. You agree that you will not publish or otherwise include our deliverable in any other document without our prior written consent to the form and content in which it is included. The report can also not be quoted anywhere in parts. We assume no responsibility for any user of the report, other than Client. Any person who chooses to rely on the report shall do so at their own risk.
- This report is confidential and for the use of management only. It is not to be distributed beyond the management nor is it to be copied, circulated, referred to or quoted in correspondence, or discussed with any other party, in whole or in part, without our prior written consent, as per terms of business agreed under the Contract.
- This report sets forth our views based on the completeness and accuracy of the facts stated to KPMG and any assumptions that were included. If any of the facts and assumptions are not complete or accurate, it is imperative that we be informed accordingly, as the inaccuracy or incompleteness thereof could have a material effect on our conclusions.
- While performing the work, we have assumed the authenticity of all documents or information referred to or provided. We have not independently verified the correctness or authenticity of the same.
- We have not performed an audit and do not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted to be legal advice or opinion. Client shall be fully and solely responsible for applying independent judgment, with respect to the findings included in the report, to make appropriate decisions in relation to future course of action, if any. We shall not take responsibility for the consequences resulting from decisions based on information included in the report.
- In accordance with its policy, KPMG advises that neither it nor any partner, director or employee undertakes any responsibility arising in any way whatsoever, to any person other than Paani Foundation in respect of the matters dealt with in this report, including any errors or omissions therein, arising through negligence or otherwise, howsoever caused.
- Our observations represent our understanding and interpretation of the facts based on reporting of beneficiaries and stakeholders.
- Impact assessment is limited to the projects allocated by Paani Foundation and no professional assurance standards ex. ISAE, SSAE etc. have been applied while preparing this report. Hence the rigors applicable under such standards are not applicable for the scope covered.
- Procedures, analysis and recommendations, if any, are advisory in nature basis information collected from various sources both publicly and those provided by the client.
- No standard framework has been used in preparing the report as detailed herein.
- By reading our report, the reader of the report shall be deemed to have accepted the terms mentioned hereinabove and that KPMG does not owe duty of care (whether in contract or in tort or under statute or otherwise) to such reader of report and KPMG shall not be liable to any party who uses or relies on this report.
- In no circumstances shall we be liable, for any loss or damage, of whatsoever nature, arising from information material to our work being withheld or concealed from us or misrepresented to us by any person to whom we make information requests.
- In connection with our report or any part thereof, KPMG does not owe a duty of care (whether in contract or tort or under statute or otherwise) to any person or party to whom the report is circulated and KPMG shall not be liable to any party who uses or relies on this report. KPMG thus disclaims all responsibility or liability for any costs, damages, losses, liabilities, or expenses incurred by such third party arising out of or in connection with the report or any part thereof.
- While the information obtained from the public domain or external sources has not been verified for authenticity, accuracy, or completeness, we have obtained information, as far as possible, from sources generally considered to be reliable. However, it must be noted that some of these websites/third party sources may not be updated regularly. We assume no responsibility for the reliability and credibility of such information.
- The performance of our work was based on information and explanations given to us by the staff of Paani Foundation. Neither KPMG nor any of its partners, directors or employees undertake responsibility in any way whatsoever to any person in respect of errors in this report, arising from incorrect information provided by Paani Foundation.
- Our report may refer to 'KPMG Analysis'; this indicates only that we have (where specified) undertaken certain analytical activities on the underlying data to arrive at the information presented; we do not accept responsibility for the veracity of the underlying data.

EXECUTIVE SUMMARY

1 Chapter I: Executive Summary

Paani Foundation, established in 2016, is a non-profit organization committed to sustainable water management and rural prosperity in Maharashtra, India. Recognizing the severe impact of drought on countless villages, Paani Foundation undertakes transformative initiatives to empower communities with the knowledge and skills needed for water conservation and sustainable agricultural practices.

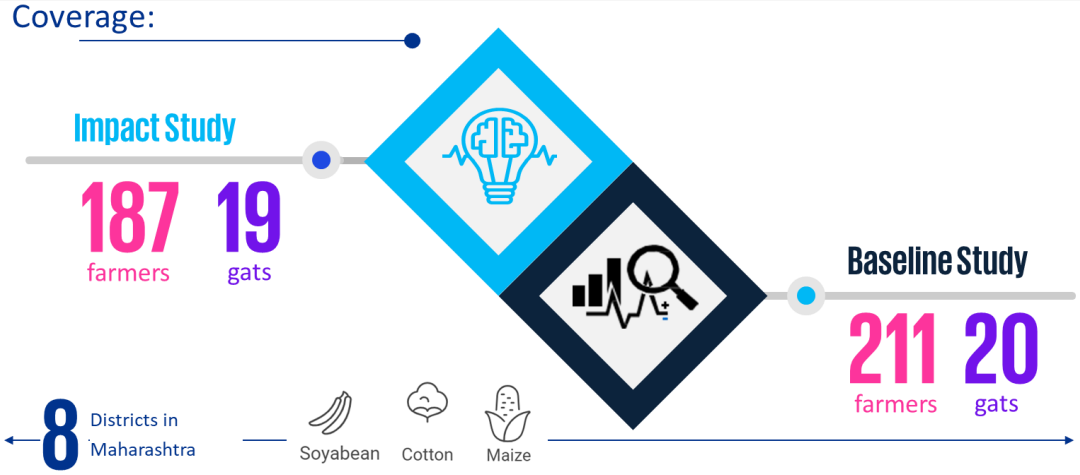
Key Flagship Programs:

The Satyamev Jayate Farmer Cup Program is designed to enhance rural livelihoods by promoting collective farming and science-based agricultural practices among farmers in Maharashtra. This initiative encourages the formation of collectives, known as 'gats' in Marathi, enabling farmers to adopt scientific farming methods that lead to effective natural resource management and increased productivity. Through a competitive framework, the Farmer Cup motivates participating farmer collectives to strive for significant cash prizes, which drives the adoption of sustainable practices and fosters collaborative problem-solving. Participants are evaluated based on several criteria, including collective planning, knowledge application, sustainable farming techniques, and group-based activities such as bulk purchasing and sales.

Farmer Cup Program: Key Activities

The objective of the evaluation study is to delve into various aspects of the Farmer Cup program, analyze its theory of change, and assess its relevance, effectiveness, efficiency, and prospects for sustainability. The study was designed through leveraging the OECD Development Assistance Committee (DAC) framework as well as Knowledge, Attitude, and Practices (KAP) Survey. The OECD-DAC framework offers an internationally reputed structured methodology for evaluating development programs, and the KAP survey aids in understanding the farmers' knowledge, attitudes, and practices in relation to the sustainable and scientific practices promoted during Farmer Cup. The study was executed with a sample size of approx. 400 farmers across eight districts in Maharashtra selected based on stratified random sampling. The districts that the study included are Ahmednagar (Ahilyanagar), Sambhajinagar (Ch. Sambhajinagar), Nandurbar, Beed, Wardha, Washim, Satara, and Solapur. The study randomly sampled around 40 gats/farmer groups from the ones participating in Farmer Cup 2024, covering experienced gats for impact and first timers as part of the baseline. This was designed with the intention of understanding the program impacts, gathering programmatic insights, as well as setting the benchmark for future program evaluations.

Coverage:



Key Findings

Demographics:

44% women respondents for impact

62% women respondents for baseline

Agricultural Land (Acres)	Total Cultivable Area	Land under Farmer Cup
Impact	7.13	1.38
Baseline	5.16	1.34

1.8% tenant farmers among baseline respondents

32% of the impact respondents had annual household income between **INR 2-4 Lakhs**

36% of the baseline respondents had annual household income between **INR 50,000 -1 Lakh**

Key Program Activities

	Residential Training	Digital Sheti Shala	Field Schools	Farmer Cup App
Impact	**62%** of the respondents had attended the training.	**93%** of the farmers attend the sessions always or often.	**79%** of the respondents had attended field schools.	**51%** of the respondents are regular users of Farmer Cup App.
Baseline	**60%** of the respondents had attended the training.	**76%** of the farmers attend the sessions always or often.	**83%** of the respondents had attended field schools.	**47%** of the respondents are regular users of Farmer Cup App.

All the respondents shared that:

- Agricultural experts resolved their queries (if any).
- They received guidance on their farming practices
- Training sessions positively impacted their farming practices.

"The training was a game-changer for us. We struggled with poor farming practices before. The training taught us modern and sustainable techniques, which increased our soyabean yield by 40%. Working in groups made tasks easier and fostered a sense of community. Despite challenges like labor availability and unexpected rainfall, we managed to improve our farming produce significantly."

-Sai Krupa Shetkari Gat, Ahmednagar

"Our journey with the Farmer Cup and Paani Foundation has been incredibly rewarding. The training we received was not only exciting but also practical, covering essential topics in an easy-to-understand manner. Forming a 'gat' has allowed us to utilize resources more efficiently and save money on equipment and seeds."

-Krushiratna Mahila Shetakari Gat, Satara

Impact

[1]

Impact on Agriculture and Livelihood

Total Savings Reported

₹ 15,117 Approx.

Reduction in use of Chemical Pesticides

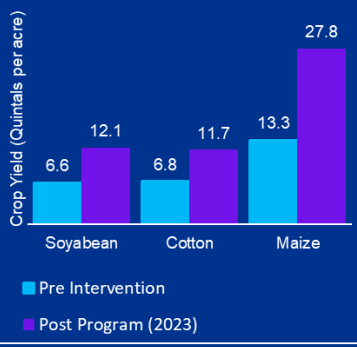
98%

of respondents reported reduced reliance on chemical pesticides due to program.

Around **INR 4,240 saved** due to reduced use of chemical sprays

Improved Yield

71% Average increase in yield.



Improved Net Profit per acre

INR 39,420 Average net profit per acre. (Annual)

Around 163% rise in average net profit per acre from INR 14,919 to INR 39,240

Improved knowledge and adoption of SOPs

- Improved access to agricultural experts. — 99%
- Implemented the SOPs — 98%
- Increase awareness of NPM methods — 97%
- Increase in collaborative learning — 99%

Improvement in quality of soil and produce, and Reduction in chemical fertilizers

84% Reported improvements in quality of soil.

77% Reported improvements in quality of produce

99% Reported reduced reliance on chemical fertilizers.

Digital Literacy

80% Increased confidence in using Internet

82% Increased confidence is using a smartphone

68% Improved skills in participating in Zoom Calls

71% Improved skills in taking clear photos and videos

72% Improved skills in using YouTube

82% Improved skills in using WhatsApp

[1] Total Survey Respondents for Impact: 87

Social and Community Relations

Improved Support System

92% reported reduced dependency on rented labor due to collectivization of labor.

90% shared that they received economic or other help from the group during personal difficulties.

68% shared that during water scarcity or drought situations, their crops have been protected owing to water sharing among gat/collective members.

Improved Personal Growth

89% reported improved self-confidence.

33% shared that there has been increase in support and respect from family.

39% Shared improved participation in decision-making.

Impact on Women

Agriculture and Livelihood

97% Reported reduced reliance on chemical fertilizers.

95% Reported improved knowledge on NPM methods

97% Reported improved co-learning through experience sharing among farmers.

Social and Community Relations

71% Reported that there was an improvement in their decision-making power.

95% Reported that there was an increased participation in public events/festivals.

84% Shared that they received economic or other help from the group during personal difficulties.

71% Reported that they received support and respect from their family.

82% Reported that there was an improvement in their self-confidence.

84% Reported reduced dependency on rented labor due to collectivization of labor (workforce)

Digital Literacy

63% Reported Increased confidence in using Internet.

63% Reported Increased confidence in using a smartphone.

45% Improved skills in participating in Zoom calls

[2] Women Survey Respondents for Impact: 38

Key Recommendations

	KEY ISSUES	KEY RECOMMENDATIONS
Support with Farmer Cup App	• Validation of reporting tasks on the app • Technical challenges in using the app	• Leverage Helpline Support to offer guidance and reassurance on queries. • Feedback Mechanism in App that automatically sends update whether the submission needs to be reuploaded. • Mitigation and quick resolution of technical issues
Adequate in-person support and interaction	• Both farmers and stakeholders highlighted the need to ensure adequate in-person interactions, particularly in the digital first model.	• Community Mentor Gats to serve as mentors and community resource persons, for offering in-person support and fostering peer-to-peer learning. • Adequate staff for field visits
Support with Market Linkages	• Challenges with market linkage for Organic Produce in particular • Require guidance to set up FPOs	• Training and Entrepreneurial Skills Program to support farmers with skills on market analysis, business planning, financial management, value addition techniques, digital marketing, accessing certifications, and institutional finance.
Targeted outreach programs and support	• Promoting participation of youth, tenant farmers, and women in the program.	• Utilizing design thinking tools such as empathy and journey maps in outreach strategy for creating tailored solutions • Supplementary assistance and initiatives can be developed contingent on the needs identified in sub-group of stakeholders. • Facilitating interaction between women-led farmer groups across districts.

INTRODUCTION

2 Chapter II: Introduction

2.1 Background

From farmlands to economic development, India's agricultural sector is a vital thread that supports livelihoods, sustains communities, and shapes the socio-economic landscape of the nation. According to the Periodic Labor Force Survey (PLFS) conducted by the National Sample Survey Office (NSSO), approximately 45.76% of India's total workforce was engaged in the agriculture and allied sectors during 2022-23[3]. Despite contributing around 15% to the Gross Value Added (GVA) and experiencing a growth rate of 4.3% over the past six years[4], the agricultural sector faces significant challenges, particularly owing to climate change. India manages to feed about 17.2% of the global population with only 9% of the world's arable land[5]. However, the sector's heavy reliance on monsoon rains, with over 56% of the country's agricultural area being rainfed, makes it particularly vulnerable to climate change impacts[6]. This vulnerability is further exacerbated by the fact that approximately 68% of India's agricultural land is classified as drought-prone[7]. The situation is compounded by increasing dependence on depleting groundwater resources and the prevalence of small and marginal landholdings among 82% of farmers[8]. The 2017–2018 Economic Survey projected a decline in farm incomes of up to 25% in certain regions as a result of climate change impacts[9]. These factors, combined with rising temperatures, declining soil fertility and population levels, pose significant challenges to India's agricultural sector and food security in the coming years.

Maharashtra, one of India’s largest states, is a crucial agricultural hub, with a diverse landscape that supports the cultivation of a variety of crops, including sugarcane, cotton, pulses, oilseeds. Around 50% of the state's population is dependent on agriculture for their livelihood, making it a significant driver of the regional economy[10]. Despite this economic reliance on agriculture, Maharashtra's agricultural landscape faces severe challenges due to its vulnerability to drought conditions, exacerbated by climate change. The state is predominantly rainfed, with only 18.2% of crop area irrigated[11]. This dependency on seasonal rains makes Maharashtra highly susceptible to climatic variability, which can lead to water shortages and negatively impact crop productivity.

Drought is one of the most persistent issues plaguing Maharashtra, particularly in the regions of Marathwada and Vidarbha, with around 40% of Maharashtra being drought prone[12]. These areas frequently experience severe drought conditions due to irregular and deficient rainfall patterns. The

[3] https://sansad.in/getFile/loksabhaquestions/annex/1714/AS228.pdf?source=pqals#:~:text=According to the Periodic Labour,allied sector during 2022-23.
[4] https://sansad.in/getFile/loksabhaquestions/annex/1714/AS228.pdf?source=pqals#:~:text=According to the Periodic Labour,allied sector during 2022-23.
[5] https://cdn.odi.org/media/documents/ODI-JR-CostClimateChangeIndia-final.pdf
[6] https://cdn.odi.org/media/documents/ODI-JR-CostClimateChangeIndia-final.pdf
[7] https://agriwelfare.gov.in/sites/default/files/Manual Drought 2016.pdf
[8] https://cdn.odi.org/media/documents/ODI-JR-CostClimateChangeIndia-final.pdf
[9] https://economictimes.indiatimes.com/news/economy/agriculture/climate-change-to-impact-agricultural-income-to-the-extent-of-25-per-cent-economic-survey/articleshow/62692622.cms?from=mdr
[10] https://sustain.org/wp-content/uploads/2021/06/ISC-Report_Impact-of-Climate-Change-on-Maharashtra-Agriculture.pdf
[11] https://sustain.org/wp-content/uploads/2021/06/ISC-Report_Impact-of-Climate-Change-on-Maharashtra-Agriculture.pdf
[12] https://sustain.org/wp-content/uploads/2021/06/ISC-Report_Impact-of-Climate-Change-on-Maharashtra-Agriculture.pdf

recurrent droughts have led to acute water scarcity, affecting both drinking water supplies and agricultural irrigation. Over-reliance on groundwater extraction to counter drought effects has further depleted water tables, leading to a cycle of unsustainable water use that aggravates the region's vulnerability to future droughts. These drought conditions not only result in crop failures and loss of income for farmers but also trigger a cascade of socio-economic issues, including rising indebtedness and distress migration as they seek alternative livelihoods in urban areas. Tragically, this has also contributed to a significant increase in farmer suicides, with thousands reported in recent years due to the compounded pressures of debt and loss of livelihood[13].

While drought is a significant challenge, Maharashtra also faces issues related to flooding, particularly in the western coastal regions and the Konkan belt. Such extreme weather events not only result in immediate agricultural losses but also have long-term effects on soil fertility and water resource management, making the land less productive for future cropping cycles. The impact of climate change is increasingly visible in Maharashtra's agricultural sector, with rising temperatures and unpredictable rainfall patterns leading to altered growing conditions and reduced crop yields.

This changing climate scenario poses a direct threat to the traditional cropping patterns in the state, forcing farmers to either adapt their practices or face declining productivity. According to the 2015-16 agriculture census, the average size of an operational holding is 1.34 hectares in Maharashtra, classifying it as small, with about 44% of farmers being categorized as small and marginal[14]. This underscores the heightened vulnerability of Maharashtra's agricultural sector to climate change and natural disasters. The prevalence of small land holdings, coupled with limited access to resources, significantly impairs farmers' ability to build resilience against climate-related challenges. Furthermore, the increased use of chemical fertilizers and intensive farming practices to compensate for climate-induced losses has led to soil degradation and reduced soil health, undermining the long-term sustainability of agriculture in the region. This situation creates a pressing need for targeted interventions and support mechanisms to enhance the adaptive capacity of smallholder farmers in the face of escalating environmental uncertainties.

Efforts to mitigate these challenges through sustainable practices have been initiated, but the scale of adaptation required is immense. The Maharashtra state government has implemented programs like the Jalyukt Shivar Abhiyan, aiming to make the state drought-free by promoting water conservation and watershed management practices. Despite these efforts, the agricultural sector in Maharashtra remains highly vulnerable to climatic shocks, necessitating a more integrated approach that includes climate-resilient agricultural techniques, efficient water use strategies, and greater support for smallholder farmers to build resilience against the increasing threats posed by climate change.

It is within this context that Paani Foundation initiated their groundbreaking work on water conservation in Maharashtra. Paani's Water Cup competition brought villages together to engage in collaborative water conservation activities. This innovative approach served as a catalyst for a grassroots people's movement focused on watershed development. As a result of these efforts, numerous villages reported improved water availability, marking a significant milestone in addressing the region's water scarcity issues. However, the success in improving water availability inadvertently led to an unforeseen challenge. Many

[13] https://www.thehindu.com/news/national/other-states/in-10-months-2366-farmers-died-by-suicide-in-maharashtra/article67638200.ece
[14] https://sustain.org/wp-content/uploads/2021/06/ISC-Report_Impact-of-Climate-Change-on-Maharashtra-Agriculture.pdf

farmers, now with access to more water, shifted to water-intensive crops, essentially negating the conservation efforts and perpetuating the cycle of water stress[15]. This outcome highlighted that merely addressing water supply without considering demand-side management was insufficient to solve the complex crisis of drought. Recognizing this limitation, the concept of the Farmer Cup emerged as a more holistic approach. Recognizing this limitation, the concept of the Farmer Cup emerged as a more holistic approach. Since around 85%[16] of water resources in India is consumed by agriculture, this competition on agricultural sustainability aimed to incentivize farmers to practice water-efficient practices, linking them to their outcomes. The Farmer Cup brings farmers together in groups (gats) to collaboratively implement scientific farming methods, including water conservation techniques and non-pesticide management approaches. By focusing on making agriculture more profitable and environmentally sustainable, this program seeks to create a more comprehensive solution to the challenges faced in rural Maharashtra.

2.2 About Paani Foundation

Paani Foundation is a non-profit organization actively involved in drought prevention and Watershed development and management in the state of Maharashtra, India. It aims to create prosperous rural communities by empowering people to combat drought and climate change. They leverage collective action and community participation to drive positive change. Their approach involves mobilizing drought-hit villages and training communities to work on water conservation and sustainable agriculture. Through community-led efforts, they create water security by enabling communities themselves to build watershed structures such as check dams, percolation tanks, and farm ponds. Farmers are collectivized to adopt sustainable farming practices and efficient water management techniques. By empowering rural communities, Paani Foundation aims to create self-reliant and prosperous villages that combat water scarcity and enhance overall well-being.

Paani Foundation's flagship initiatives foster a people's movement for water and agriculture, encouraging participatory learning and implementation at the grassroots level:

- **Satyamev Jayate Water Cup (2016-2019)**: Competition that aimed to promote excellence in soil and water conservation among villages, providing a platform for communities to collaborate and address the issue of drought through their own efforts.
- **Satyamev Jayate Samruddha Gaon Spardha (2020-2021):** This initiative was a competition for the best performing villages of the Water Cup to encourage villages to move towards water management and environment restoration.
- **Satyamev Jayate Farmer Cup (2022-Ongoing):** Competition aimed at achieving excellence in sustainable agriculture and improving livelihoods through the formation of crop-specific collectives that compete to lower costs, enhance productivity and profitability, minimize chemical usage, and transition to sustainable farming practices.

[15] Shared during interviews with program team and stakeholders.

[16] Pandey, A., Yadav, B.P., Mondal, P. (2020). Agricultural Water Demand and Management in India. In: Khan, F.I., Siddiqui, N.A., Tauseef, S.M., Yadav, B.P. (eds) Advances in Industrial Safety. Springer Transactions in Civil and Environmental Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-15-6852-7_3

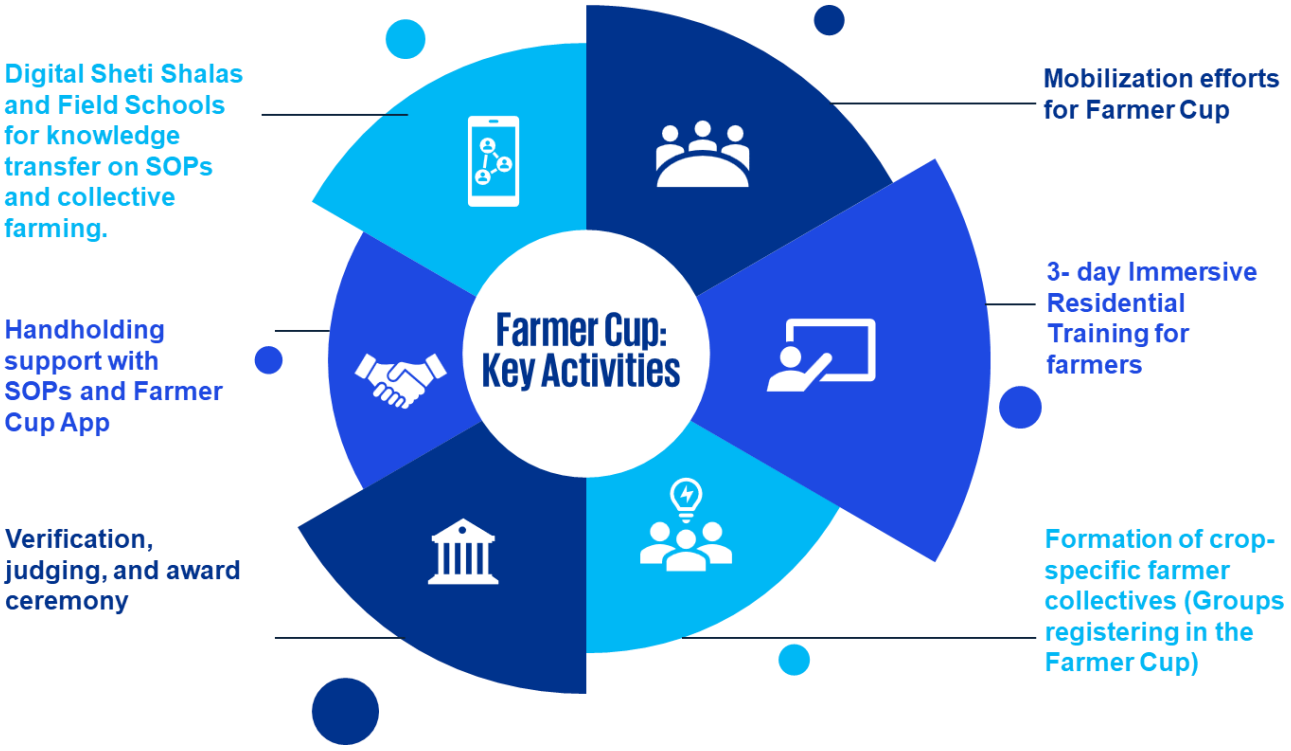
2.3 About Satyamev Jayate Farmer Cup

The Farmer Cup is an innovative initiative launched in 2022 to enhance rural livelihoods through collaboratively done sustainable farming practices. This program encourages farmers to form collectives (gats) and apply scientific agricultural methods, fostering effective natural resource management and improved productivity. This unique model aims to test several hypotheses, including the potential of collectivization and scientific farming methods to boost livelihoods, the effectiveness of knowledge-based ecosystems in uniting farmers, and the viability of natural pest management in reducing chemical dependence. The competition format motivates participating farmer collectives to compete for cash prizes, driving adoption of sustainable practices and collective problem-solving. The program evaluates participants based on criteria such as collective planning, knowledge application, sustainable farming techniques, and group-based activities like bulk purchasing and sales.

To achieve these goals, the initiative employs a combination of on-ground mobilization and digital outreach efforts to maximize farmer engagement. On-ground activities involve visiting villages and conducting meetings with farmers, leveraging the support of lead farmers and local stakeholders. Central to the Farmer Cup's strategy is training and capacity building efforts aimed at equipping farmers with the knowledge and skills necessary for sustainable agriculture. This includes a 3-day immersive residential training program focused on motivating farmers to form collectives, sustainable farming techniques, group farming practices, and Standard Operating Process (SOPs). The training is carefully designed to be highly engaging by incorporating films, videos, and interactive games to captivate participants. It focuses on both technical skills as well as attitudinal changes/behaviors, using relatable success stories, real-life challenges faced by farmers, and practical demonstrations to reinforce collective farming principles. Additionally, Digital Sheti Shalas (Digital Farming Schools) are organized to provide farmers with direct access to scientists and experts from leading agricultural universities through online sessions that offer crop-specific best practices and expert guidance.

The formation and strengthening of crop-specific farmer collectives are a key focus of the Farmer Cup. These collectives empower farmers by improving their bargaining power, reducing costs through collective purchases, and securing better market rates for their crops. The initiative emphasizes the adoption of non-pesticide management (NPM) and the consistent implementation of SOPs to ensure productivity gains, improved soil health, and reduced dependency on chemical inputs. Field schools play an essential role in reinforcing the benefits of collective farming, offering hands-on learning experiences to farmers Field trainings like "My Collective is My Family" aim to highlight the power of the collective for livelihood improvement, while trainings such as "My Collective Enables Me to Fly" focus on how after the competition, the gat can help its members to improve their natural assets like soil and water and help them to migrate towards higher value agriculture like fruits and vegetables. These learning experiences foster a sense of camaraderie among farmers and promote peer-learning.

To recognize and celebrate the achievements of participating farmer groups, the Farmer Cup each year, officially concludes with an award ceremony where winning groups at the block and state level are felicitated. This recognition not only boosts the morale of the farmers but also serves as an incentive for broader community participation in sustainable practices. Overall, the Farmer Cup initiative is designed to create a lasting impact by promoting sustainable agriculture, enhancing community cohesion, and empowering farmer institutions. Its strategic approach combines grassroots mobilization, knowledge sharing, and collective action to transform agricultural practices, leading to improved productivity and economic stability among participating farming communities.



APPROACH & METHODOLOGY

3 Chapter III: Approach and Methodology

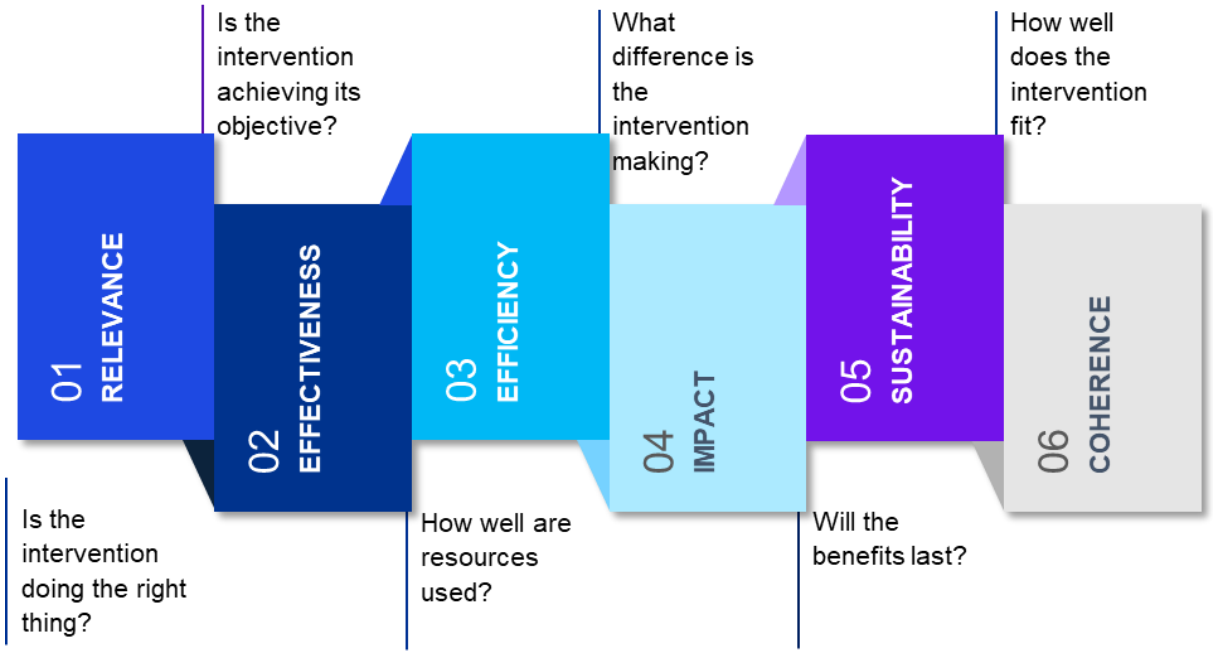
The chapter provides details on the research design and methodology adopted for the program evaluation including a baseline and impact study. It includes description of the key activities, data collection methods, and sampling strategies, employed to ensure the reliability and validity of the findings.

3.1 Objective and Approach

The primary objective of this combined baseline and impact evaluation of the Satyamev Jayate Farmer Cup is to delve into various aspects of the program, analyse its theory of change, and assess its relevance, effectiveness, efficiency, and prospects for sustainability. The study was designed through leveraging the OECD Development Assistance Committee (DAC) framework as well as Knowledge, Attitude, and Practices (KAP) Survey. The OECD-DAC framework offers an internationally reputed structured methodology for evaluating development programs, and the KAP survey aids in understanding the farmers' knowledge, attitudes, and practices in relation to the sustainable and scientific practices promoted during Farmer Cup. This combined approach allowed for both a foundational understanding of processes and an analysis of the effects of the program, providing a holistic view of the Farmer Cup's achievements. This study adopted a four-phase structured methodology for evaluation as illustrated below.

3.1.1 OECD-DAC

The Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) first laid out the evaluation criteria in the 1991. It is a framework that comprises of a set of criteria that aid in systemic assessment of on-going or completed development programs. This method helps to effectively assess various facets of the program and gain qualitative insights along with quantitative impact. The six evaluative criteria in accordance with the OECD-DAC evaluation framework are as follows:



These evaluation criteria have been defined below along with illustrative questions:

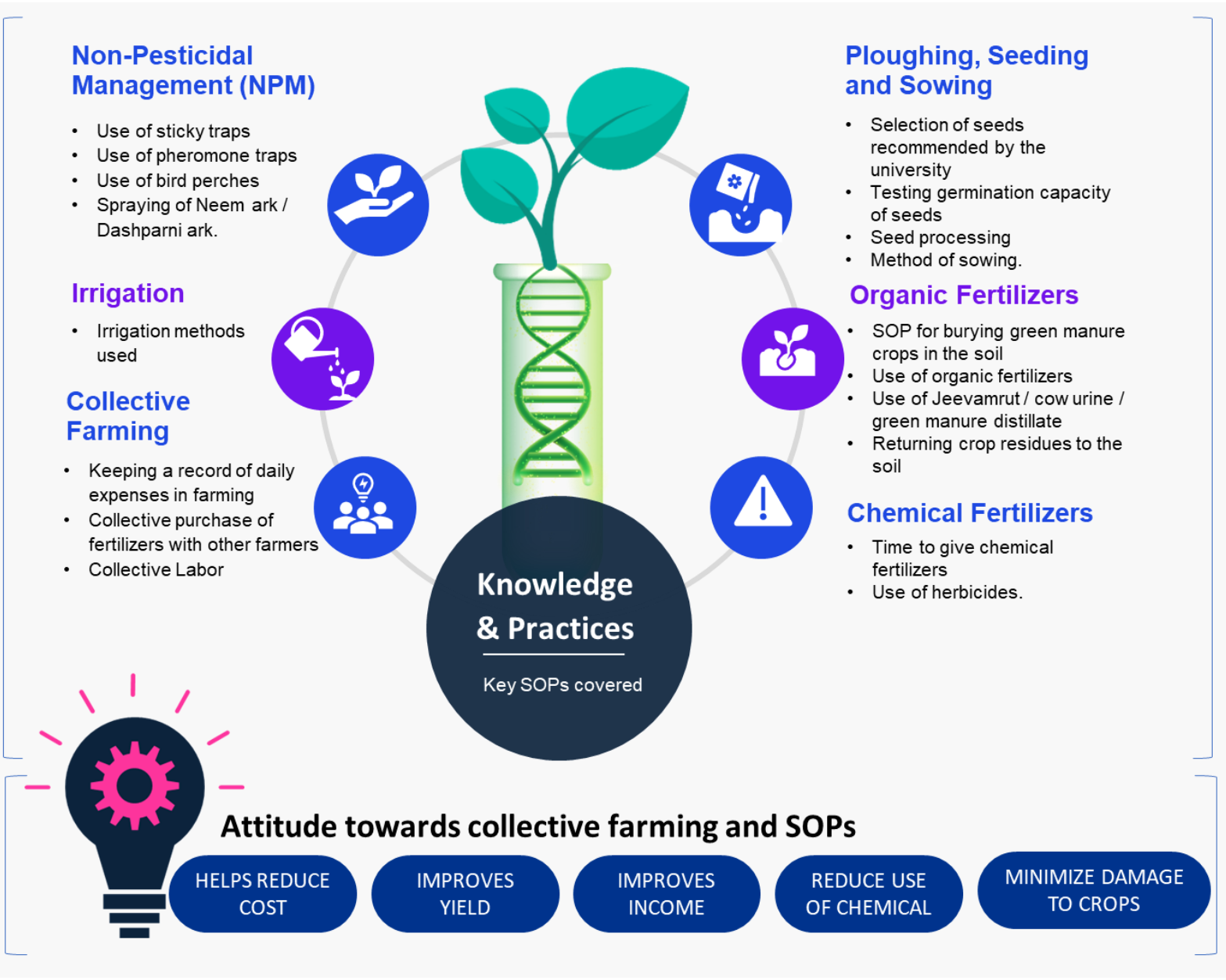
Evaluation Criteria	Illustrative Evaluation Questions	Cross-cutting Objectives
Relevance	A measure of the extent to which the intervention objectives and design respond to beneficiaries, global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change. ▪ To what extent are the objectives of the project still valid? ▪ Are the activities and outputs of the project consistent with the overall goal? ▪ Are the activities and outputs of the project consistent with the intended impacts and effects?	*Commitments of the stakeholders are integrated into Project design and planning*

Effectiveness	A measure of the extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups. ▪ To what extent were the objectives achieved / are likely to be achieved? ▪ What were the major factors influencing the achievement or non-achievement of the objectives?	*Achieved cross-cutting objectives during project implementation*
Efficiency	A measure of the extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way. ▪ Were activities cost-efficient? ▪ Were objectives achieved on time? ▪ Was the project implemented in the most efficient way compared to alternatives?	*Resources are provided and efficiently used for participation of all stakeholders*
Impact	A measure of the extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects. ▪ What has happened as a result of the project? ▪ What real difference has the activity made to the beneficiaries? How many people have been affected?	*Achieved real and long- lasting positive changes in the lives of intended beneficiaries*
Sustainability	A measure of the extent to which the net benefits of the intervention continue or are likely to continue. ▪ To what extent did the benefits of a project continue after donor funding ceased? ▪ What were the major factors which influenced the achievement or non-achievement of sustainability of the project? ▪ What can be some of the innovative ways to make the project sustainable in the long run?	*Likelihood that project achievements will continue after project*
Coherence	A measure of the extent to which the intervention is compatible with other interventions in a country, sector or institution. ▪ Does the project address the synergies and interlinkages between the intervention and other interventions in the same organization and in the same sector/policy landscape? Does it weaken or enhance the impact of any current programs or policies? ▪ Does the program lead to duplication of efforts?	*The extent to which other interventions (particularly policies) support or undermine the intervention and vice versa.*

3.1.2 Knowledge, Attitude and Practices Survey

A KAP survey is intended to be an all-encompassing survey of a specific population group, with the objective of gathering information about what is understood (knowledge), held as belief (attitude), and put into action (practice) within the context of the topic being investigated. In this study, the KAP survey was designed to identify knowledge and practice gaps around the implementation of SOPs encouraged during Farmer Cup and attitude towards collectivized farming.

Knowledge and Practices component of the survey was integrated during research and tool design, and key indicators for attitudes were finalized basis discussion with Paani Team. The KAP survey for the study covered the following aspects as illustrated below:



3.2 Methodology

The following section discusses the methodology employed by KPMG in this program evaluation, which has been broken down into four phases.

3.2.1 Phase I: Consulting & Scoping

Activity 1: Inception meeting	As a first step, the KPMG team set up a scoping and kickoff meeting with the Paani Foundation team to discuss the proposed work plan detailing out the various tasks to be conducted along with stipulated timelines. The KPMG team developed a detailed project plan to drive the engagement. A communication mechanism was charted out by mutually identifying the SPOCs from both KPMG and the client's side. Weekly update calls were scheduled with Paani team for efficient project delivery.
Activity 2: Desk-review and internal stakeholder engagement	The team conducted desk review of documents and reports shared by the client such as program concept notes, annual reports, program progress/closure reports, impact study, needs assessment survey, beneficiary (MIS) data, etc. Additionally secondary research was conducted to develop an in-depth understanding of the project locations, interventions, etc. Discussions with Paani team and implementing agencies were conducted to understand the project interventions' KPIs, map external stakeholders, and determine sampling strategy and size.

3.2.2 Phase II: Research Design

Activity 1: Development of Impact Map/Theory of Change	A theory of change/ impact map has been developed to establish the outcome and impact parameters for the project. An impact map is defined as a logical chain/ framework giving an overview of how inputs (actions taken, or work performed) result into outputs (changes resulting from the interventions relevant to the outcomes), causing outcomes (likely or achieved short or medium-term effects arising out of the outputs of intervention) and impact (positive or negative, intended, or unintended, direct, or indirect effects created by the interventions). The figure below shows a condensed version of the impact map developed and finalized in consultation with Paani team for Farmer Cup.

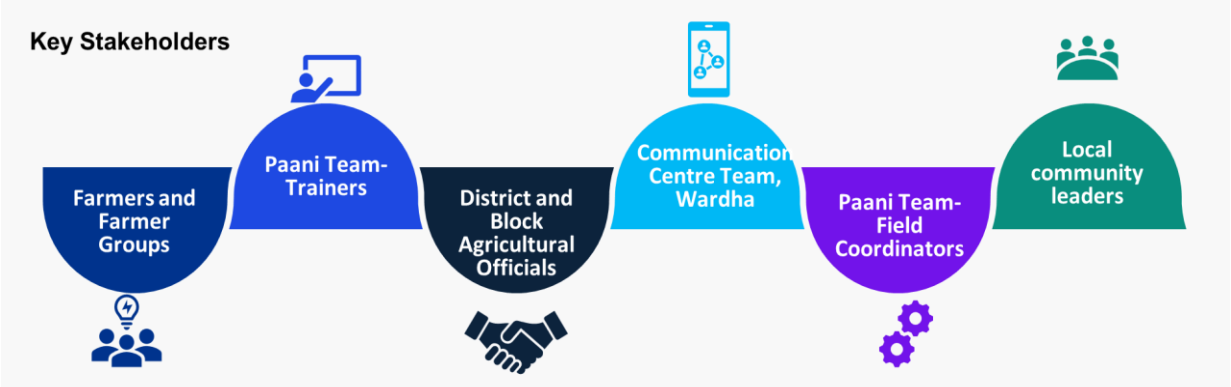
Satyamev Jayate Farmer Cup: Impact Map

GOALS

- Promote sustainable agriculture through collective farming
- Increase profitability by reducing cost of production and improving productivity
- Creating self-sustaining and resilient farmer-owned institutions

KEY ACTIVITIES	OUTPUTS	OUTCOME	IMPACT
Mobilization efforts	• Number of villages and farmers reached out via in-person and online efforts. • Number of participants, women • Number of Nimantraks registered	**Awareness and Knowledge** • Increased awareness and knowledge of SOPs. • Increased awareness and knowledge of NPM • Increase in the number of farmer collectives and women-led groups formed/registered	**a. Improved adoption of sustainable agriculture practices particularly NPM within farmers** **b. Crop specific sustainable agricultural SOPs/ best practices embedded in the community** **c. Improved productivity and profits contributing to more economically secure farming communities.** **d. Enhanced community cohesion and social value through shared knowledge and practices.** **e. Increased collaboration between different gats** **f. Farmers working as a collective for all activities, moving towards creating self-sustaining farmer-owned institutions**
3-day residential training			
Formation of crop specific collectives	• Number of gats registered • Number of women-led gats registered		
Digital Sheti Shalas and Field Schools	• Participation in DSS sessions • Participation in Field Schools	**Agriculture and Livelihood** • Increase in crop yield/productivity and net profit per acre • Reduction in cultivation costs • Decrease in use and expenses of chemical pesticides • Improved market rates and bargaining power • Enhanced decision-making power of women farmers	
Handholding support with SOPs and Farmer Cup App	• Number of farmers implementing at least 5 SOPs • Number of collectives adopting NPM methods • Number of farmers/groups using the Farmer Cup App		
Farmer Cup Plus-access to natural assets	• Number of farmer groups/women gats benefited via a FC Plus activity	**Digital Learning and Convergence** • Improved digital literacy/ ease while using technology (zoom calls, geotagging, etc.) • Improved understanding and access to government schemes	
Verification, judging, and award ceremony	• Number of farmer groups/ women-led gats awarded		

Activity 2: Stakeholder Mapping and Sampling strategy	Stakeholder mapping is the process of identifying all the stakeholders involved in a project and their roles and responsibilities on one map. The main benefit of a stakeholder map is to get a visual representation of all the people who can influence the project and how they are connected. Stakeholders who experience change, whether positive or negative because of the interventions carried out were considered for the study.



3.2.2.1 Sampling and Coverage

Sampling of stakeholders for engagement is based on the materiality of the stakeholder and the extent of the impact on the stakeholder.

Sample Size:

The sample size for this study has been calculated using Cochran's sample size formula. This formula allows one to calculate the sample size with desired level of:

- Precision
- Confidence level
- Estimated proportion of attribute present in the population

Cochran's formula is particularly appropriate in situations with large population. Cochran's Sample Size formula is given by:

Equation 1: Cochran Sampling Formula

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where,

- Z2 – Z value corresponding to confidence level i.e., obtained from Z table (statistic al table),
- p - proportion of population which has the attribute in question,

- q -1-p (estimation of variance)
- e - margin of error, which indicates by how many percentages the result will differ from the real population value

For the purpose of this study,

- Total population: 45,420 Approx.[17]
- Z: 1.96 (z value for 95% Confidence level)
- p: 0.5 (assumption is that 50%of the population says yes and 50% of the population says no the question)
- q: 0.5 (1-p) – estimate of variance
- e: 5% (standard assumption)

Putting all the values in the Cochran's formula, we get: ((1.96)2(0.5) (0.5)) / (0.05)2 = 384.16 i.e., approximately 384. This indicates that a random sample of approx. ~ 400 farmers will give us the confidence level that we need.

*Thus, the study was executed with a **sample size of approx. 400 farmers (398),** derived using the method of **95% confidence level** and a **5% margin of error**.*

Sampling Strategy:

KPMG used a **stratified random sampling design** to select districts, talukas and farmer collectives/gats for the program evaluation. A sampling frame was developed for the four regions of Maharashtra (Marathawada, North Maharashtra, Vidarbha, and Western Maharashtra) and the districts where in the farmers were situated. The study selected two districts from each of the four regions in Maharashtra basis their coverage of farmer groups/gats. Out of the eight selected districts, six were high density districts or had higher coverage of farmer groups/gats and two were low density districts. Farmer Cup program spanned 18 districts in total, out of which eight districts were covered for the study (approx. 44%). The districts that the study included are Ahmednagar[18], Sambhajinagar[19], Nandurbar, Beed, Wardha, Washim, Satara, and Solapur. Similarly, talukas were selected based on their coverage of gats.

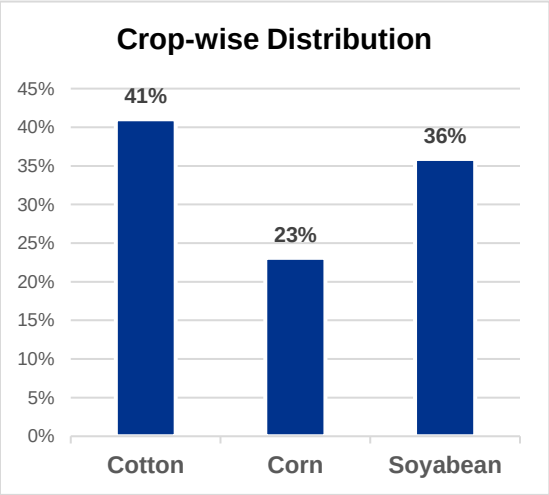
The study sampled farmer gats from the ones participating in Farmer Cup 2024 in the selected districts and talukas, covering experienced gats for impact and first timers as part of the baseline. A total of 40 Gats were **randomly sampled** from the selected talukas, with an average of 10 farmers selected from each Gat, thus covering around 400 farmers approx. The experienced gats and first timers were selected based on random sampling with about 20 gats for each category. This was designed with the intention of understanding the program impacts, gathering programmatic insights, as well as setting

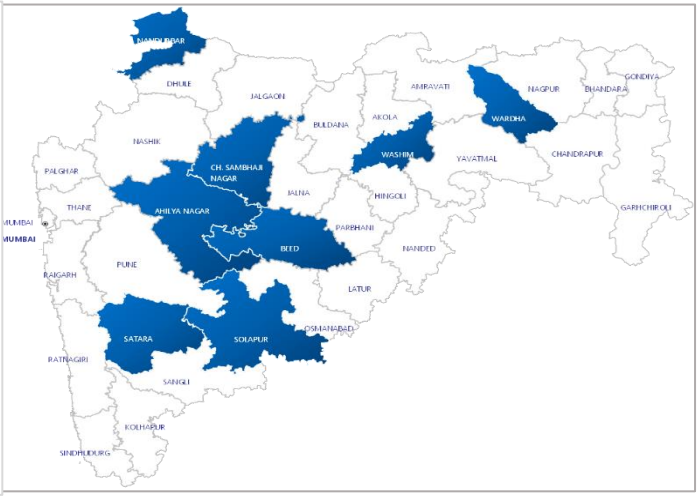
[17] (3028 Gats/Farmer Groups in 2023 basis information shared by Paani Foundation, assuming 15 members per gat on an average)

[18] Ahilyanagar

[19] Ch.Sambhajinagar

the benchmark for future program evaluations. The research focused on three common crops grown- soyabean, cotton, and maize. The gats were sampled considering representation of both high and low performers, as well as ensuring women-led farmer groups were adequately represented.





Districts	Coverage (Surveys)	Coverage (FGDs)[20]	Total Coverage	Gats Covered
Satara	14	33	47	3
Washim	27	22	49	5
Wardha	23	22	45	4
Ahmednagar	29	25	54	6
Sambhajinagar (Aurangabad)	28	20	48	6
Nandurbar	19	47	66	6
Solapur	32	17	49	4
Beed	25	15	40	5
Total	**197**	**201**	**398**	**39**

Tools	Baseline	Impact	Total
Surveys	110	87	197
FGDs [21]	101	100	201
Gats covered	20	19	39

[20] Unique participants in the FGDs. Some participants in FGDs particularly the Nimantraks had also been covered in the survey, therefore have not been included here.

[21] Unique participants in the FGDs. Some participants in FGDs particularly the Nimantraks had also been covered in the survey, therefore have not been included here.

Activity 3: Development of Research Tools	This study employed a mixed-methods approach, incorporating both quantitative and qualitative data collection and analysis techniques. In the initial phases, detailed desk review was conducted to examine current knowledge and identify gaps and areas for further exploration. After desk review and development of research design, survey instruments were developed based on the impact map to collect data (quantitative and qualitative) from a sample population to gather information on participants' experiences, attitudes, and behaviors. Semi-structured interviews with key stakeholders, including strategic partners like Umed, and government officials, were also designed to gain an in-depth exploration of the research topic and insights into emerging trends and best practices. Developed data collection tools were aligned to the key program objectives, scope of the study, along with additional questions to add valuable insights. The survey questionnaire for the farmers was translated to Marathi and digitalized for efficient data collection. Tools prepared include: • Online survey tools for farmers • Focus Group Discussions guide for farmer gats/collectives • Key Informant Interviews with strategic partners and district officials

3.2.3 Phase III: Data Collection

Activity 1: Development of field-visit plan	The KPMG team planned the stakeholder interactions through mutual discussion with the project and field team of Paani Foundation. The data collection team consisted of five members from the KPMG core team who were native Marathi speakers. They were responsible for data collection across the eight districts. The team developed a detailed timeline for the field visit plan, including specific dates and times for data collection activities. KPMG team requested support from the field coordinators with regards to scheduling interactions and mobilizing the stakeholders. This ensured that the data collection teams had access to the necessary resources and support to conduct the study in an efficient and ethical manner.

Activity 2: Conducting Data Collection	KPMG team conducted the stakeholder consultations through individual interviews, focus group discussions and IDIs with other stakeholders from 20th August 2024 to 25th September 2024. During the process of collecting data, KPMG team ensured inclusion of facilitators who possess previous experience in engaging with participants using their native/local languages. Training and sensitizing sessions were conducted for the data collection team to help them effectively communicate with the stakeholders. The team also conducted pre-testing/pilot testing of tools. The team engaged in one-on-one interactions during the data collection. The data collection process was monitored for completeness and accuracy by engagement lead.

3.2.4 Phase IV: Analysis & Reporting

Activity 1: Data analysis and preliminary findings	During the data analysis, both qualitative and quantitative analysis were conducted on the data collected. To enhance accuracy and reliability, the findings from the quantitative data collected on the ground were triangulated to an extent. The collected information was thoroughly analyzed on a location disaggregated basis, allowing for a detailed understanding of the specific areas involved. The data and observations obtained during the primary data collection phase and document review were carefully analyzed to inform report writing. Preliminary field observations were presented and shared with the Paani Project Team.
Activity 2: Development of report and presentation	A comprehensive and detailed report was created for Paani Foundation at the Program-level encompassing the key observations, analysis, findings, and recommendations derived from both the baseline study and impact assessment. Separate sections were prepared for baseline and impact study, providing a detailed breakdown of data and analysis. The report adhered to the guidelines provided by the OECD-DAC framework, ensuring accuracy and relevance. Before finalizing the report, a draft version was shared with the team at Paani Foundation for discussion and their valuable inputs. Once finalized, the report was presented to the project team at Paani Foundation.

ANALYSIS & FINDINGS

4 Chapter IV: Analysis & Findings

This chapter presents the findings from both the impact and baseline study for Paani Foundation's Farmer Cup initiative. It starts by presenting the demographic profile of the respondents, thereby setting the context for understanding the community involved. Subsequently, the study analyses the feedback related to each program activity, examines shifts in attitudes, knowledge, and practices among the participants and discusses the impact of the program on the farmers.

4.1 Demographic Profile

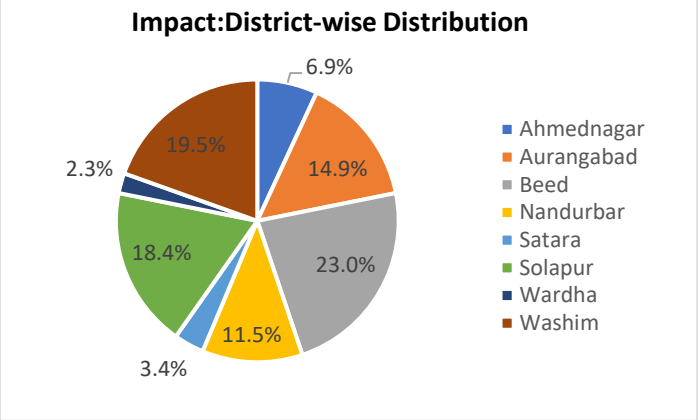
The section provides the socio-economic profile of the farmer collectives/gats surveyed for impact and baseline study.

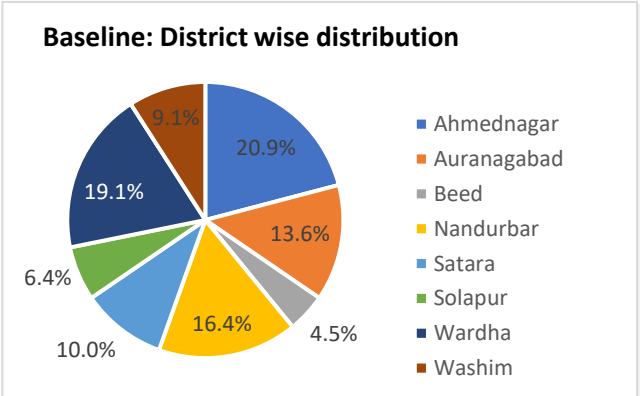
4.1.1 Coverage

The graphs below present the district-wise coverage of survey respondents for impact as well as baseline study.

Impact

The impact study covered gats which had participated in at least one of the previous Farmer Cup editions and are also participants of Farmer Cup 2024[22]. For understanding the program's impact, the study covered 87 respondents through individual surveys and around 100[23] were covered through the focus group discussions. Around 62% of the respondents participated in 2023, whereas about 38% of them participated have been involved with the Farmer Cup since 2022.





The baseline study covered around 211 respondents, 110 through individual surveys and around 101 through focus group discussions. Ahmednagar had the highest number of respondents for baseline, followed by Wardha, where gats under the pilot Digital First Model were also covered for the study.

Baseline

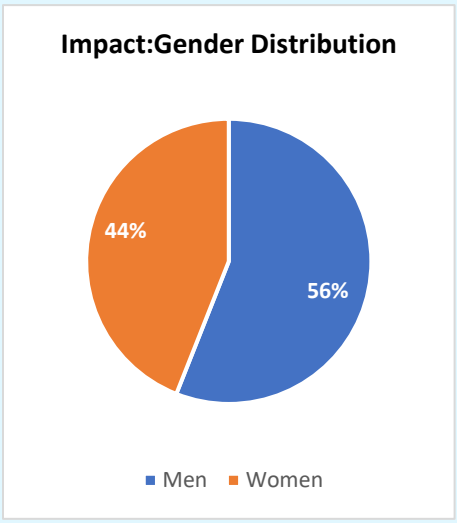
[22] Please note, as mentioned earlier, the sampling was specifically tailored to include farmer collectives that had participated earlier and were ongoing participants of the Farmer Cup 2024. This deliberate focus on continuous participation was a mindful aspect of the research design, aimed at extracting programmatic insights and facilitating effective data collection.

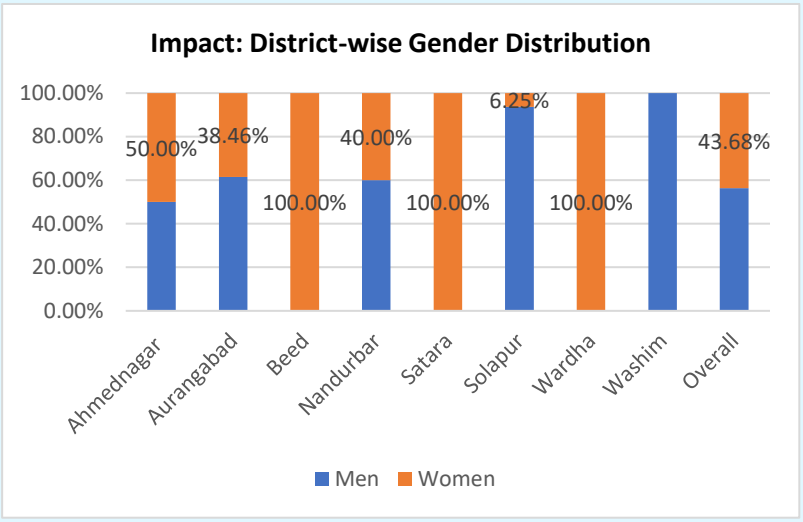
[23] Unique participants in the FGDs. Some participants in FGDs particularly the Nimantraks had also been covered in the survey, therefore have not been included here.

4.1.2 Gender

Impact

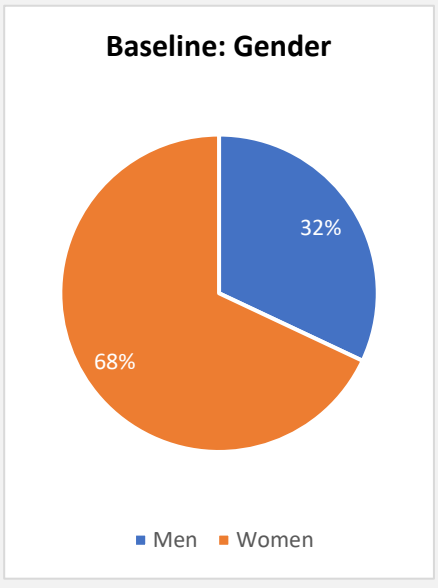
In the impact study, approximately 56% of the survey participants were men, while the remaining 44% were women. At a district level, the distribution demonstrates diverse patterns. Beed, Satara, and Wardha had high representation (100%) of women, while Solapur and Washim reported higher number of respondents.

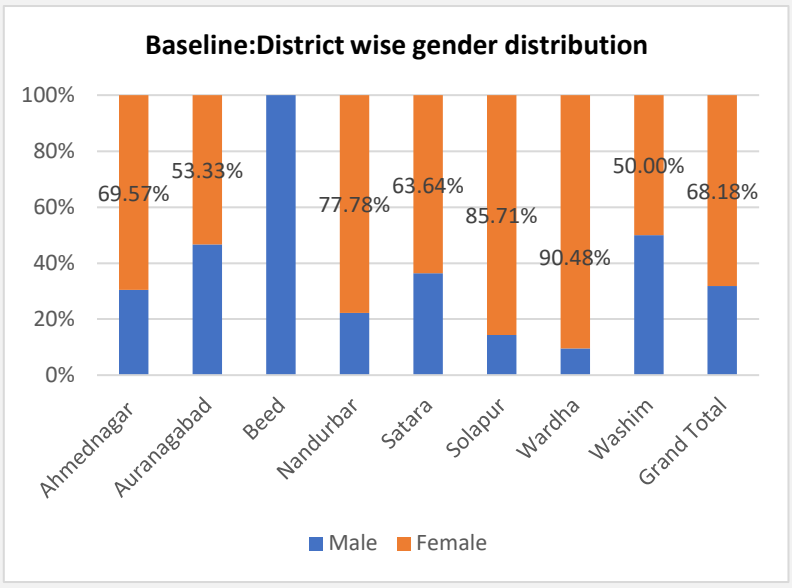




In the baseline study, around 68% of the respondents were women as compared to 38% men. Wardha and Solapur have the highest female representation at 90.48% and 85.71% respectively, while Beed has only male respondents.

Baseline

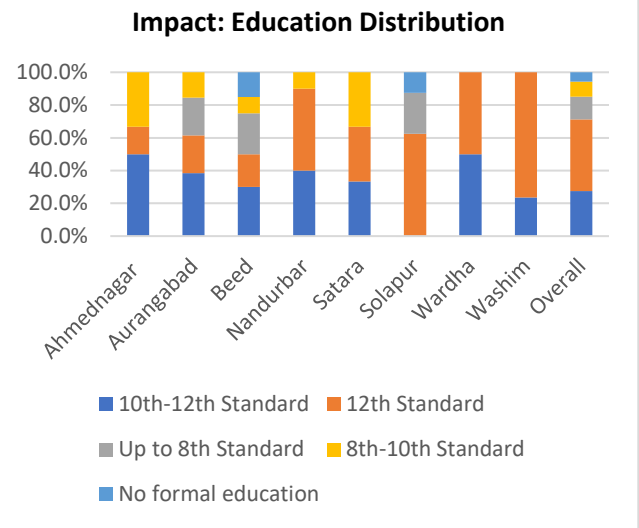


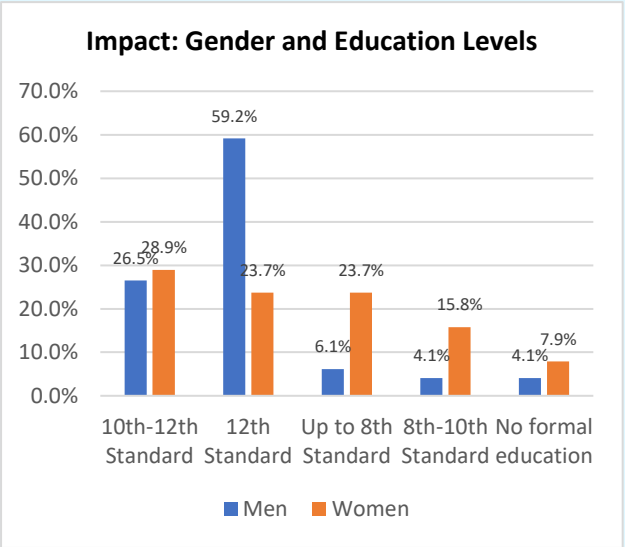


4.1.3 Education

Impact

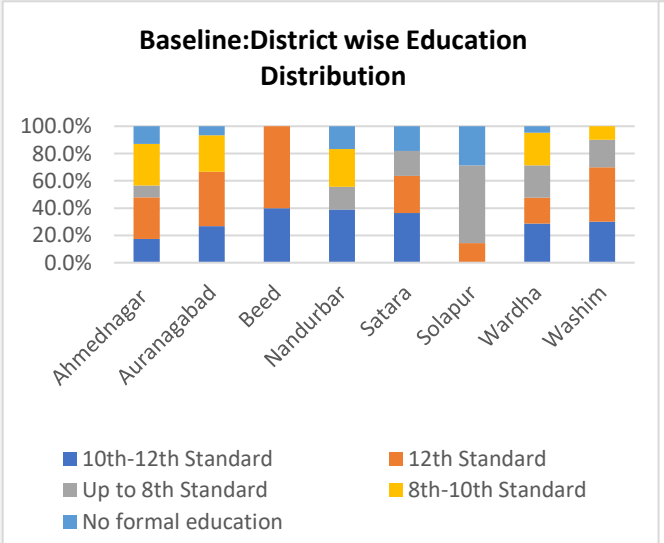
In the impact study, the largest fraction of the respondents, 43.7% had completed the 12th Standard. Approximately 27.6% had completed their education up to the 10th-12th Standard. The results demonstrate a varying degree of educational attainment across the surveyed men and women respondents. Around 59.2% of men reported that they had completed schooling until 12th standard as compared to 23.7% of women. About 4.1% of men and 7.9% of women stated they had no formal education.

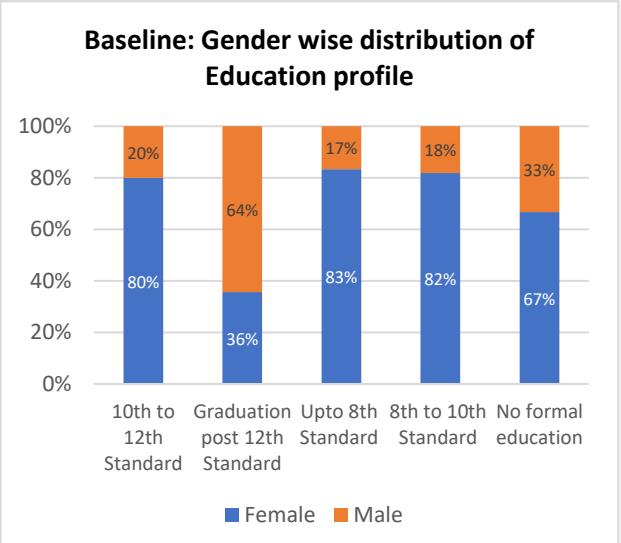




In the baseline study, Beed stands out with the highest percentage of respondents having completed 12th Standard (60%), while Solapur has the highest percentage of respondents with education up to 8th Standard (57.1%). Around 67% of the respondents who shared that they did not have any formal education were women. A significant majority of those with education up to 8th Standard (83%) and between 8th and 10th Standard (82%) are female. In contrast, men are more represented in higher education, with 64% of those having completed graduation post-12th Standard being male.

Baseline

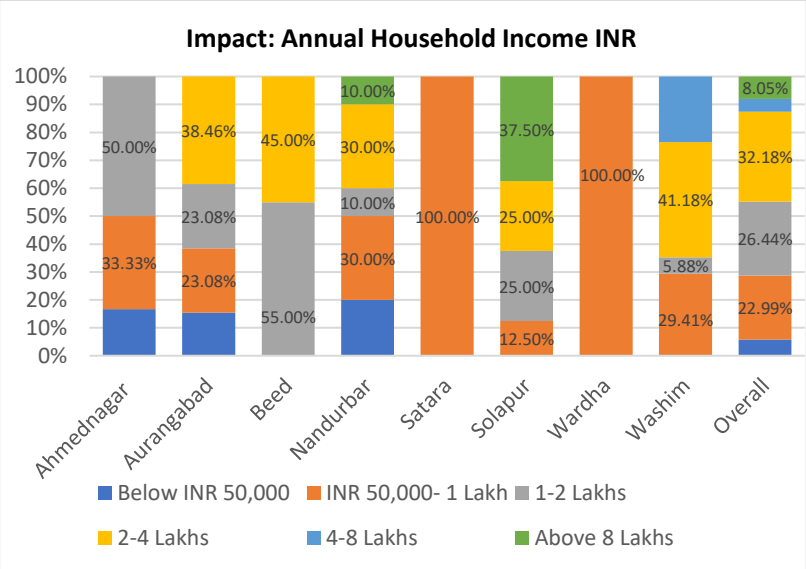


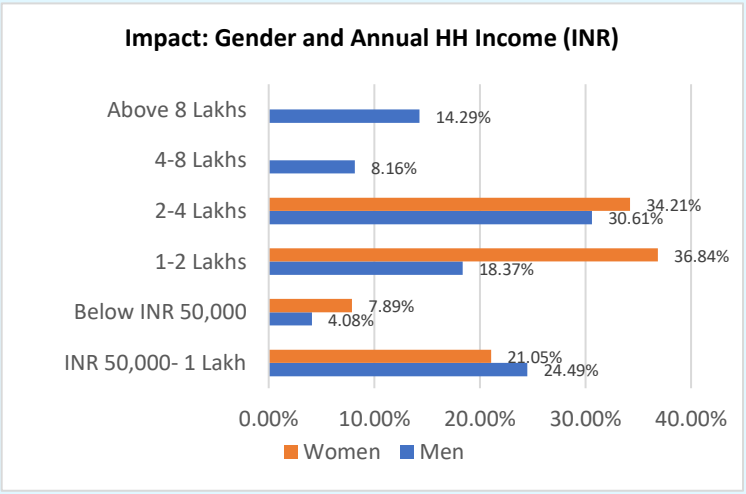


4.1.4 Household Income

During the survey, the respondents were asked if they were comfortable sharing their annual household income. For the same, a range was provided to choose from. Among the respondents for the impact study, the largest income group, approximately 32%, reported having a yearly household income ranging from INR 2-4 Lakhs. This was followed by the INR 1-2 Lakhs group, representing 26% of the total participants. 23% reported an income level of INR 50,000- 1 Lakh, and around 6%, had income below INR 50,000. Higher income levels were less common, with 5% earning between INR 4-8 Lakhs and 8% having an income above INR 8 Lakhs.

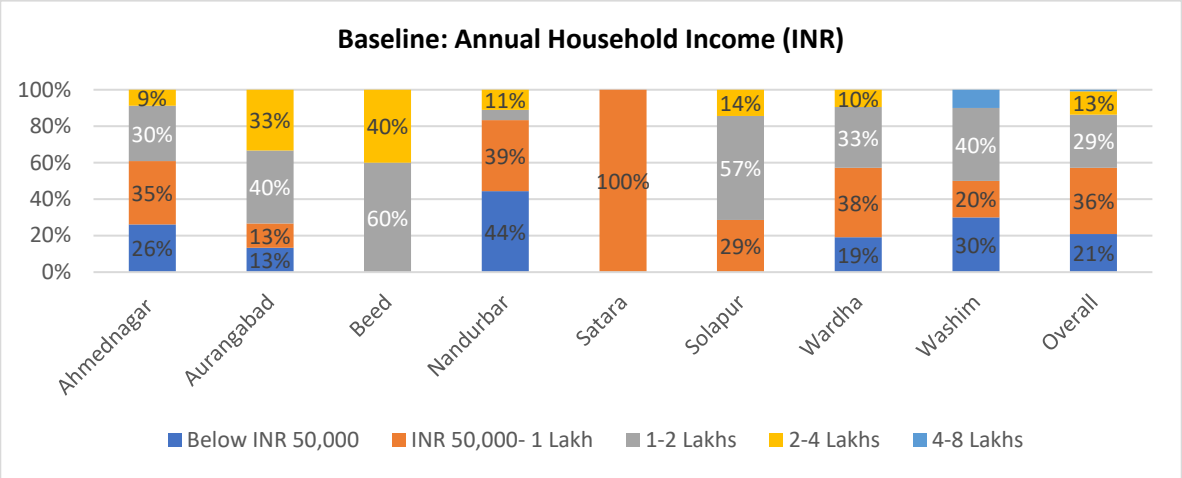
As per the graph, the districts of Ahmednagar, Wardha, and Satara, the absence of respondents earning above INR 2 Lakhs suggests that these sampled farmer gats may be predominantly made up of small landholding farmers. Nandurbar show a significant proportion of its households in the INR 50,000 - 1 Lakh income bracket, highlighting potential challenges with sustainable livelihood. The lower income levels likely result from smaller-scale farming operations with limited resources and productivity, potentially making it difficult for these farmers to cross the threshold of INR 2 Lakhs in annual earnings. Only respondents from Solapur (37.5%) and Nandurbar (10%) districts, have reported an annual household income of above 8 Lakhs.





The overall annual household income when broken down by gender yields varied profiles for male and female respondents. Around 53% of male farmers reported an annual household income of above 2 lakhs, as compared to only 34% of women reporting the same. None of the women farmers reported annual household income of above four lakhs, as compared to 22.5% of the male farmers.

The baseline data highlights that around 36% of the respondents had an annual household income of INR 50,000- 1 Lakh. None of the districts reported any households with an annual income of above INR 8 lakhs amongst the respondents for baseline. This distribution also highlights economic disparities and the prevalence of lower-income households in the baseline study.

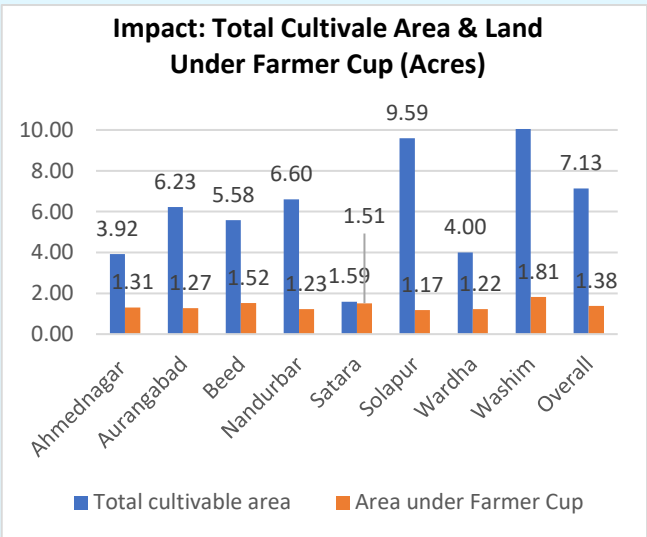


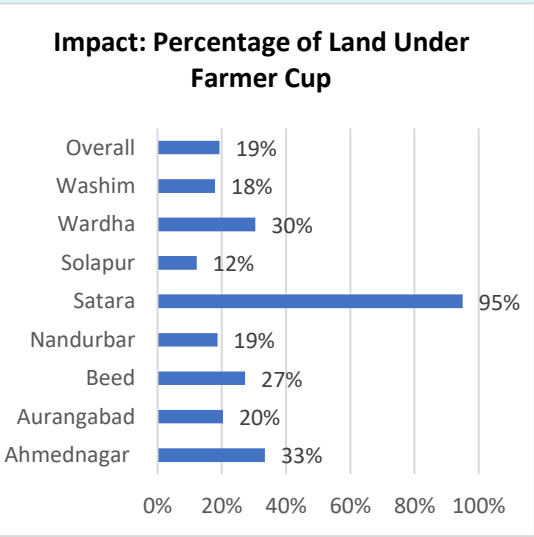
Baseline

4.1.5 Agricultural Land

All the surveyed participants for impact study reported that they or their families are the owners of the land they cultivate. The data indicates that the average cultivable area per farmer for the study respondents across the 8 districts is approximately 7.13 acres. Furthermore, the average area that individual farmers are choosing to enter for the Farmer Cup competition is around 1.38 acres each. On average about 19% of their total cultivable land is utilized for the Farmer Cup initiative by the respondents.

Impact





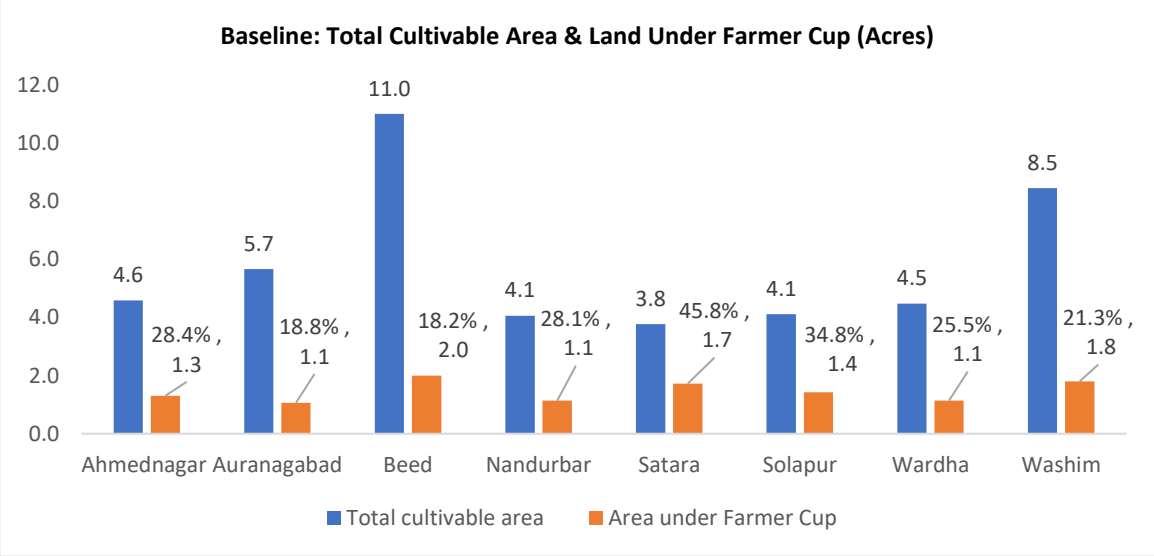
Impact

The overall data indicates a disparity in landholdings by gender, with men having a substantially larger average cultivable area at 8.83 acres, compared to women, who hold smaller plots,, averaging at 4.94 acres. Satara district, with an average cultivable area of 1.59 acres, has the smallest landholding size amongst the surveyed districts. Owing to small landholding size, the district shows significant engagement with the Farmer Cup with the survey respondents giving a substantial 95% of its total cultivable land under the initiative. This may also reflect an intent to maximize the productivity and income from their smaller landholdings through adoption of practices by the Farmer Cup Program.

Around 95.41% of respondents for baseline study reported that they owned the land they cultivated. Only a small percentage of farmers, 1.83% overall, do not own their agricultural land, with the highest non-ownership reported in Sambhajinagar (6.67%) and Wardha (4.76%). It is a common practice to rent a land where the family has moved out of the village (where farming is not their main occupation). They rent it out to tenant farmers and share the profits over the land or receive the rent for it.

Across various districts, the total area available for cultivation on average per farmer was reported at 5.16 acres, with 1.34 acres of that area designated for the Farmer Cup per farmer. Overall, around 26% of the individual farmer's total landholding was entered under the Farmer Cup program.

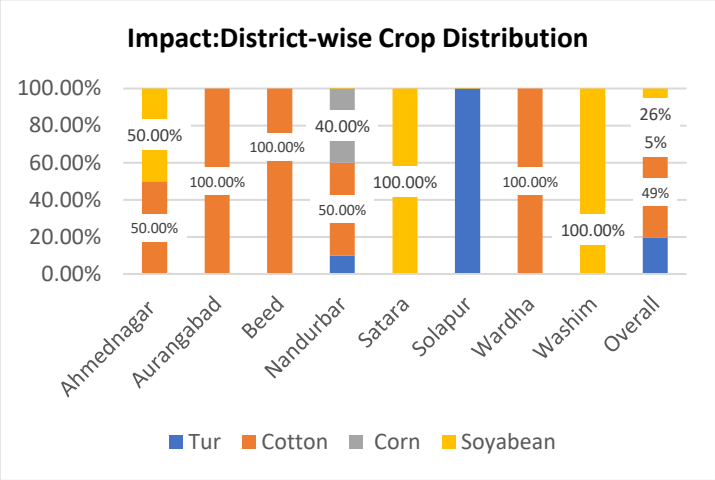
Baseline



4.1.6 Crop Distribution

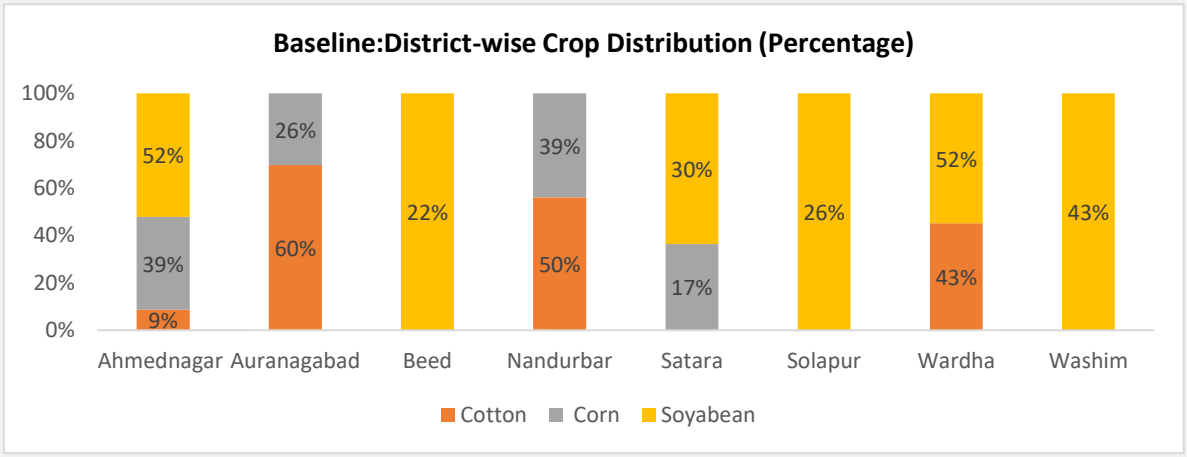
Impact

As mentioned in the preceding chapter, the sampled gats covered three main crops- Cotton, Soyabean and Corn. The graph below shows the district wise crop distribution for impact study. However, the survey data highlights that many soyabean-growing farmers particularly from Solapur district have now shifted to Tur cultivation in Farmer Cup 2024 owing to better economic returns, their participation in the Farmer Cup and improved yield that boosted the confidence of farmers.



The data indicates that soybean is the most widely cultivated crop among the respondents for baseline study, accounting for 47% of the total agricultural production. Cotton follows with 26%, and maize stands at 25%.

Baseline



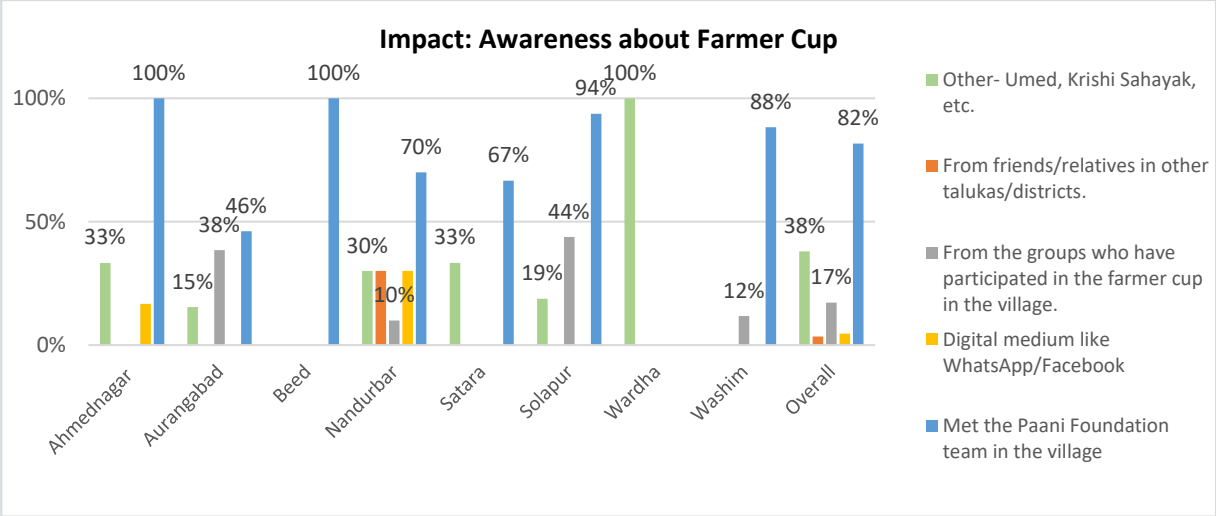
4.2 Key Activities

This section provides an overview of the key aspects of the Farmer Cup initiative, tracing the path from initial awareness building to active participation for both impact and baseline study. It examines distinct facets including the three-day residential training, formation of farmer groups, Farmer Cup app, Digital Sheti Shala as well as the field schools.

4.2.1 Participation in Farmer Cup

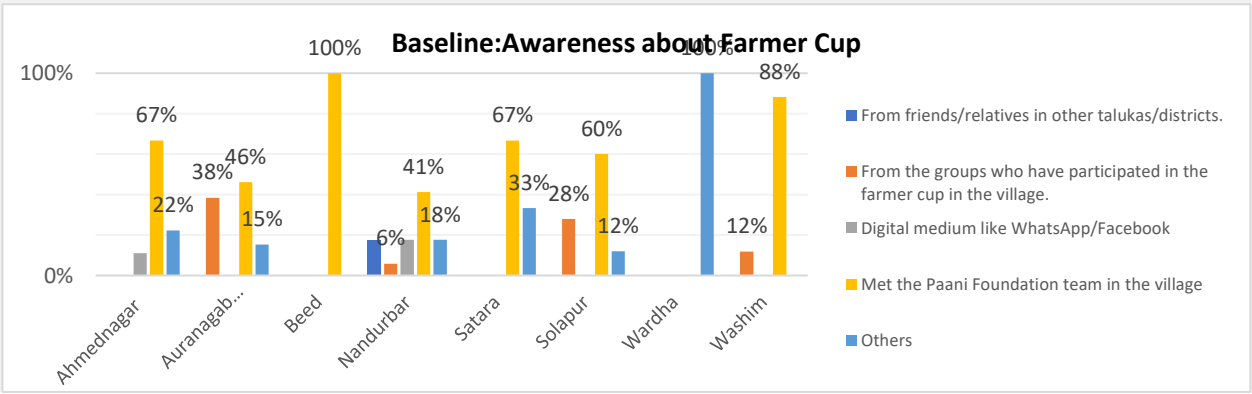
Impact

Around 82% of the respondents for impact study shared that the outreach of the Farmer Cup was primarily facilitated by direct contact with the Paani Foundation team. In addition, 38% of participants came to know about the initiative through other avenues such as UMED Abhiyan and Krishi Sahayaks. Another 17% of participants learned about the Farmer Cup from groups in their village who had previously participated in the competition. Smaller percentages were reported for acquiring knowledge via digital media such as WhatsApp or Facebook (5%), and from friends or relatives in other 'talukas' or districts (3%).



In the case of baseline study, 67% of participants shared that they got to know about the program through the Paani Foundation team. Groups that participated in the Farmer Cup contributed to 14% of the awareness, while friends or relatives in other talukas or districts accounted for 3%. Digital mediums like WhatsApp and Facebook are responsible for 4% of the awareness, and other sources (ATMA, UMED, & Krishi Sahayaks) contribute 12%.

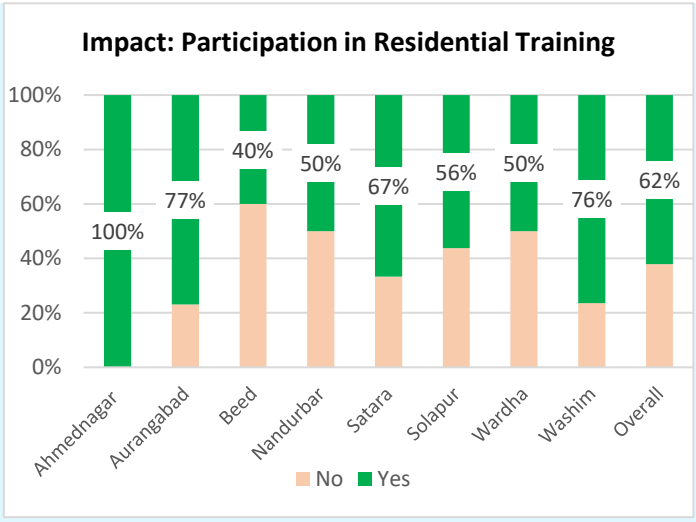
Baseline



> *"The Krushi Sakhi, part of Umed, provided us with comprehensive information about the Paani Foundation and its various initiatives. This introduction helped us, and the villagers understand the Paani's goals and the benefits of participating in the Farmer Cup."*
>
> - Bhusudharak Mahila Shetkari Gat, Wardha

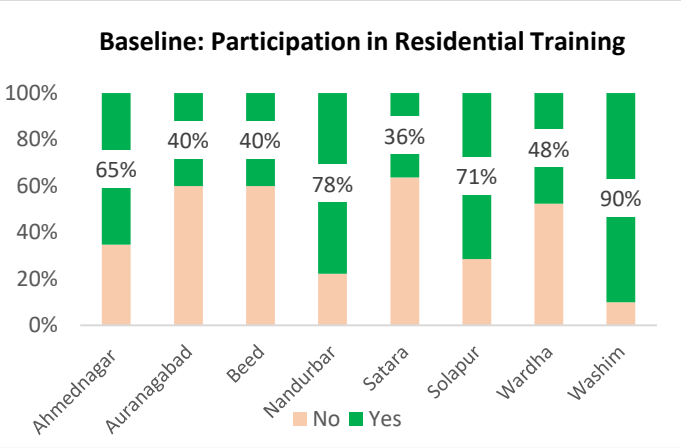
4.2.2 Residential Training

Impact



Around 62% of the impact study participants attended the three-day residential training. 65% of respondents who attended residential training were men, and around 35% were women. Select farmers from villages choose to participate in the training. This training seeks to equip farmers with crucial knowledge and skills for sustainable and scientific farming practices. All participants who attended the training confirmed that they gained valuable lessons on how to decrease farming expenses, how to enhance acreage productivity, and ways to boost profits. Furthermore, they reported observing positive improvements in their farming methods after the training. This feedback underscores the tangible impact and effectiveness of the residential training in empowering these farmers and enhancing their agricultural practices.

Baseline



Similarly, for the baseline study, around 59% of the respondents had attended the residential training. The data highlights that 57% of these participants were male and 43% were female. Overall, the data highlights varying levels of participation across districts, with some areas showing strong engagement (Washim & Nandurbar) and others indicating potential for increased outreach and involvement (Satara, Sambhajinagar & Beed). All participants who attended the training confirmed that they had received training on reducing farming expenses and increasing productivity. 98% of the baseline respondents shared that they had observed positive results in their farming methods as a result of the training.

> *"Those of us who attended the training shared their knowledge with other villagers, spreading awareness about the Paani Foundation and the Farmer Cup. This peer-to-peer learning was effective in building community support. The name of our gat was inspired by the village name, expressing a sense of local pride and identity."*
>
> - Chintamani Shetkari Gat, Wardha

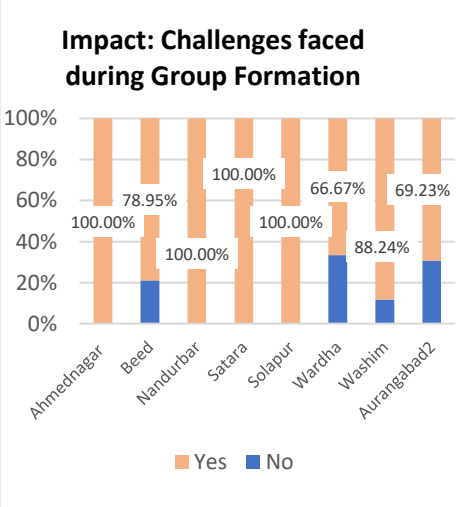
4.2.3 Group Formation

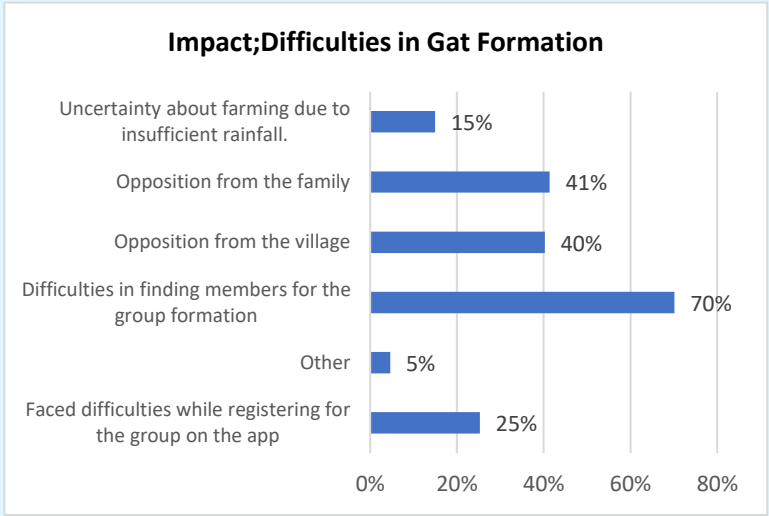
One of the integral parts of the Farmer Cup initiative is the formation of 'gats' or collectives. In many cases, farmers who have undergone the three-day residential trainings, assume the role of '*nimantraks*' or leaders, tasked with the responsibility of going back to their villages and forming crop-based collectives for the Farmer Cup. The process of 'gat' or collective formation often presents a series of challenges which farmers have to confront like socio-cultural and logistical challenges.

4.2.3.1 Challenges faced during group formation.

Impact

According to the impact data, a significant proportion of farmers in the surveyed districts (87.36% overall) reported encountering difficulties during the formation of these crop-based collectives. All the survey respondents in Ahmednagar, Nandurbar, Satara, and Solapur reported facing challenges during this phase. Around 70% of respondents shared that they faced difficulties in recruiting members for forming the gat, indicating possible reluctance within their communities towards collective farming. Technical challenges such as difficulties in registering the 'gat' on the Farmer Cup app, were reported by 25% of farmers. This indicates the need to tackle problems related to digital literacy, an issue that the Paani Foundation is actively seeking to mitigate through initiatives such as their App Mitraks, which train local youth to offer digital support to farmers.



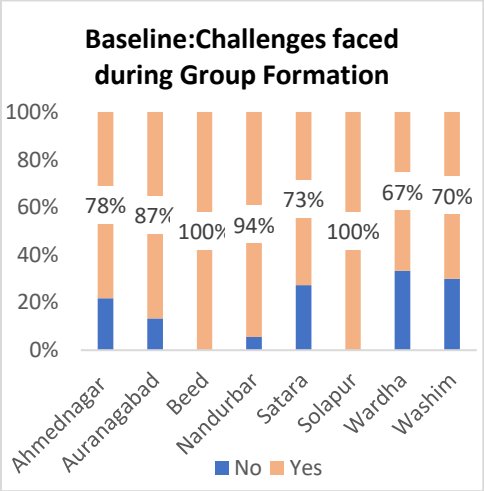


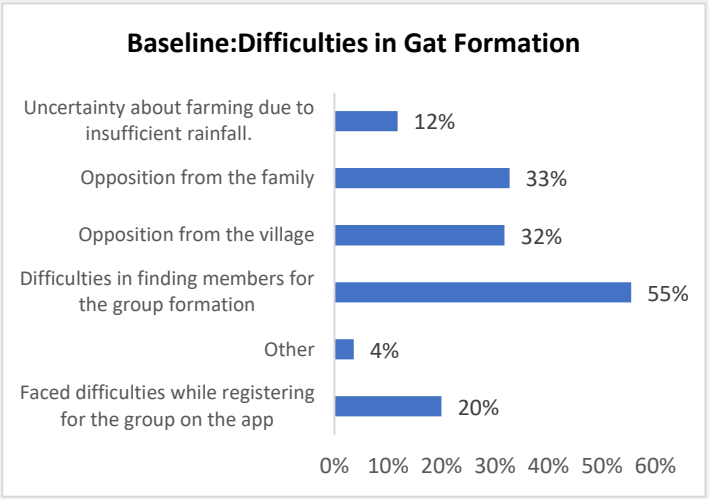
Impact

Opposition from some village or community members was another significant issue, reported by 40% of farmers across districts. Some of the respondents shared that there were few rumours circulating that Paani Foundation will try to capture their land or they will lose control over their agriculture. In some cases, there was apprehensions and questions raised about the nimantrak owing to personal or other reasons. Some of the farmers shared that all the gat members along with other previous gats (if any) would then go to each farmer's house to convince their family member to let them join the Farmer Cup. Family opposition emerged as a major obstacle, with 41% of farmers overall contending with resistance within their own families. This highlights the internal household dynamics that farmers must navigate while engaging in collective action initiatives. A considerable 68% of women participants reported facing opposition during the formation of 'gat' or collectives, either at a household or community level. This highlights the gender-specific barriers that women farmers might encounter in their efforts to mobilize collective action within their homes and broader communities.

Baseline

According to the baseline data, around 84% respondents reported facing difficulties during gat formation. The data highlights that 71% of male farmers and 85% of female farmers encountered challenges during the formation of Gats. As mentioned above, the higher percentage of women reporting issues also indicates the interplay of societal gendered norms, restricted access to resources and landownership, and additional domestic and caregiving responsibilities in women's active participation.





"Joining the Farmer Cup and forming our 'gat' has been a transformative experience for us. Initially, we were hesitant and faced resistance from our families and community. However, the training provided by Paani Foundation was insightful and easy to understand. We learned about the BBF methods and the benefits of gat farming, which motivated us to join. The support from Paani Foundation and the use of SOPs have helped us save money on equipment and seeds. We are now more excited about farming and enjoy working together as a community."

- Krushiratna Mahila Shetakari Gat, Satara

4.2.3.2 Support provided during group formation.

The Paani Foundation team offered multifaceted support to the farmers during the 'gat' formation process.

Impact

Around 34% of farmers covered in impact study shared that they received assistance in registering their group on the app. Particularly in Ahmednagar, every farmer received this support, indicating an active role of the Foundation's team in bridging digital gaps. Engagement activities such as inviting people to one place in the village, showing films, facilitating access to agricultural tools through partnerships and liaising to motivate members for group formation were reported by 55% of farmers overall. The team also conducted Zoom calls or personalized meetings to motivate farmers, with this method which was impactful for 29% of farmers surveyed. Ahmednagar and Satara reported the highest engagement, with every farmer in these districts receiving personalized outreach. These findings indicate the targeted support provided by the Paani Foundation to facilitate the mobilization of collective action, catering to both digital needs and collective motivation.

Baseline

In the baseline study, around 27% of the respondents shared that the team helped them register on the app, which streamlined the process and made it more accessible. A significant 44% of the support involved screening films and facilitating access to agricultural tools, which played a crucial role in motivating members to form groups. About 23% of the support was delivered through Zoom calls or personal meetings, offering direct motivation and guidance to the members. Additionally, 5% of the support was categorized as other encompassing various support such as motivating community members to participate in Farmer Cup, conducting household visits, community mobilization etc. This comprehensive support system was instrumental in overcoming the hurdles faced by farmers during the group formation process for the baseline participants.

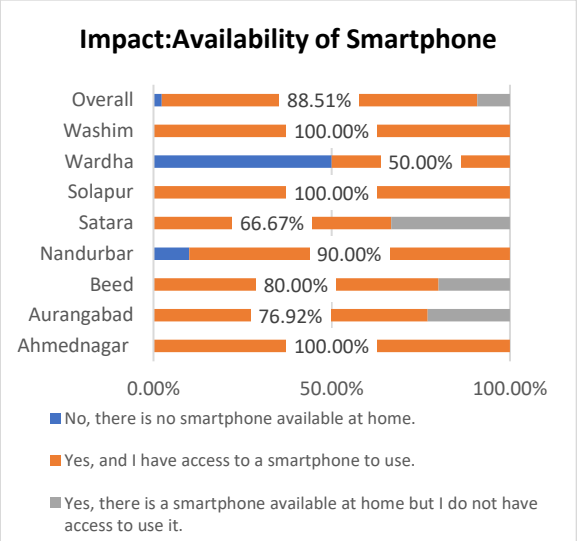
4.2.4 Farmer Cup App

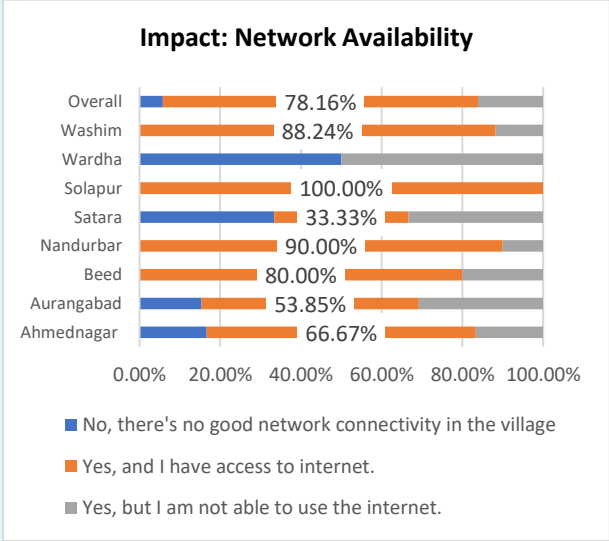
Paani Foundation's Farmer Cup app is a practical tool for progress tracking, knowledge transfer, and information dissemination for farmers. It helps monitor the Farmer Cup journey, provides digital educational content, and shares essential SOPs (Standard Operating Practices) for various farming tasks. Farmer Cup App operates on the Android platform; thus, it is essential that at least one of the gat members has access to a smartphone, ensuring the app remains current with the gat's timely updates.

4.2.4.1 Access to smartphone and network

Impact

According to the impact study, around 88.51% respondents shared that they own and use a smartphone. About 9.2% have a household smartphone but do not have access to it, and around 2.30% of surveyed farmers across all districts do not own a smartphone. According to the impact data, around 98% of men have access to a smartphone at home and use it as compared to 76% of women. Furthermore, even when a smartphone is available at home, women (22%) reported that they were not a permitted to use it, suggesting that barriers to smartphone access are compounding for women. The survey data suggests varying levels of network connectivity across the districts. The majority, around 78%, reported having satisfactory internet access. However, we found that 16% of users have network connectivity but face difficulties using the internet and around 6% reported no good network connectivity at all.

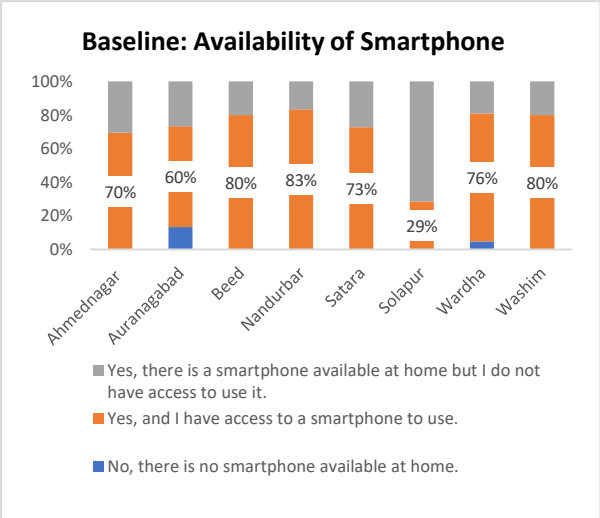


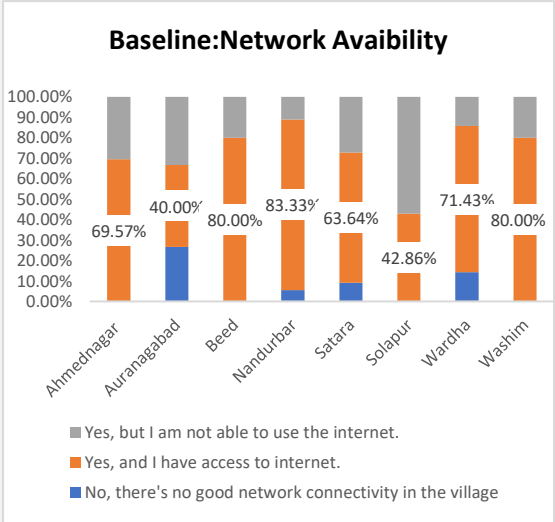


Baseline

Around 69% of baseline respondents reported that they have access to a smartphone and can use it. About 29% of farmers shared that they have a smartphone available at home but do not have access to use it. Only a small percentage, 2%, reported not having a smartphone available at home. Around 86% of male respondents shared that they had access to a smartphone, whereas only 64% of female farmers reported the same. Additionally, 32% of women respondents have a smartphone available at home but do not have access to it, compared to 14% of men. Furthermore, 4% of female farmers indicate that there is no smartphone available at home, a situation not reported by any male respondents. Around 66.35% of baseline respondents shared that they have access to the internet, reflecting a majority with connectivity. However, 26.70% of respondents, despite having network

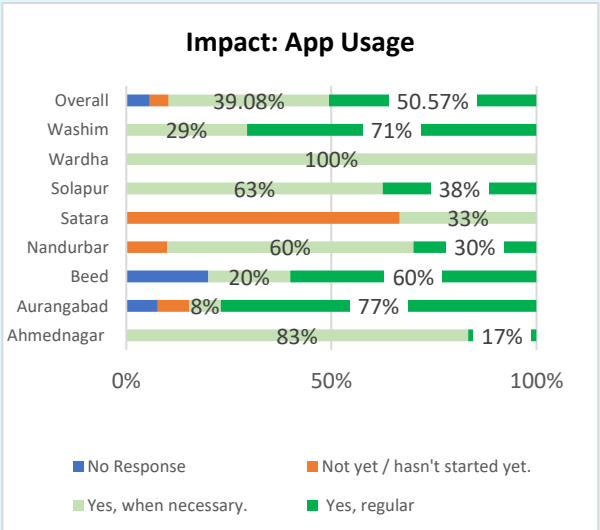
connectivity, are unable to use internet owing to financial constraints and in some cases lack of familiarity with smartphones feature. Additionally, 6.95% of respondents report poor network connectivity in their villages.

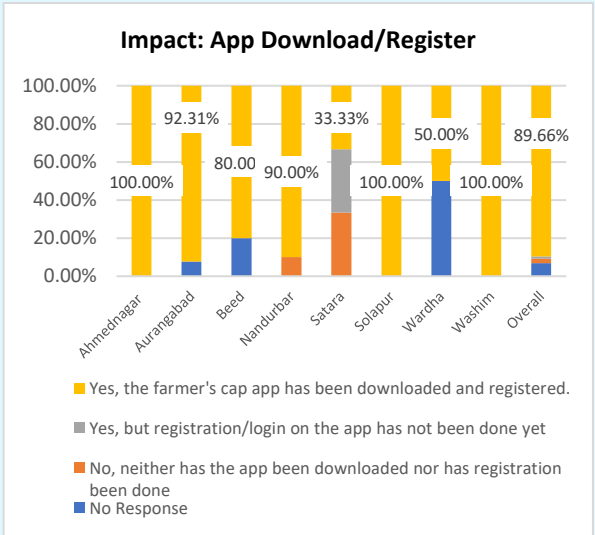




4.2.4.2 Usage of Farmer Cup App

Around 90% of respondents for impact study shared that they have successfully downloaded and registered on the Farmer Cup app. It's been observed that many farmers still hesitate to use the app due to fears of making incorrect entries that might impact their group, leading to a situation where only a select few, including some young farmers and *nimantraks,* end up handling app-related tasks. The survey results show that while about 50.57% of respondents report that they are regular users of the Farmer Cup app, a significant proportion, 39.08%, share they use the app only when necessary. The respondents' feedback shows that a majority, approximately 50.57%, find the Farmer Cap app moderately easy to use. Around 35.63% of the farmers, find the app highly user-friendly. However, a

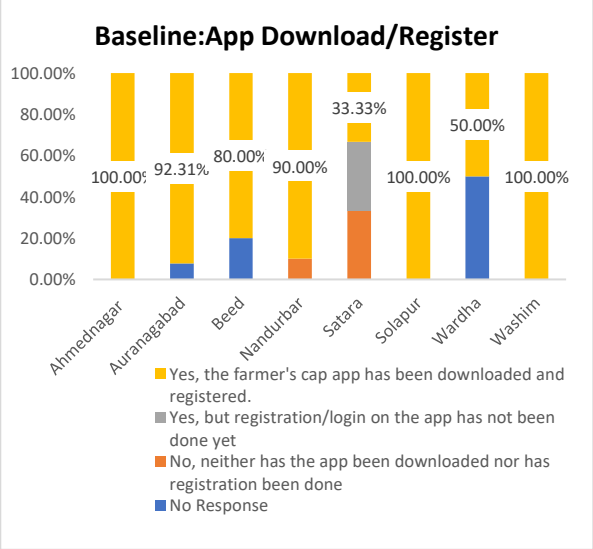


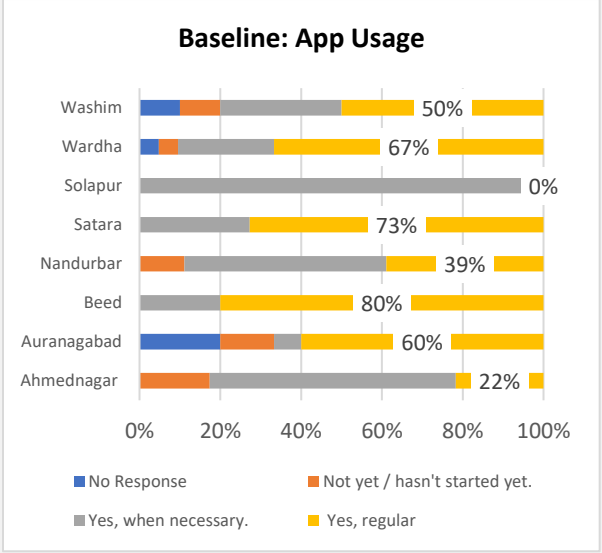


small fraction, 2.30%, mentioned that they face difficulties while using the app. This highlights the potential for enhancing user experience and engagement on the Farmer Cup App.

Around 81% of the baseline respondents shared that they have successfully downloaded and registered on the Farmer Cup app. About 4% have downloaded the app but have not yet completed the registration or login process. Around 5% of respondents have neither downloaded the app nor registered at the time of the survey which was conducted in the months of August-September in 2024. Around 62.34% of participants shared that they find the Farmer Cup app moderately easy to use. Overall, around 47% shared that they used farmer cup app regularly and about 39% reported that they use the app when required.

Baseline

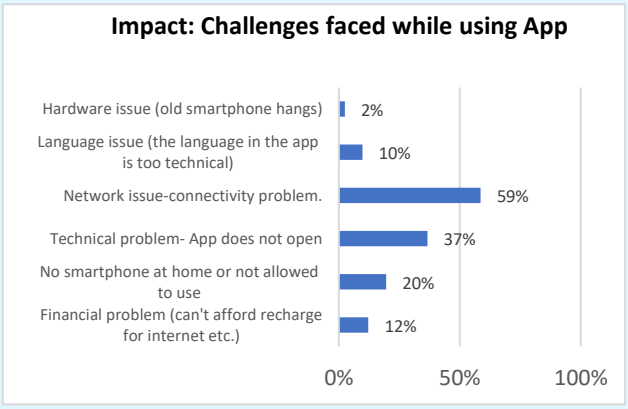


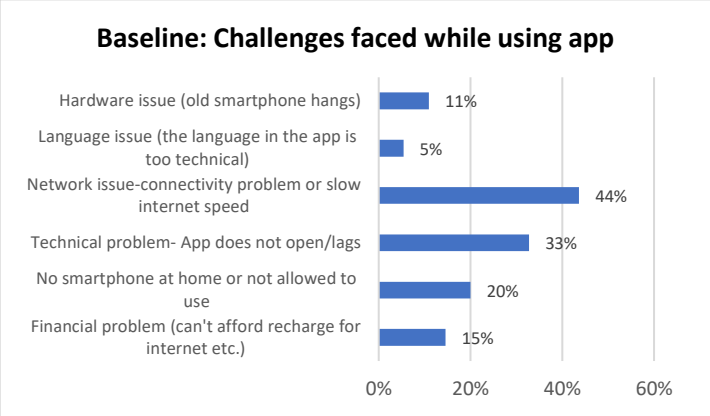


4.2.4.3 Challenges in using the Farmer Cup App

Several themes come to the forefront as per the respondent's feedback on challenges faced in using the Farmer Cap app. Issues with network and internet speed emerged as the key challenges faced by farmers, affecting both connectivity and the functioning speed of the app, reported by 59% of respondents. These were closely followed by technical problems such as the app not opening, taking too long to open, or frequently hanging, which were experienced by 37%. Financial constraints preventing internet data recharge, and unavailability of a smartphone were faced by 12% and 20% respectively. Language issues, mostly due to technical usage, were reported by only 10%. Hardware issues, primarily related to older smartphones functioning poorly, posed a lesser concern, highlighted by only 2%. It's apparent from these responses that while the app is helpful, connectivity and technical issues still pose significant challenges to seamless user experience.

Impact





Similarly, for baseline respondents, slow internet speed was one of the key issues as reported by 44% of participants. Around 22% of respondents shared that they faced technical lags while opening the app. Around 20% of respondents highlighted challenges in accessing the app due to the unavailability or restrictions on smartphone use.

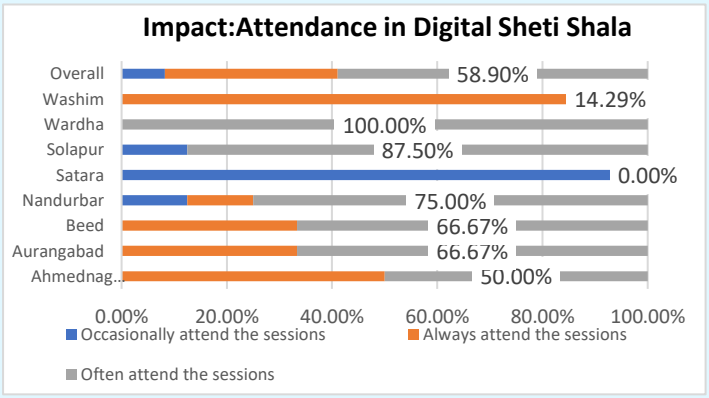
Baseline

4.2.5 Digital Sheti Shala

Digital Sheti Shala (DSS) initiative is designed to connect farmers directly with agricultural specialists. These online gatherings enable farmers to receive customized advice and best practice guidelines specific to their crops. Around 63% and 62% of respondents from impact and baseline study respectively, shared that they did not seek/receive guidance from agricultural experts prior to joining Farmer Cup. This highlights the need for more widespread and accessible agricultural expert consultation and guidance for the farmers which the Digital Sheti Shala is designed to address. All the respondents from both impact and baseline study shared that they had attended the DSS sessions. Furthermore, all the respondents shared that they receive guidance on their farming practices and the challenges they face at the digital sheti shalas. They shared that these sessions have impacted their method of farming. These sessions are a valuable resource for the farmers providing access to expert insights and direct guidance to enhance farming practices and achieve better results.

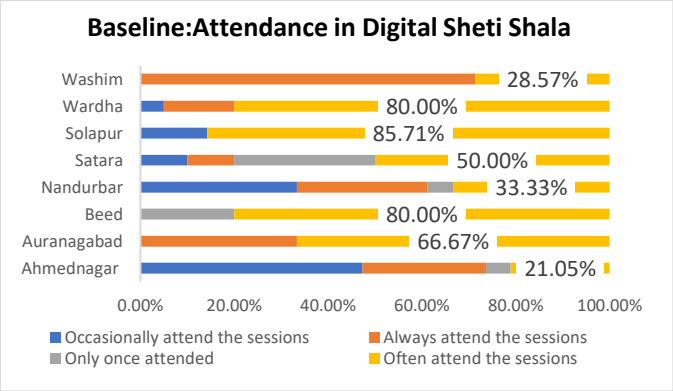
Impact

Around 93% of the impact survey respondents shared that they attend the sessions always or often. Around 72% of the farmers shared that they had received resolutions to their queries from the agricultural experts, whereas the remaining 28% expressed that they had not asked any questions.



> "For the first time, we received expert support through the Digital Sheti Shala sessions. This has boosted our confidence, and the prompt responses help us mitigate crop damage in a cost-effective manner."
>
> - Jaybhole Mahila Farmer Gat, Wardha

Around 76% of baseline respondents shared that they attend the sessions often or always. Around 61% of the farmers shared that they had received resolutions to their queries from the agricultural experts, whereas the remaining expressed that they had not asked any questions.



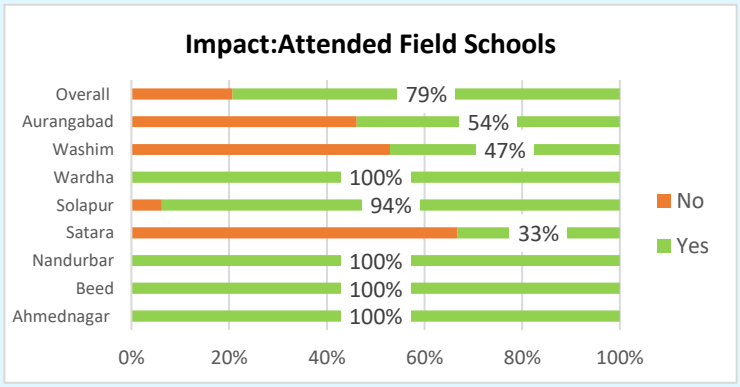
Baseline

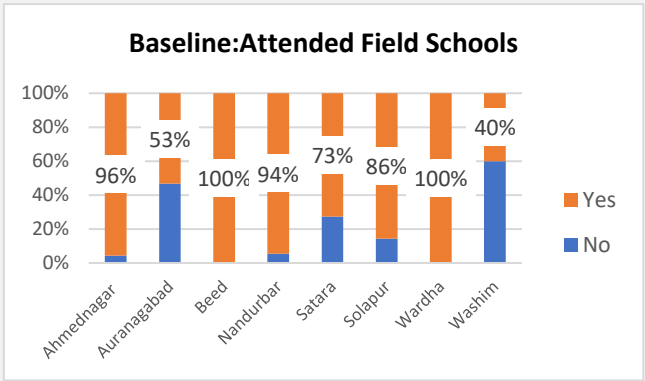
4.2.6 Field Schools

Field schools are instrumental in promoting collective farming by providing farmers with hands-on learning opportunities and guidance.

Impact

About 79% of impact survey respondents across all districts have attended these field school programs, showcasing the program reach and acceptance among the farming community. However, there is room for improvement in districts like Satara, Washim, and Sambhajinagar where participation rates are lower.





Around 83% of baseline respondents shared that they had attended the field schools conducted by Paani Team. Districts like Ahmednagar and Nandurbar show strong participation in field schools at 96% and 94% respectively.

Baseline

4.3 Knowledge, Attitude and Practices

This section presents the findings on the Knowledge, Attitude and Practices of farmers around the crop-specific SOPs and collective farming from both impact and baseline study.

4.3.1 Knowledge and Practices

The study conducted an examination of farmer's practices around the key standard operating practices (SOPs) across various agricultural practices. The SOPs have been grouped together into six categories, and each has been analysed separately for the three crops-Soyabean, Cotton and Maize to provide a comprehensive understanding of the knowledge and practice levels[24] before and after Paani Foundation.

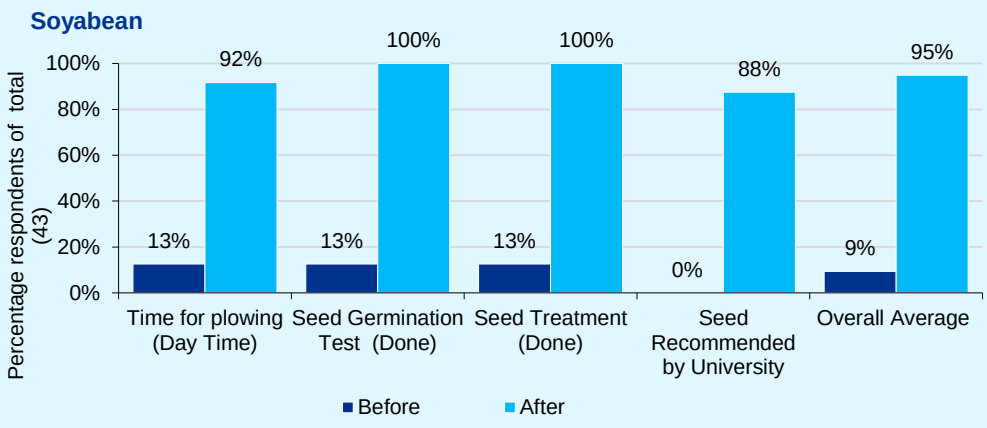
4.3.1.1 Ploughing, Seeding, and Sowing

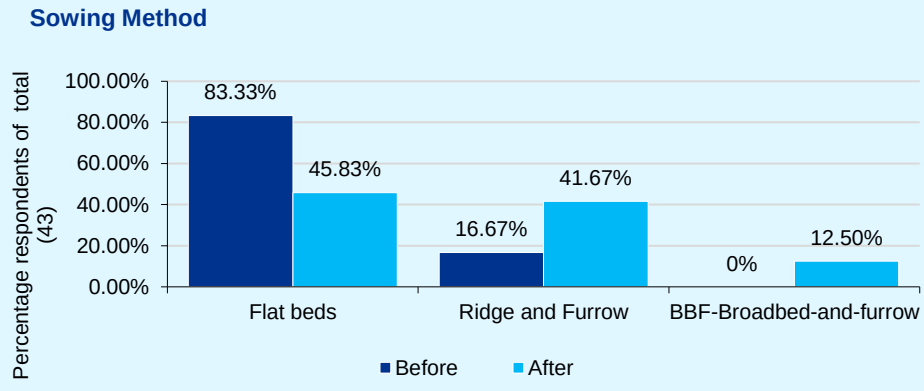
The study delved into the processes like seed selection, testing their germination capacity, conducting seed treatment, and sowing methods, highlighting their importance in the cultivation of different crops.

Impact

IMPACT: PLOUGHING, SEEDING AND SOWING (Before and After participating in Farmer Cup)

Soyabean

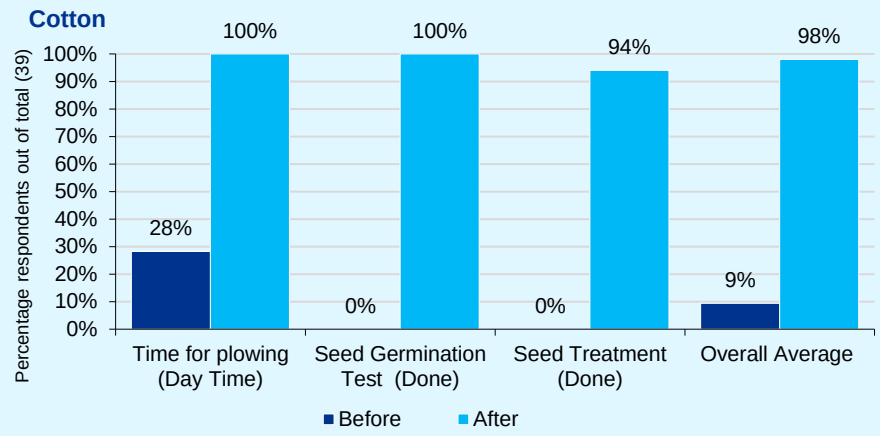


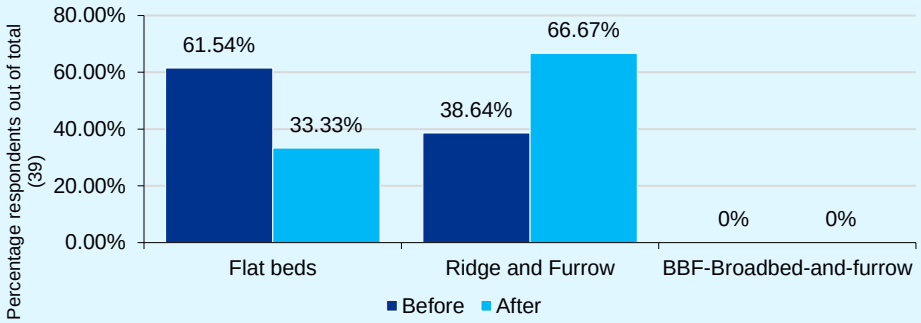


[24] Please note that the knowledge and practice question was combined into one, and that the pre-values are based on farmer's recall.

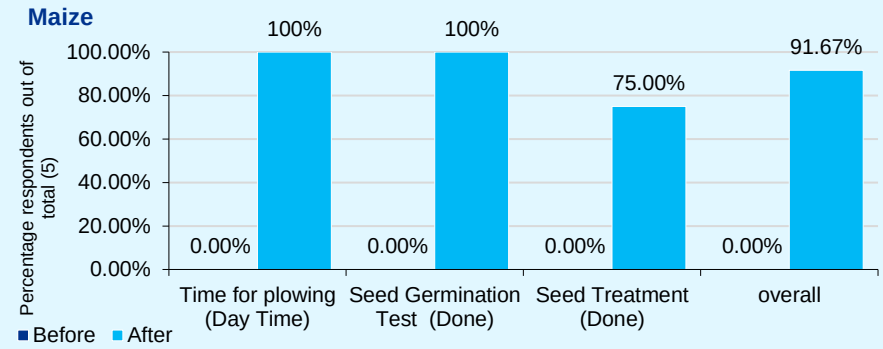
Impact

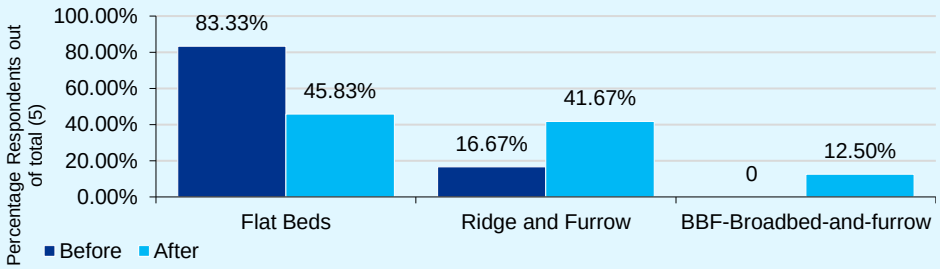
Cotton





Maize





Impact

For Soyabean, there has been improvement in following SOPs around ploughing, seeding, and sowing as it has increased from 13% before participating in Paani Foundation's initiative to 92% currently. Seed germination test and treatment have also shown improvement, reaching 100%. The use of recommended seed by the university stands at 88% post intervention.

For Cotton, there has been improvement as practicing the SOPs has increased from 28% to 100%. None of cotton-growing farmers were practising the seed germination test and treatment prior to program, as compared to 100% and 94% respectively after the intervention.

For Maize, there has been significant shift in knowledge and implementation of SOPs around ploughing, seeding, and sowing, as none of the respondents were following it prior to the intervention as compared to 100% reporting that they follow the SOPs post program.

Among the impact respondents, there has been substantial improvement in ploughing, seed germination test and treatment, and overall progress for all three crops. However, there is room for improvement in using recommended seed by the university and choosing the appropriate sowing method.

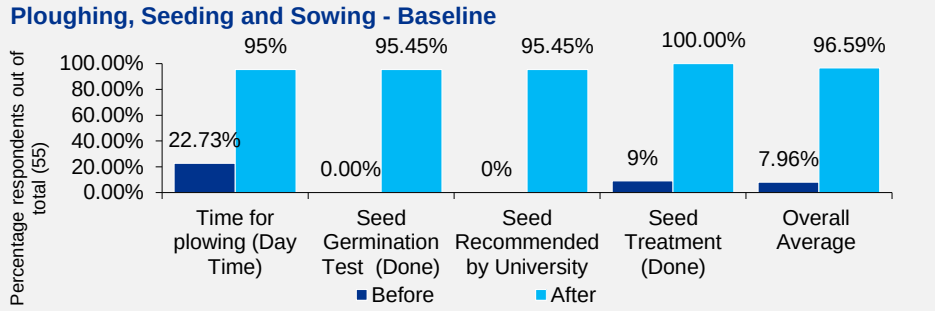
"We were previously unaware of the Broad Bed Furrow (BBF) method. Thanks to Paani, we have gained valuable insights into BBF. Since adopting this method, our crops have become more climate-resilient, saving us money, and significantly boosting our productivity."

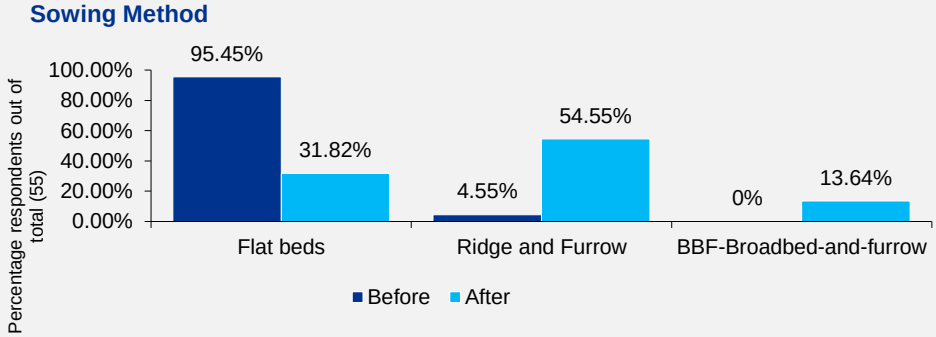
-Swarajya Shetkari Gat, Pimpalner, Beed

Baseline

BASELINE: PLOUGHING, SEEDING AND SOWING (Before and After participating in Farmer Cup)

Soyabean

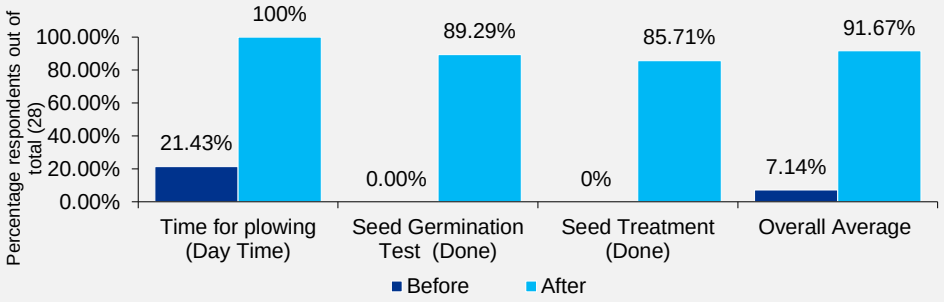




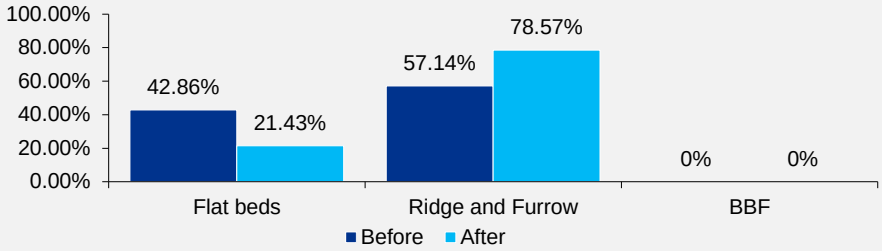
Baseline

Cotton

Ploughing, Seeding and Sowing - Baseline



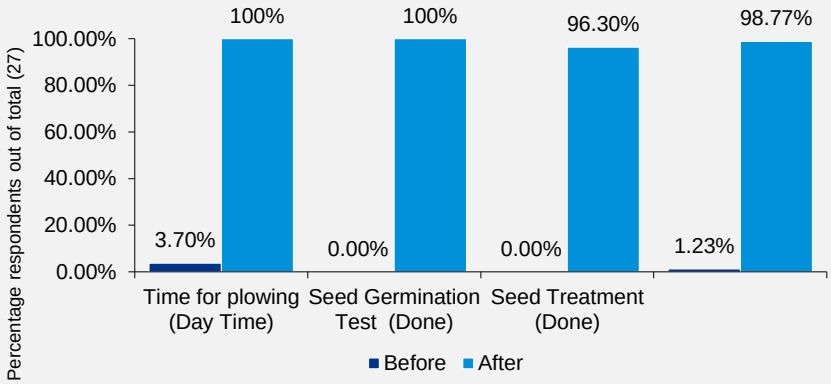
Sowing Method



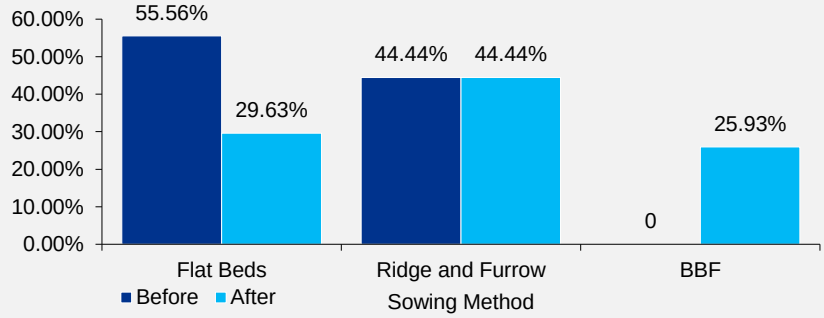
Baseline

Maize

Ploughing, Seeding and Sowing



Sowing Method



For Soyabean, the adoption of SOPs among baseline respondents has moved from 7.96% prior to the program to around 96.59%. Earlier, only 22.73% of farmers were practicing ploughing during the daytime, which has increased to 95% after the implementation of the SOPs. The seed germination test completion rate has also increased from 0% to 95.45%, and all farmers have completed the seed treatment process.

For Cotton, the percentage of farmers who completed the seed germination test had also increased from 0% to 89.29%. Moreover, 85.71% of farmers had completed the seed treatment process, scoring higher compared to before. The overall average percentage has also increased significantly from 7.14% to 91.67%.

For Maize, all the respondents adopted the practising ploughing techniques as per the SOP, the percentage of farmers who completed the seed germination test had also increased from 0% to 100%, indicating the effectiveness of the new farming practices.

Baseline

> *"For the first time, we tested our seeds. This helped in selecting better quality seeds for planting and has improved germination rates."*
>
> - Chintamani Shetkari Gat, Wardha

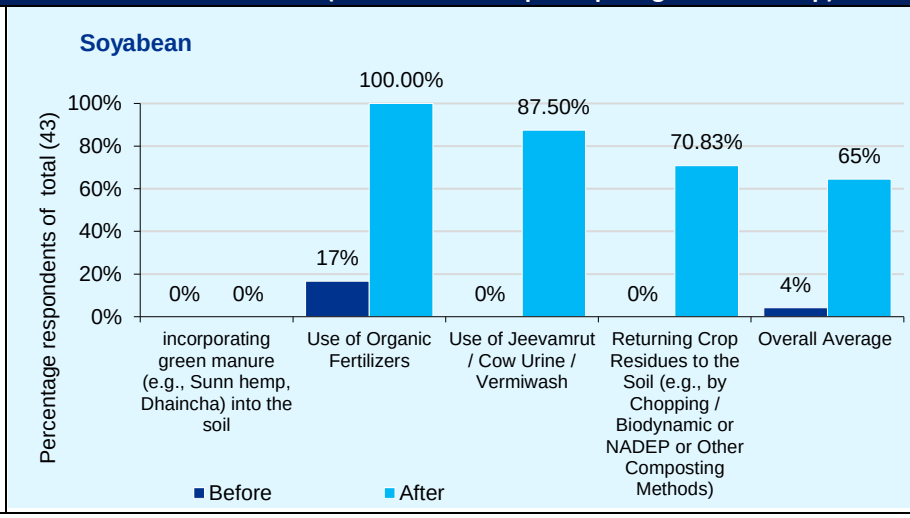
4.3.1.2 Organic Fertilizers

The study evaluated the use and effectiveness of organic fertilizers, green manure crops, and other sustainable practices like the use of Jeevamrut, cow urine, and returning crop residues to the soil.

Impact

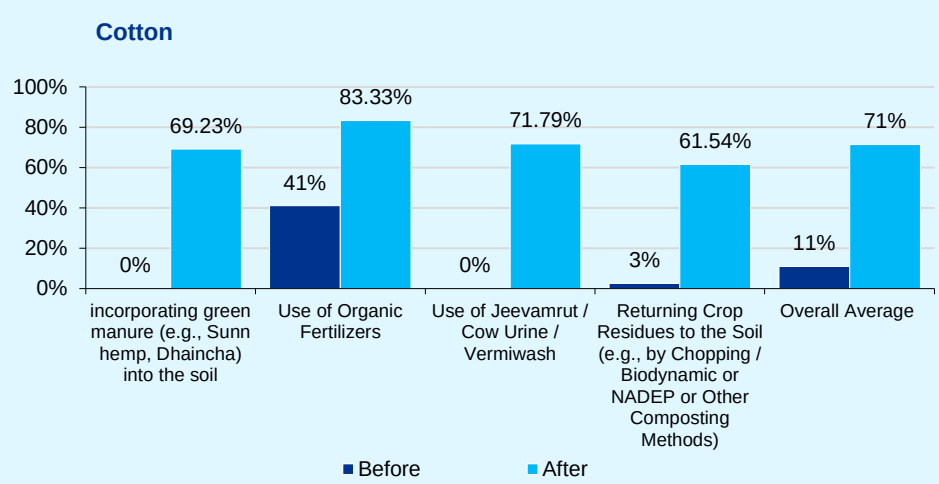
IMPACT: ORGANIC FERTILIZERS (Before and After participating in Farmer Cup)

Soyabean

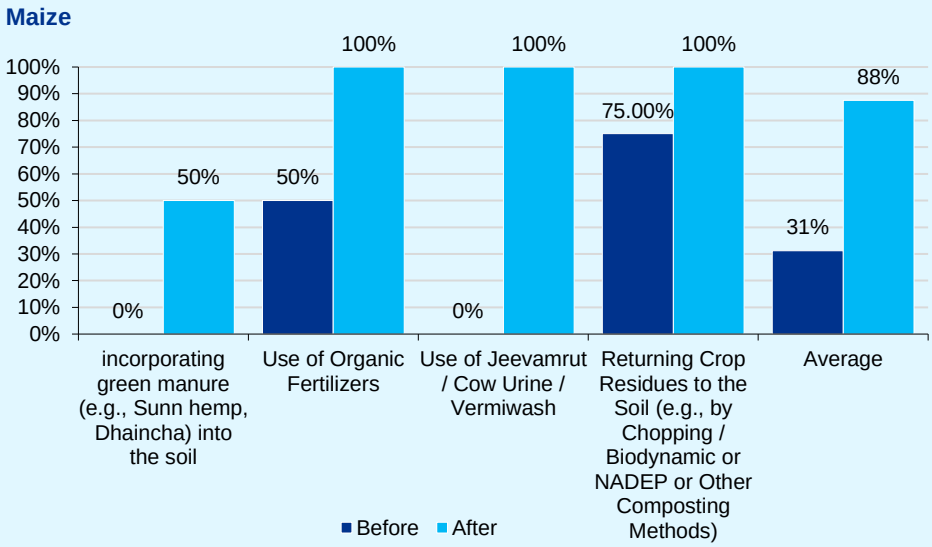


Impact

Cotton



Maize



Impact

For Soyabean, the use of organic fertilizers has increased from 17% before the program to 100% after the intervention. Prior to the intervention, none of the respondents were using Jeevamrut/Cow Urine/Vermiwash or returning crop residues to the soil as compared to 87.5% and 71% after intervention respectively. Incorporating green manure into the soil is one SOP which has not seen uptake by the farmers growing soyabean as per the respondents.

For Cotton, 69% of the respondents shared that they are incorporating green manure into the soil after the intervention, as compared to 0% before the program. There is increased use of organic fertilizers from 41% earlier to 83.3% currently. Additionally, the use of Jeevamrut/Cow Urine/Vermiwash has improved to 71.79% compared to 0% before the program. Returning crop residues to the soil has also improved, reaching 61.54% from the previous 3%. Overall, there is significant progress in all areas for cotton-growing farmers, with the around 71% respondents following the SOPs on an average.

Impact

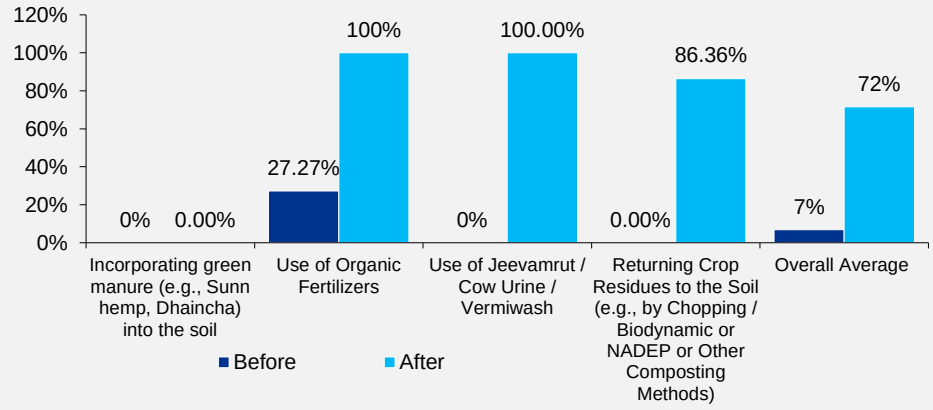
For Maize, use of organic fertilizers has increased, now reaching 100% compared to 50% before the program. Use of Jeevamrut/Cow Urine/Vermiwash and green manure has also improved to 100% and 50% respectively, as compared to 0% before.

Overall, there has been considerable increase in the adoption of organic farming practices such as the use of organic fertilizers, Jeevamrut/Cow Urine/Vermiwash, and returning crop residues to the soil.

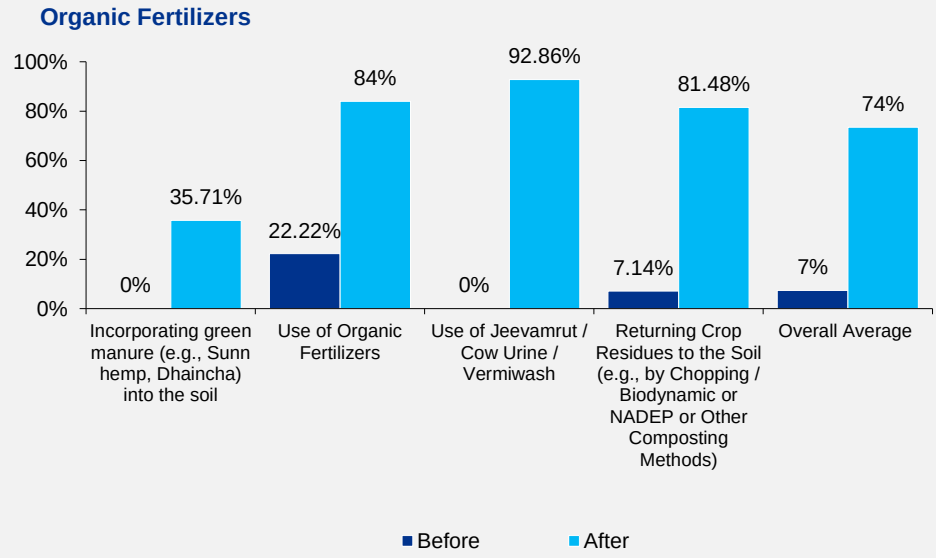
Baseline

BASELINE: ORGANIC FERTILIZERS (Before and After participating in Farmer Cup)[25]

Soyabean



Cotton

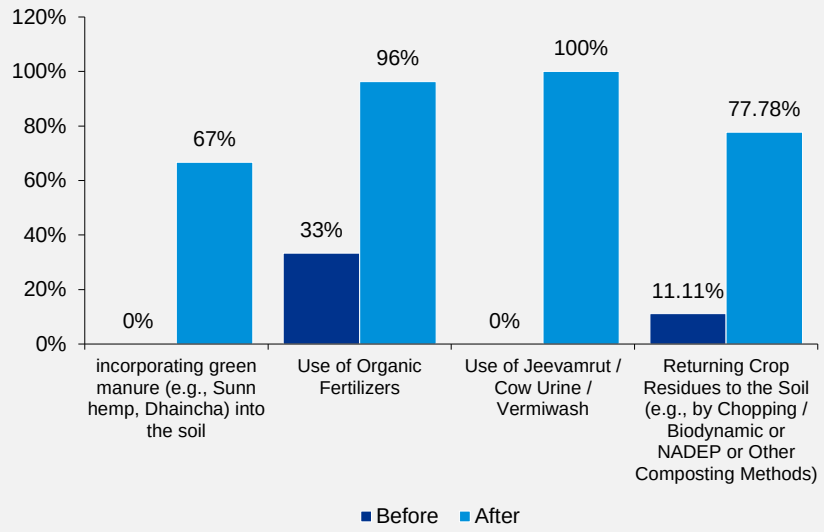


[25] Total Survey Respondents for Baseline: 110. Crop-wise: Soyabean-55; Cotton-28; Maize-27.

Baseline

Maize

Organic Fertilizers



Baseline

For Soyabean, the percentage of farmers using organic fertilizers has increased from 27.27% to 100%. The use of Jeevamrut/ Cow Urine/ Vermiwash went from 0% to 100%, and returning crop residues to the soil went from 0% to 86.36%.

For Cotton, the use of organic fertilizers increased from 22.22% to 84% and returning crop residues to the soil increased from 7.14% to 81.48%.

For Maize, the percentage of farmers using organic fertilizers increased from 33% to 96%, and returning crop residues to the soil went from 11.11% to 77.78%.

"We learned about the health risks of harmful chemicals and the benefits of organic farming during the training which was a transformative experience. The training was respectful and dignified, which built trust among us. The practical guidance on manure application and seed treatment was particularly impactful. Now, we are more efficient, and our crops are climate resilient."

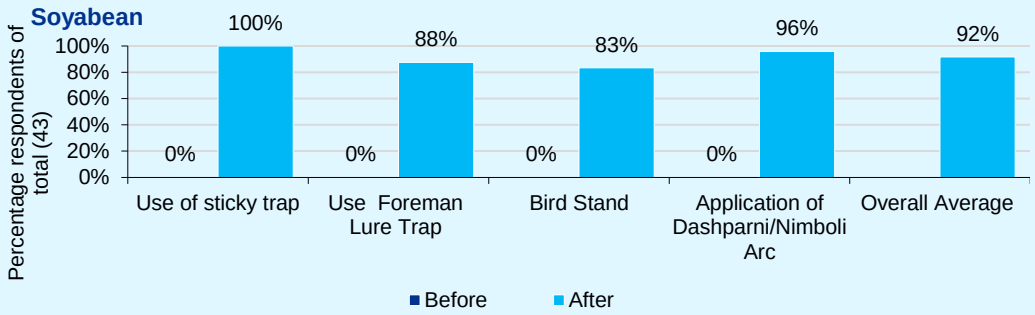
- Sai Baba Krushi Mahila Utpadak Gat, Ahmednagar

4.3.1.3 *Non-Pesticidal Management (NPM) methods*

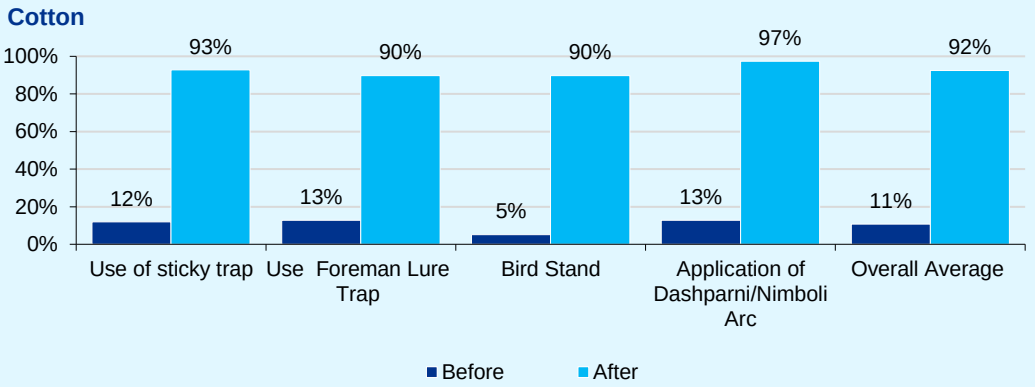
The study captured respondent's usage of NPM measures such as the use of sticky traps, pheromone traps, bird perches, and sprays like Neem ark / Dashparni ark and their application.

IMPACT: NON-PESTICIDAL MANAGEMENT (NPM) METHODS (Before and After participating in Farmer Cup)

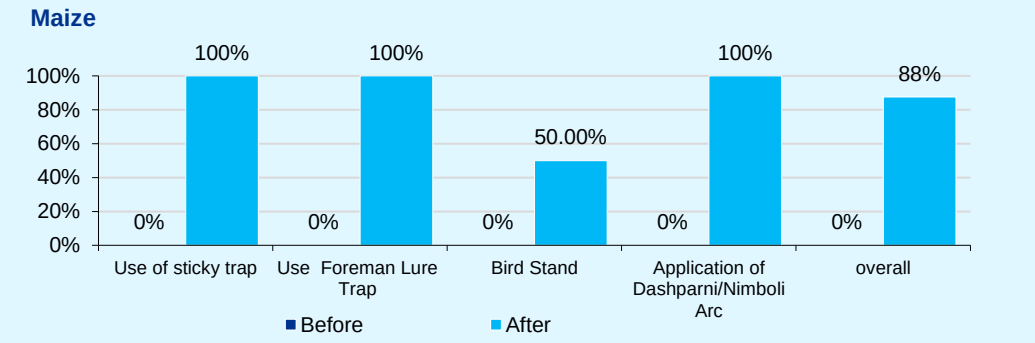
Soyabean



Cotton



Maize



Impact

For Soyabean, there has been an improvement in the usage of NPM practices. All practices, including sticky trap, Foreman Lure Trap, bird stand, and application of Dashparni/Nimboli Arc, have achieved 100%, except for the bird stand, which still stands at 83%, as compared to 0% prior to the program.

For Cotton, there has been progress in the adoption of NPM practices. Sticky trap, bird stand, Foreman Lure trap, and application of Dashparni/Nimboli Arc have improved, now reaching 93%, 90%,90% and 97%

Impact

Impact

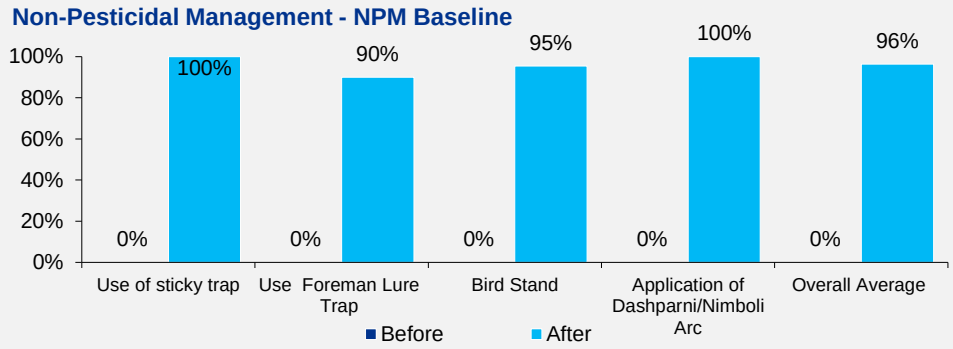
usage, respectively. Overall, around 11% of the respondents were practicing the SOPs before the program as compared to 92% after the intervention.

For Maize, there has been a notable improvement in the adoption of practices such as sticky trap, Foreman Lure Trap, and application of Dashparni/Nimboli Arc which have achieved 100% usage as compared to 0% prior to intervention.

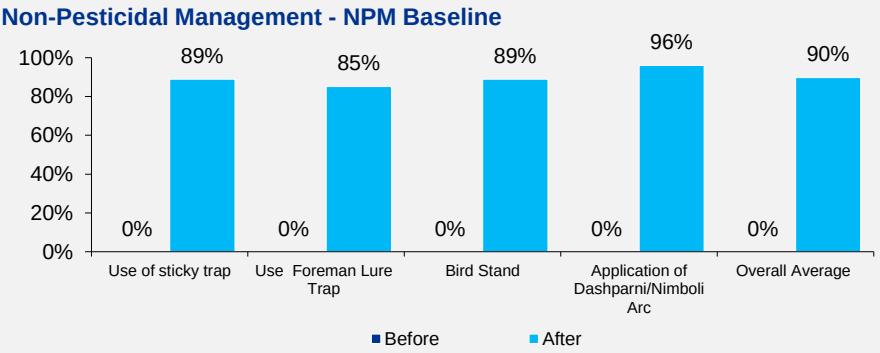
Baseline

BASELINE: NON-PESTICIDAL MANAGEMENT METHODS (Before and After participating in Farmer Cup)

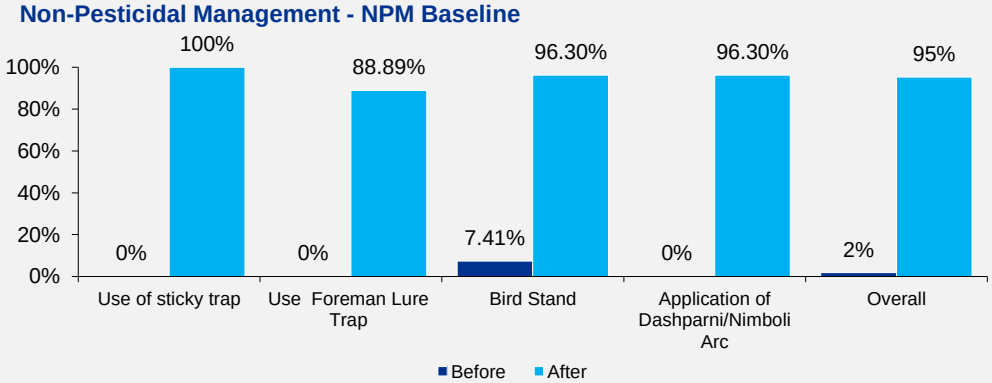
Soyabean



Cotton



Maize



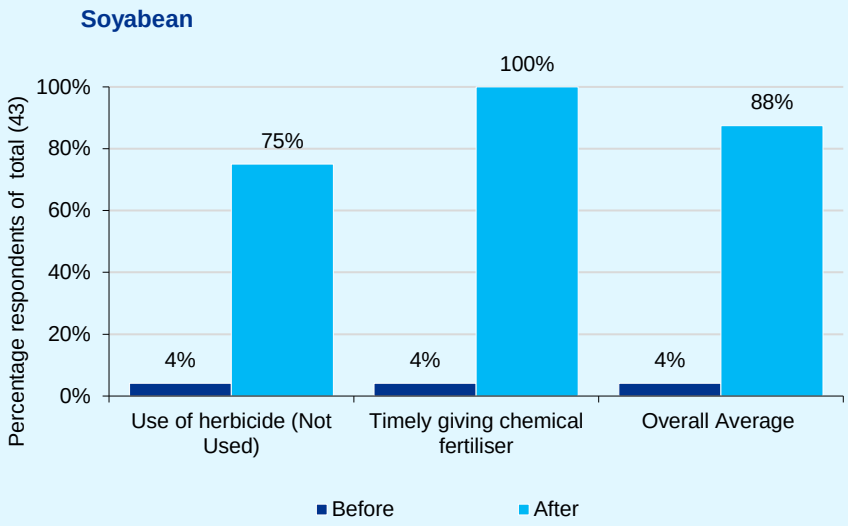
According to baseline data[26], the adoption of SOPs for Soyabean and Cotton growing farmers increased from 0% to 96% and 90% respectively. Similarly, for Maize, it increased from 2% to 95% currently. Farmers shared that they were able to use sticky traps, Foreman Lure traps, bird stands, and the application of Dashparni/Nimboli Ark effectively. The significant increase in the usage rate of NPM techniques across all three crops can help farmers to reduce the use of chemical pesticides and promote eco-friendly farming practices.

4.3.1.4 Chemical Fertilizers

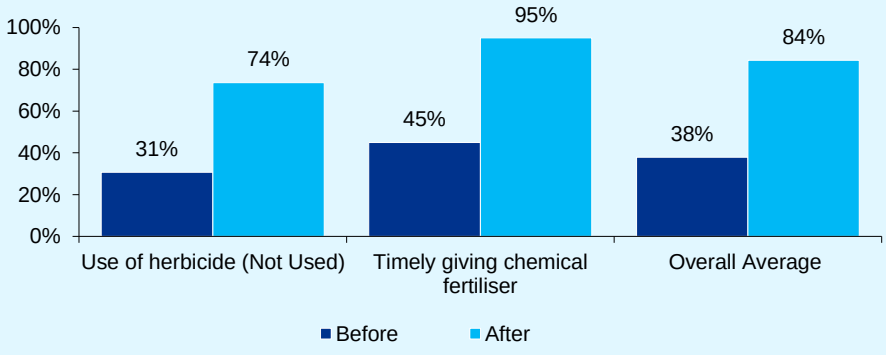
The study investigated the usage and timing of chemical fertilizers and herbicides.

IMPACT: CHEMICAL FERTILIZERS (Before and After participating in Farmer Cup)

Soyabean



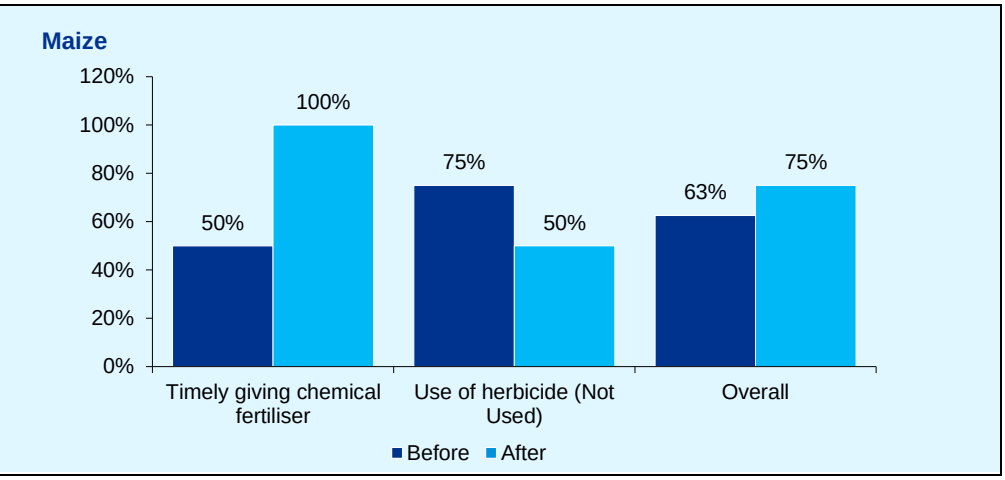
Cotton



[26] Total Survey Respondents for Baseline: 110. Crop-wise: Soyabean-55; Cotton-28; Maize-27.

Impact

Maize



Impact

For Soyabean, there has been an improvement in the timely giving of chemical fertilizers, now standing at 100%, which is a marked improvement from 4% before the program. The use of herbicide has also reduced with 75% respondents sharing they don't use herbicides.

For Cotton, similarly the timely use of chemical fertilizers has improved from 45% to 95%. There has been a reduction in use of herbicides with around 74% respondents reporting that it is not being used.

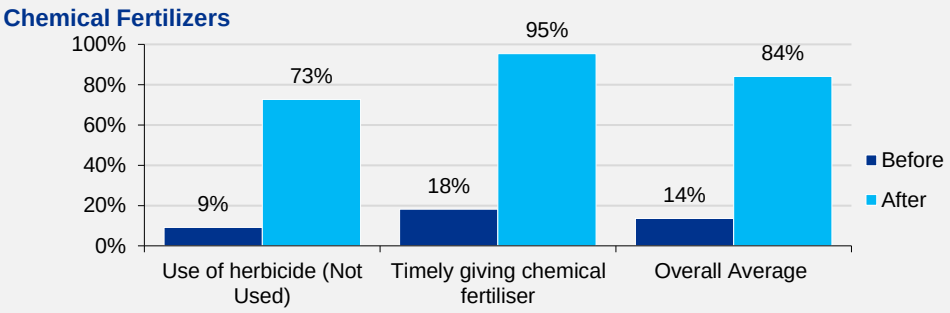
For Maize, though there has been improvement in the timely application of chemical fertilizers, which stands at 100%, compared to 50% before the program. The use of herbicide, however, has seen fewer respondents reporting that they have reduced usage of herbicide.

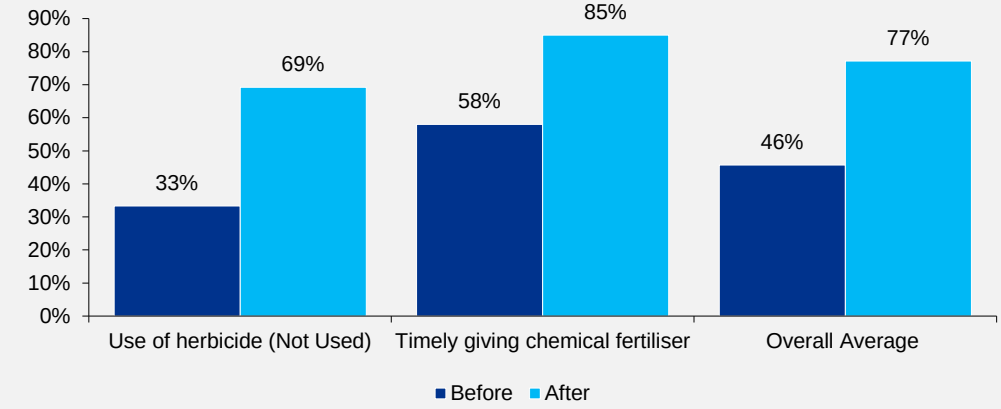
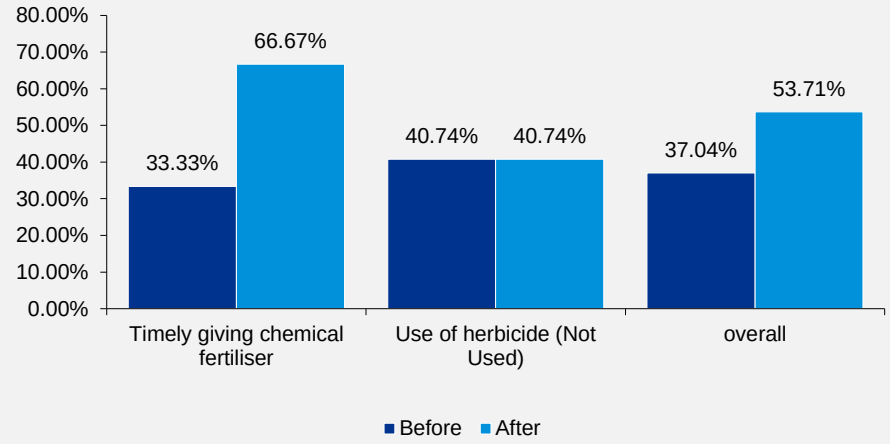
Overall, timely giving of chemical fertilizers has shown improvement, and there has been a decrease in the use of herbicide, except for maize growing farmers.

Baseline

BASELINE: CHEMICAL FERTILIZER (Before and After participating in Farmer Cup)

Soyabean



Cotton	
Maize	

Overall adoption of SOPs among baseline respondents[27] increased from 14% to 84% for Soyabean, from 46% to 77% for Cotton, and from 37.04% to 53.71% for Maize. Both Soyabean and Cotton growing farmers reported significant reduction in use of herbicide.

4.3.1.5 Collective Farming and others

The survey examined practices such as record-keeping, collective purchases of fertilizers, and shared labor.[28]

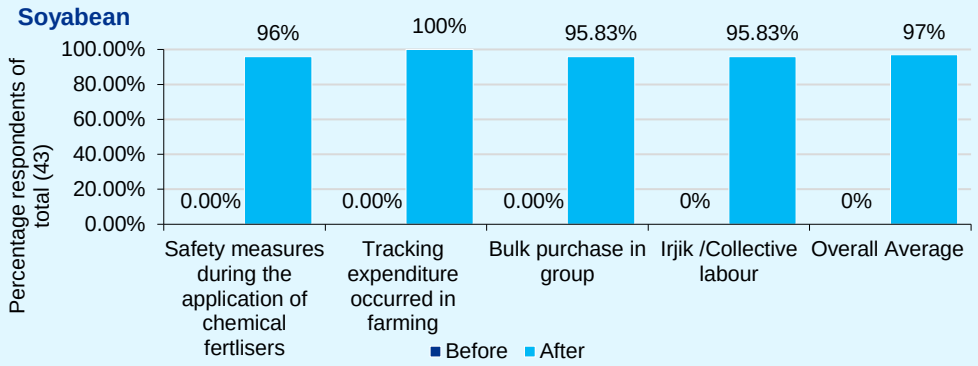
[27] Total Respondents for Baseline: 110. Crop-wise: Soyabean-55; Cotton-28; Maize-27.

[28] Total Respondents for Impact: 87. Crop-wise: Soyabean-43; Cotton-39; Maize-5.

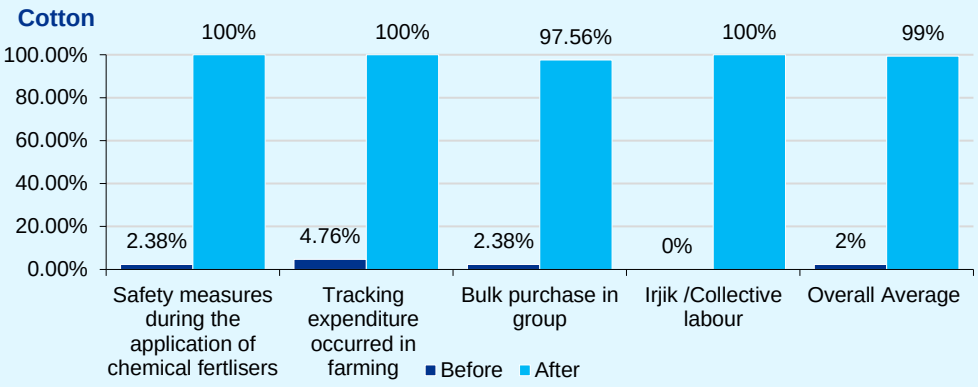
Impact

IMPACT: COLLECTIVE FARMING AND OTHERS (Before and After Participating in Farmer Cup)

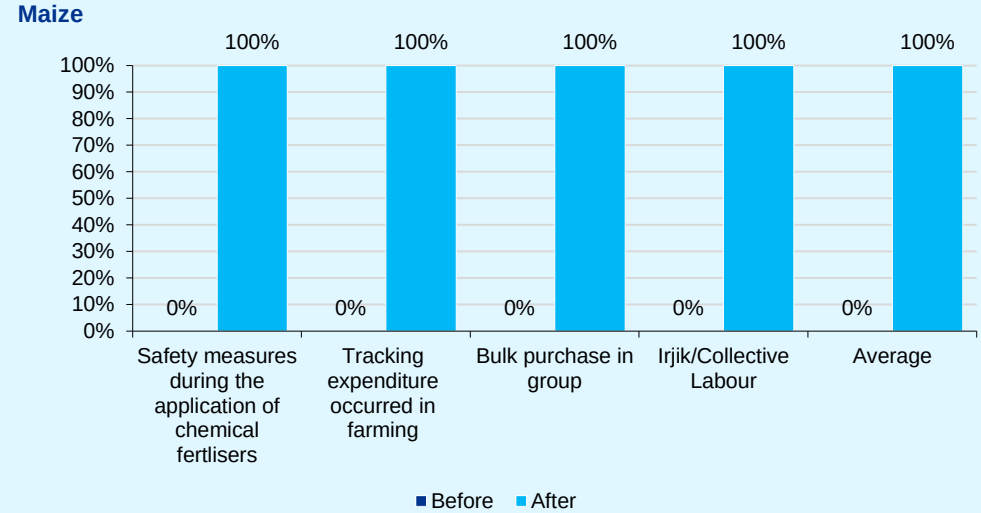
Soyabean



Cotton



Maize



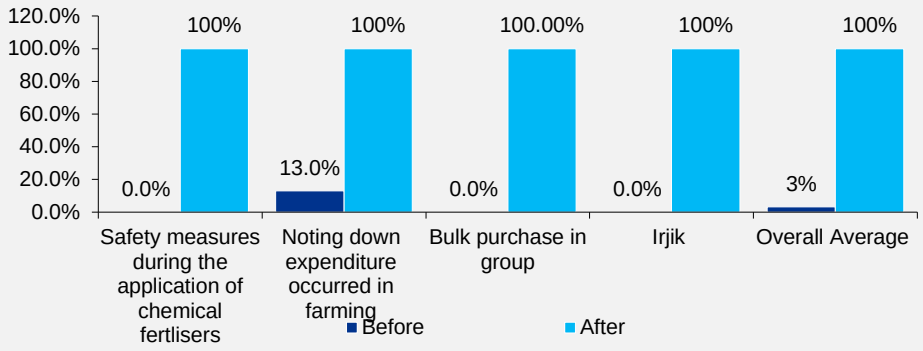
Impact

Soybean, cotton, and maize cultivation have seen considerable progress in the adoption of collective farming practices of collective farming of collective labor, bulk purchasing, as well as safety measures during fertilizer application.

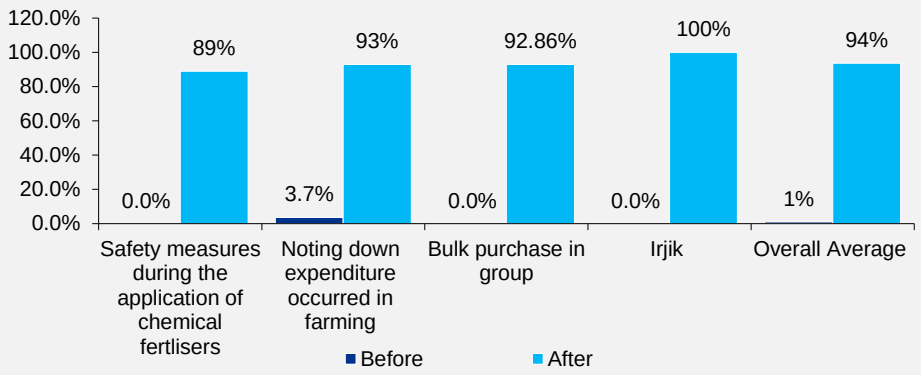
Baseline

BASELINE[29]: COLLECTIVE FARMING AND OTHERS (Before and After Participating in Farmer Cup)

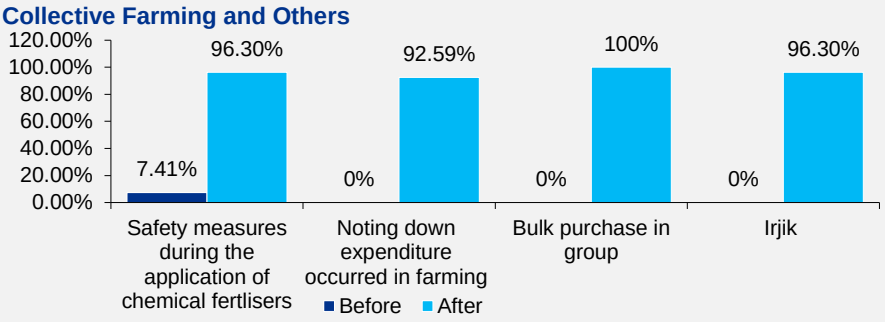
Soyabean



Cotton



Maize



For Soyabean, the percentage of farmers using collective farming practices increased from 0% to 100%, including safety measures during the application of chemical fertilizers, tracking expenditure incurred in farming, bulk purchase in group, and Irjik. Similarly, for Cotton, the usage of collective farming practices increased from 1% to 94%, and for Maize, it increased from 0% to 96.30%.

Baseline

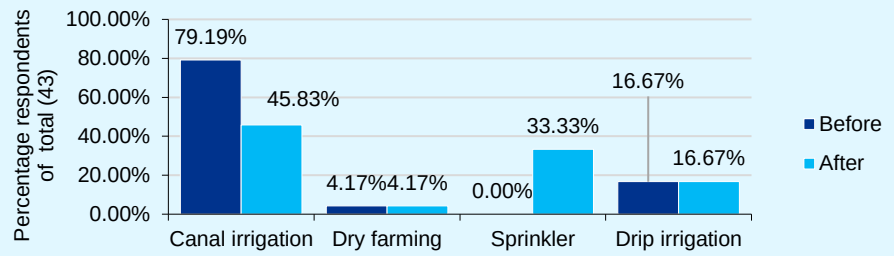
[29] Total Respondents Baseline: 110. Crop-wise: Soyabean-55; Cotton-28; Maize-27.

4.3.1.6 *Irrigation*

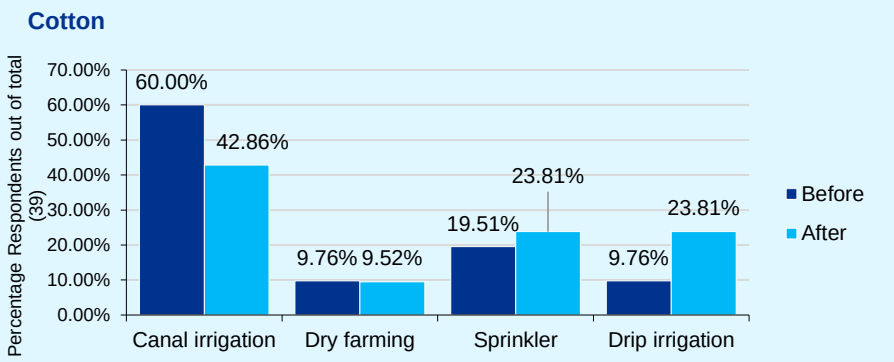
The survey explored how varied methods of irrigation are employed across diverse types of crops by the participating respondents.

IMPACT: IRRIGATION METHODS (Before and After Participating in Farmer Cup)

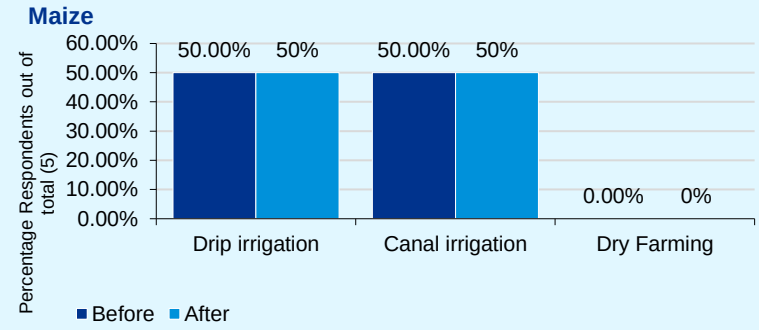
Soyabean



Cotton



Maize



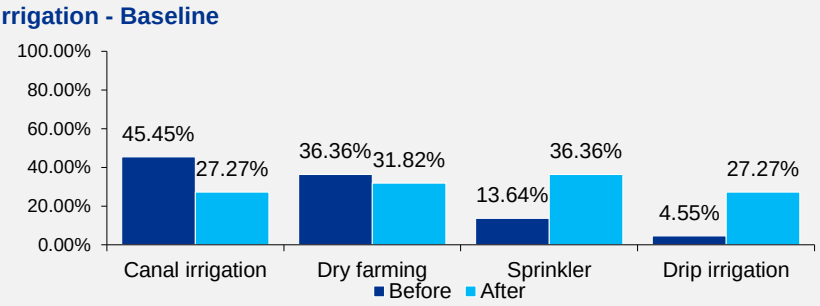
Impact

For Soyabean cultivation, basis respondents' data, there has been a shift away from canal irrigation, ,which has decreased from 79.19% to 45.83% usage, and increased adoption of sprinkler irrigation. Overall, around 33.33% farmers reported using sprinklers post intervention as compared to 0% before the program. For Cotton cultivation, there has been increased adoption of both sprinkler irrigation and drip irrigation, which have increased from 19.51% to 23.81% and 9.76% to 23.81%, respectively. Overall, there has been a trend towards increased adoption of efficient irrigation methods such as drip and sprinkler. However, there is still room for improvement in the adoption of efficient irrigation practices to improve crop productivity and conserve water resources.

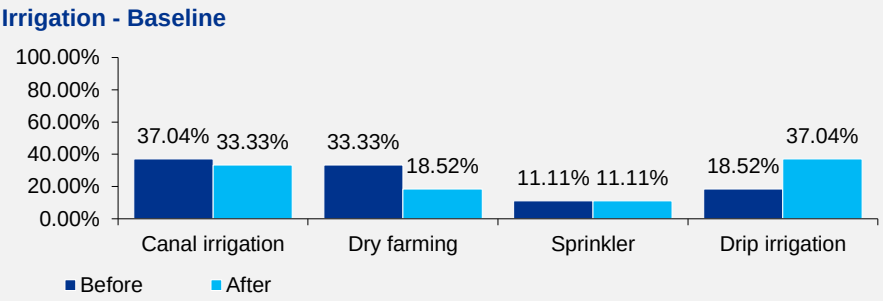
Baseline

BASELINE[30]: IRRIGATION METHOD (Before and After Participating in Farmer Cup)

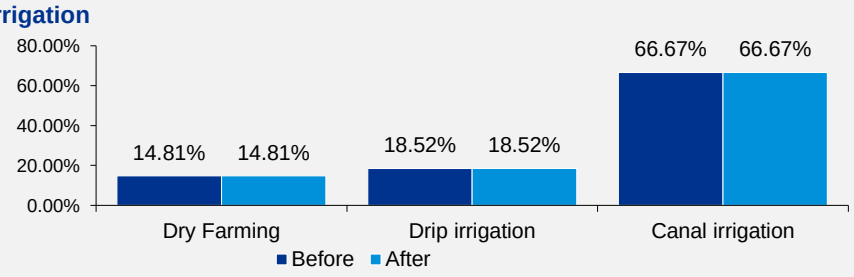
Soyabean



Cotton



Maize



Overall, there has been a trend towards increased adoption of efficient irrigation methods such as drip and sprinkler, particularly for Soyabean and Cotton growing farmers. However, there is still room for improvement in the adoption of efficient irrigation practices to improve crop productivity and conserve water resources.

Baseline

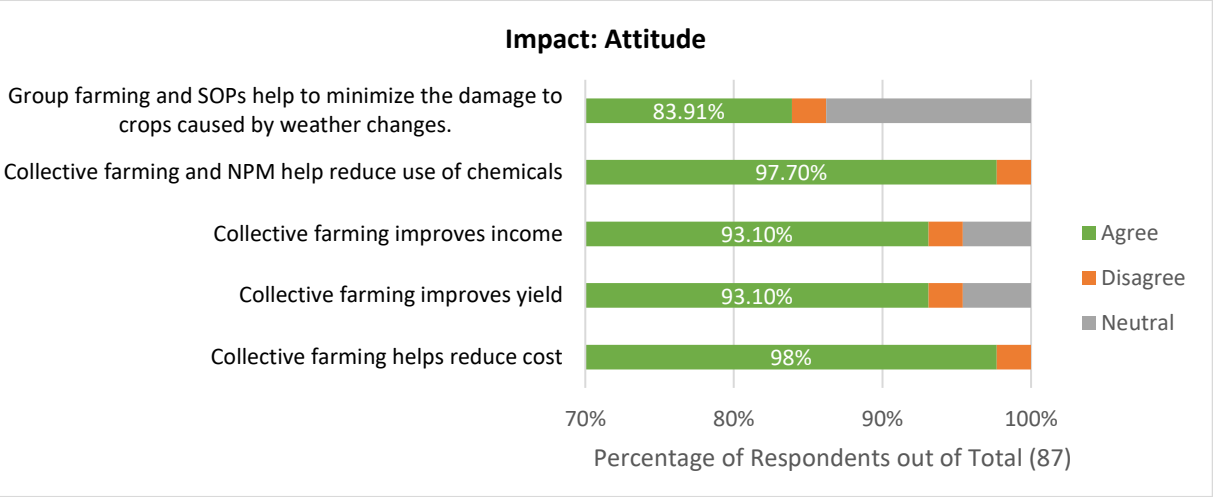
[30] Total Respondents for Baseline: 110. Crop-wise: Soyabean-55; Cotton-28; Maize-27.

4.3.2 Attitude

This section presents findings on the 'Attitude' component of the Knowledge, Attitude, and Practices (KAP) survey from both impact and baseline survey. It offers perspectives into farmers' viewpoints regarding collective and group farming practices. The statements explored in the survey focus on various areas, including the role of collective farming in reducing costs and enhancing yields and income, the effectiveness of combining collective farming with Non-Pesticide Management (NPM) in mitigating the use of chemicals, and the impact of group farming alongside SOPs in minimizing crop damage due to weather changes.

Impact

Impact survey results highlight an overwhelmingly positive stance on these practices and highlight the important role they play in sustainable and effective farming. A significant 98% of respondents agree that collective farming assists in reducing costs, while only 2% disagree, demonstrating overwhelming support for this aspect of collective farming. In terms of improving yield, 93.10% of farmers concur that collective farming has a positive impact. Similarly, 93.10% of respondents believe that collective farming enhances income. Collective farming's role in reducing the use of chemicals using NPM methods was shared by around 97.70% of the respondents, with 2.30% disagreeing with this view. The statement concerning group farming with SOPs and its ability to mitigate crop damages due to weather variations received agreement from 83.91% of respondents, 2.30% disagreed while 13.79% remained neutral.

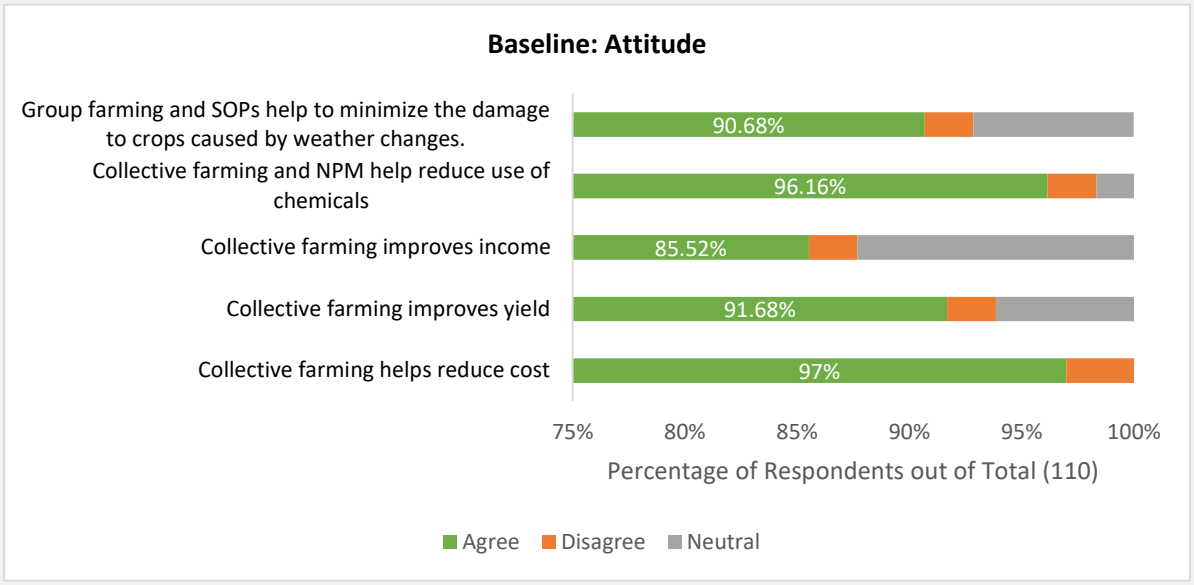


"Our journey with the Farmer Cup has been transformative. Initially, there was scepticism about organic methods, but the training at Jalgaon changed our perspective. We learned new techniques that significantly reduced our farming costs. The training was enjoyable, with inspirational videos and interactive games that made concepts easy to grasp. We also formed strong bonds with farmers from other villages. Working as a gat has not only saved us money but also fostered a sense of togetherness. We now take preventive care of our crops, and the results have been promising. The support from Paani Foundation staff has been invaluable, and we are excited about the future."

\- Jay Johar Shetkari Gat, Bhogara, Nandurbar

Around 97% of baseline respondents concur that collective farming substantially reduces costs, showcasing broad consensus on its economic efficiency. The data also indicate strong agreement on the positive impacts of collective farming on yield (91.68%) and income (85.52%). Additionally, 96.16% of respondents assert that combining Non-Pesticide Management (NPM) with collective farming effectively curtails chemical usage. Around 90.68% of farmers shared that they believe that group farming and SOPs helps minimize weather-related crop damage.

Baseline



"Before joining the Farmer Cup, we faced resistance from our families and community, who doubted the effectiveness of organic farming. But the training provided by Paani Foundation was a game-changer. We learned about various SOPs like beej pakriya and dashparni ark, which helped us reduce farming costs significantly.

The training sessions were engaging, with videos and games that made learning fun and easy. Meeting other farmers and sharing knowledge was a highlight. Now, we work together, saving on seeds and labor, and our community spirit has strengthened. We are committed to poison- free (vishmukta) farming and have seen the benefits firsthand."

- Jagruti Mahila Shetkari Gat, Nandurbar

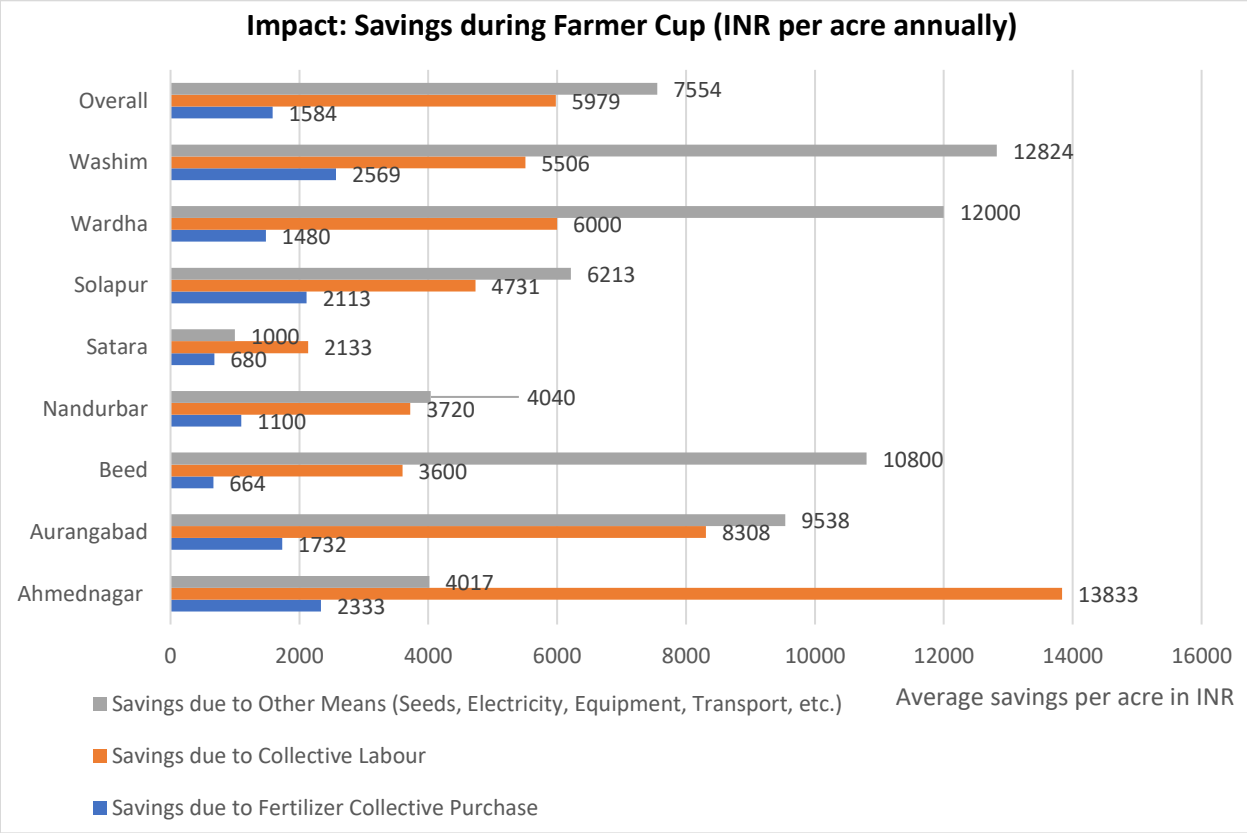
4.4 Impact of Farmer Cup Program

This section delves into the multifaceted impact of the Farmer Cup initiative across three crucial dimensions: agriculture and livelihood[31], digital literacy, and social and community relations. These areas provide a comprehensive lens to evaluate how the initiative has not only transformed traditional farming practices and livelihoods but also fostered digital literacy among farmers and stimulated transformative changes in social relations.

4.4.1 Impact on Agriculture and Livelihood

4.4.1.1 Savings during Farmer Cup

Examining the overall savings during the Farmer Cup initiative sheds light on its broad economic benefits. The average savings due to collective purchase of fertilizer across all districts stands at INR 1,584 (per acre) per farmer annually , demonstrating the benefits of joint procurement strategies. In terms of savings owing to collective labor or irjik, the average amount across districts is around INR 5,979, indicating that savings are greatly improved through collective labor practices. During discussions, farmers shared their challenges around labour costs prior to their participation in the program. Respondents from districts like Ahmednagar and Sambhajinagar (Aurangabad) reported higher savings on the labour costs. On an average, farmers reported saving around INR 7,554 from 'Other Means' such as cost of seeds, electricity, equipment, transport, etc. Overall, these numbers strongly suggest a positive economic impact that the Farmer Cup initiative has on the participants across all districts.



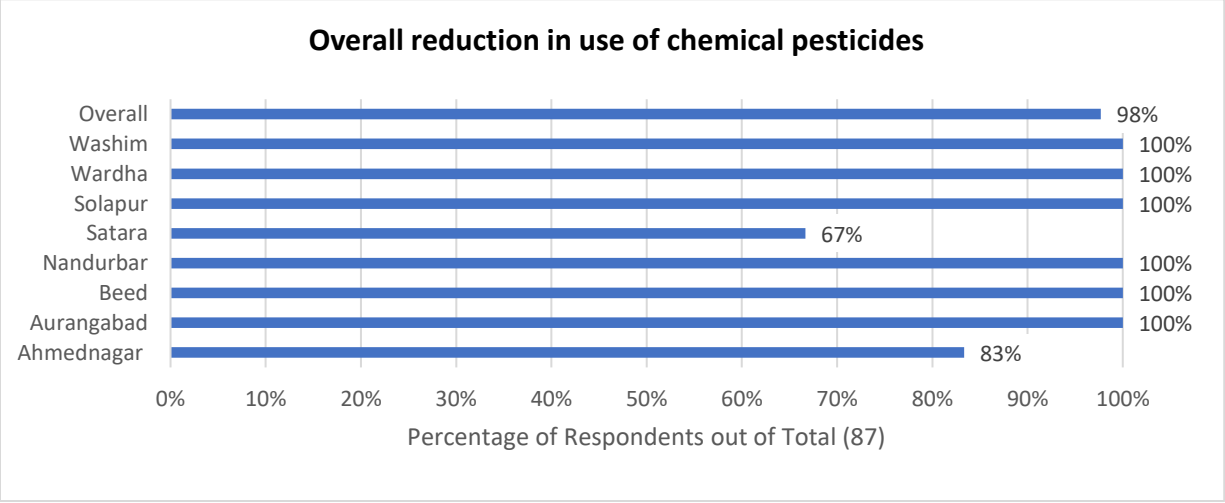
[31] Please note that pre-intervention value from baseline study (2024 first-timer gats) for agricultural yield and net profit per acre have been provided in section 4.4.1.4. All other data in this section (4.4) pertains to impact study only.

District	Average Savings for farmer (per acre) during Farmer Cup (INR)			
	Savings due to Fertilizer Collective Purchase	Savings due to Collective Labor	Saving through other means- Seeds, Electricity, Equipment, etc.	Total Saving
Ahmednagar	2333	13833	4017	20183
Sambhajinagar	1732	8308	9538	19578
Beed	664	3600	10800	15064
Nandurbar	1100	3720	4040	8860
Satara	680	2133	1000	3813
Solapur	2113	4731	6213	13056
Wardha	1480	6000	12000	19480
Washim	2569	5506	12824	20899
Overall	**1584**	**5979**	**7554**	**15117**

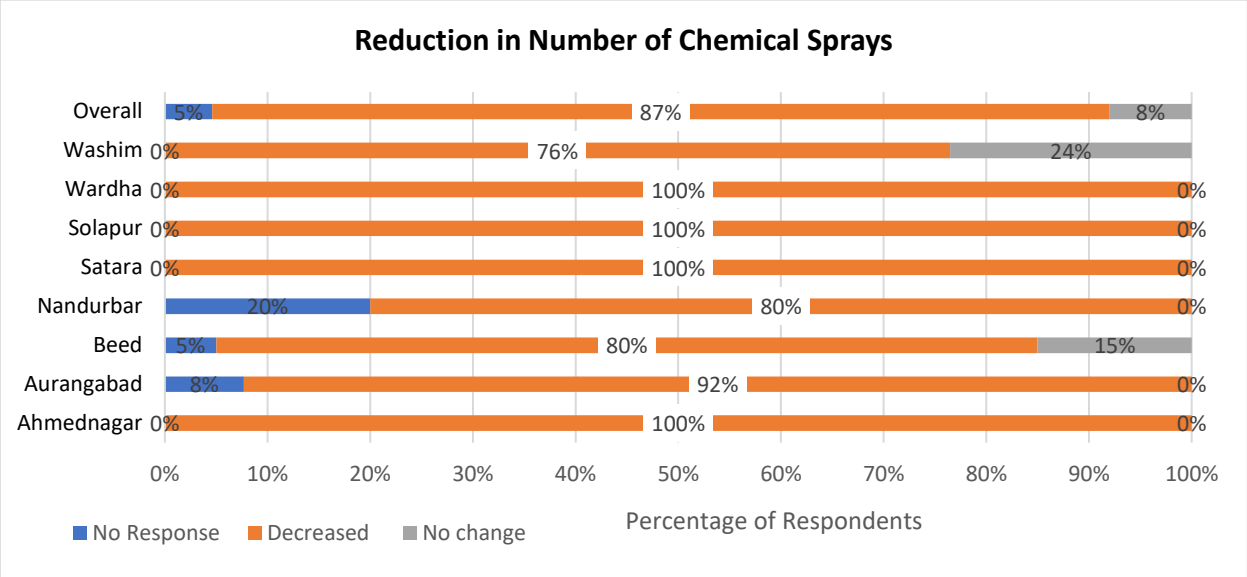
4.4.1.2 Reduction in use of Chemical Pesticide

One of the key focus areas of the Farmer Cup trainings is their strong endorsement of Non-Pesticidal Management (NPM) and encouraging the farmers to gradually move away from harmful chemical pesticides. During the farmer cup program, farmers are provided information about the benefits and implementation of natural pest control techniques, including practices like the use of sticky traps, bio-pesticides, etc.

Around 98% of respondents acknowledged that the program has helped them reduce their reliance on these chemical pesticides. Districts such as Sambhajinagar, Beed, Nandurbar, Solapur, Wardha, and Washim reported a complete consensus (100%) among farmers on this reduction. Even in districts like Satara and Ahmednagar, where the acknowledgment was slightly lower at 67% and 83% respectively, a significant majority of farmers recognized that the Farmer Cup program facilitated a reduction in their usage of chemical pesticides.

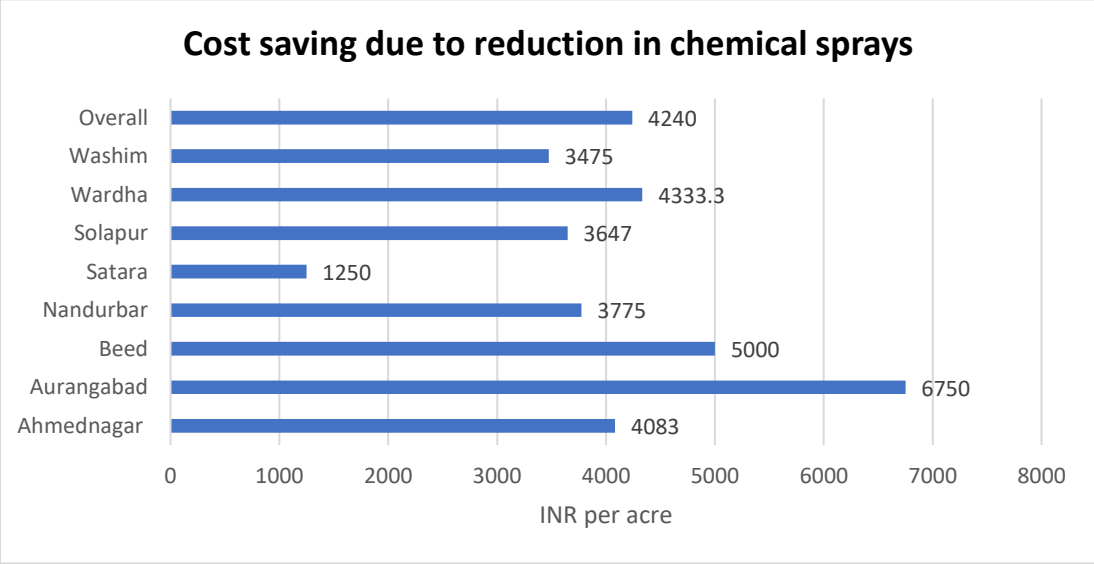


The data highlights the effectiveness of these efforts as around 87% of respondents shared that there has been a reduction in their usage of chemical pesticide sprays. In districts like Ahmednagar, Satara, Solapur, and Wardha, all of the respondents shared that they have reduced the number of chemical pesticide



sprays. This reduction in the usage of chemical pesticides suggests the increasing adoption and implementation of NPM methods imparted through the training sessions.

Around 8% respondents overall reported no change with 15% in Beed and 24% in Washim. These figures indicate an area of focus in these two districts for future trainings to further encourage NPM practices.

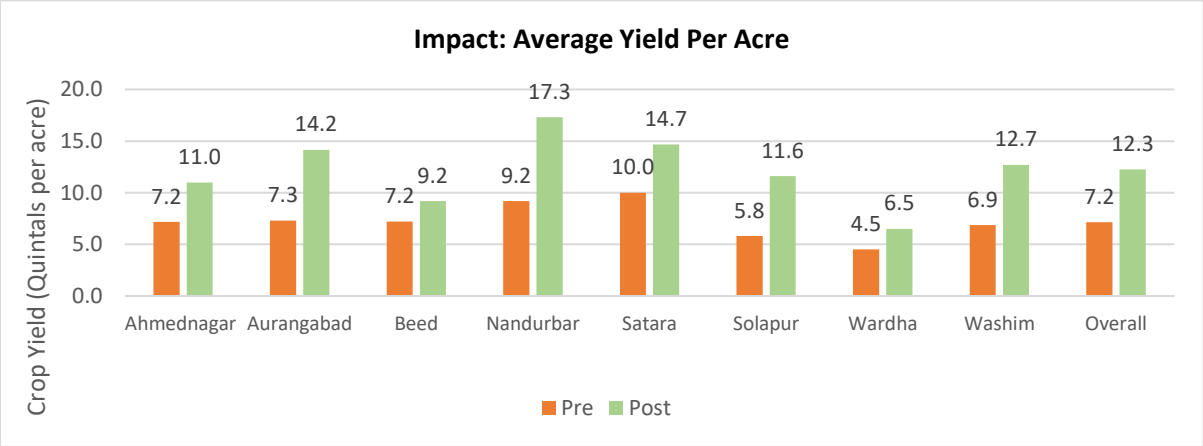


The reduction in number of chemical sprays applied has also led to cost savings for the farmers. On average, across all districts, farmers have reported savings of INR 4240, indicating the significant economic benefit of adopting these sustainable practices. Respondents from Sambhajinagar have reported the highest savings of approximately INR 6750 per acre, followed by Beed at INR 5000 per acre owing to reduced use of chemical pesticides. On the other end of the spectrum, the district of Satara reported the

lowest savings of INR 1,250. Despite being the least among reported figures, the savings still represent potential benefits in terms of reduced costs and less dependence on chemical pesticides. These figures underscore the benefits of the Farmer Cup trainings, promoting both economic efficiency and environmentally friendly practices in the farming sector.

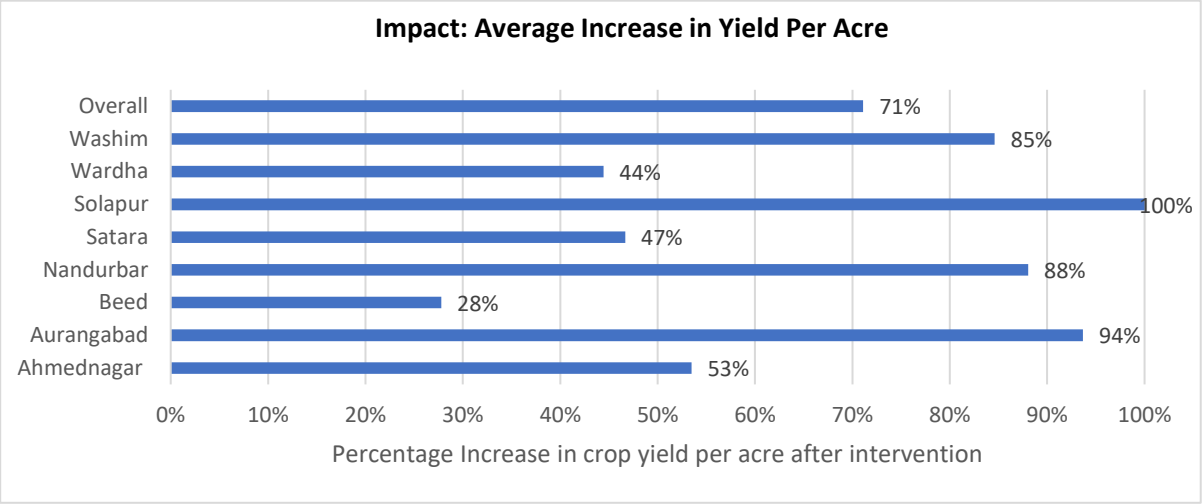
4.4.1.3 Improved Yield

The Farmer Cup initiative is dedicated to promoting profitable and efficient sustainable farming. It recognizes that farmers will more readily adopt environmentally-friendly and scientifically-sound farming methods if they are economically beneficial. The economic advantages of the initiative are evident when we assess the changes in average crop yield, in quintals per acre, before[32] and after the farmers' participation in the training programs.



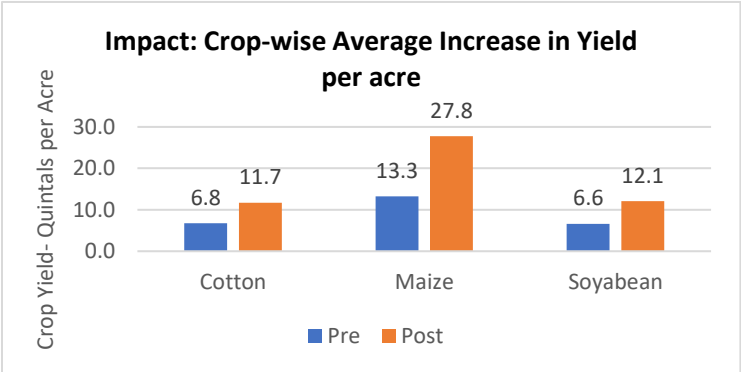
> *"I have been doing agriculture for more than 40 years now, a lot has changed over the course of time. The newer generation has been following SOPs to improvise the efforts and resources being utilized. I saw the younger generation focusing majorly on natural practices. The outcomes of the SOPs were clearly visible. The use of chemicals has degraded the quality of soil with time, the size of the lumps of soil has increased. Because of this, we need to now use tractor rotavator to break the lumps into smaller size.*
>
> *All the members in the gat are very young, I feel very energetic working with them. I realized that with time I also need to change the agricultural practices. I have been working with them for a year now and am very happy to see the results. "*
>
> -Sant Balumama Shetkari Gat, Solapur

[32] Please note that the figures corresponding to the period before the Paani Foundation/Farmer Cup's intervention are based on recall.



As per the data, all participating districts have registered an increase in crop yield post the training, indicating a successful uptake and implementation of better farming practices. On average, there's been an impressive yield augmentation of 71%, from 7.2 to 12.3 quintals per acre per season across all districts. This significant increase underlines the tangible economic benefits owing to adoption of science-based sustainable agricultural practices and participation in the Farmer Cup initiative.

Solapur recorded a 100% increase in yield, the highest among all districts. Also, Sambhajinagar and Nandurbar registered an increase of 94% and 88%, respectively. On the lower end of the spectrum, albeit still significant, Beed and Wardha reported a growth of 28% and 44%, respectively, marking every participating district as having benefited from the initiative. These increases in yield are a clear indication of the profitable nature of sustainable farming practices, and the crucial role the Farmer Cup initiative plays in promoting these methods.

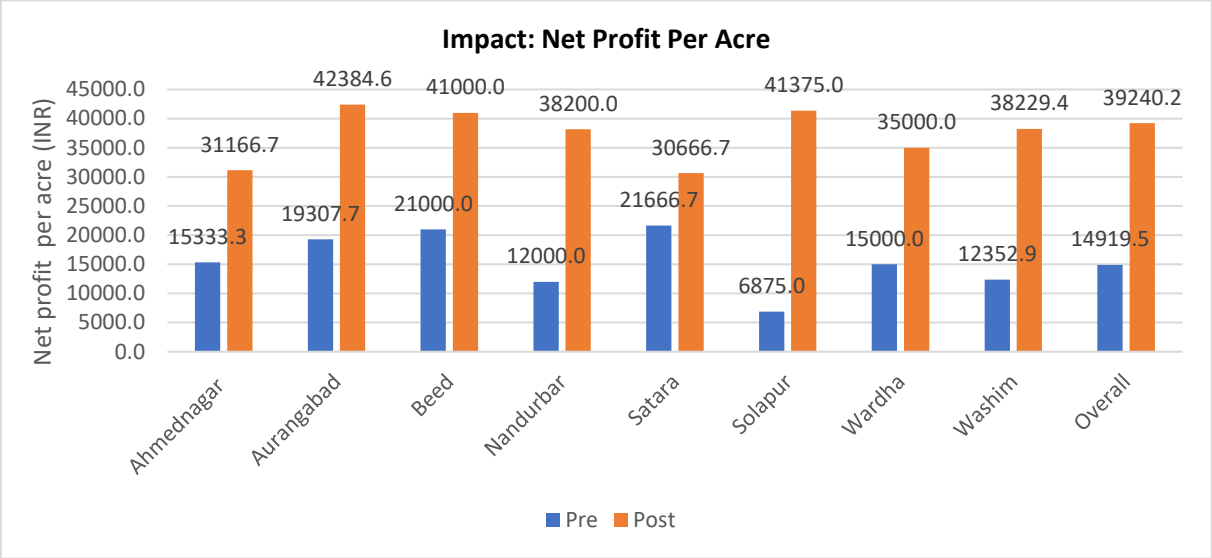


All selected crop types - Cotton, Maize, and Soyabean- demonstrate significant yield augmentation post-training. Soyabean, one of the widely grown crops, documented an 83% yield boost from 6.6 to 12.1 quintals per acre. Cotton, a staple crop for many farmers, saw a robust 73% increase in yield, from 6.8 to 11.7 quintals per acre. Maize witnessed a high increase, more than doubling its yield with a staggering 109% increment from 13.3 to 27.8 quintals per acre[33]. These notable increases in yield underline the Farmer Cup initiative's effectiveness in promoting sustainable yet profitable farming practices across different crops.

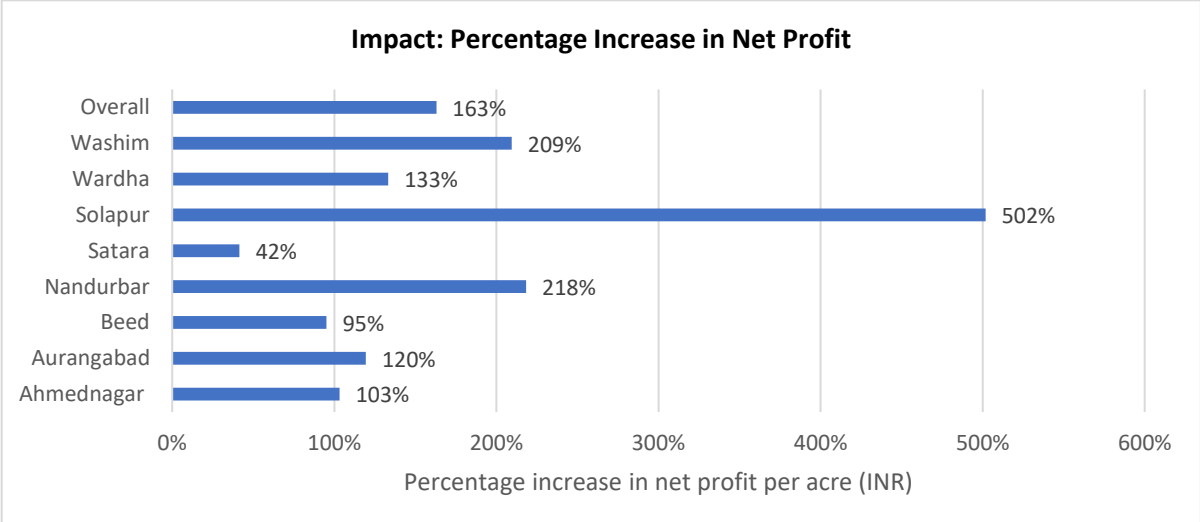
[33] Please note that the data points for Maize farmers was limited to five farmers which might affect the results.

4.4.1.4 Increase in Net Profit per acre.

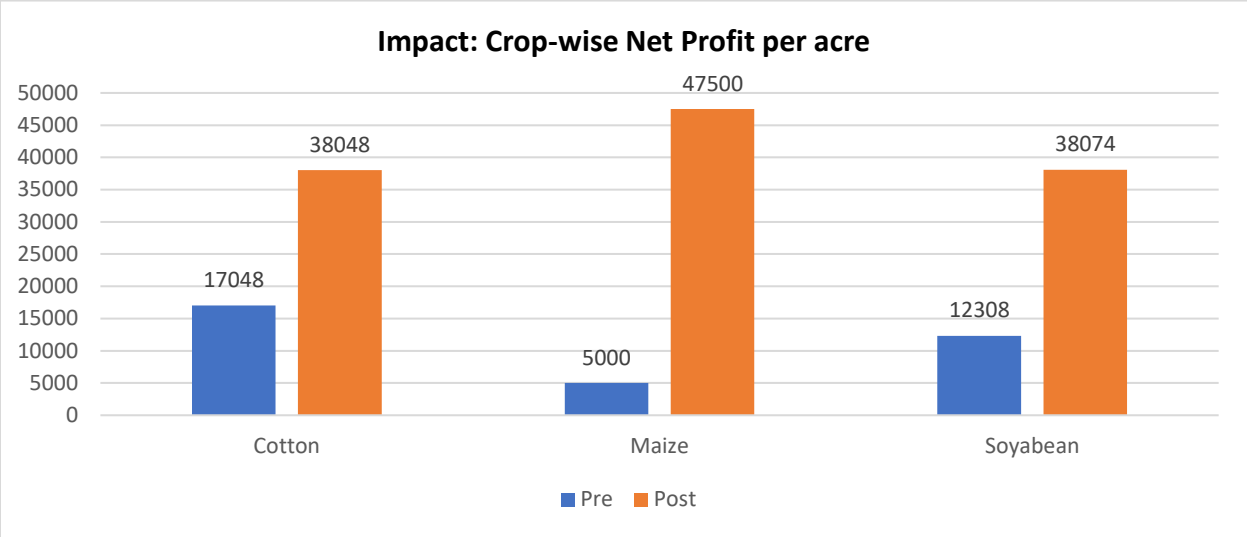
The Farmer Cup trainings' impact is noticeably reflected in the considerable increase in net profit per acre, determined after deducting expenses, across participating districts. Overall, the programme's influence is evidenced by a remarkable 163% rise in average net profit per acre across all districts, from INR 14,919.5 to INR 39,240.2. This significant growth underscores the financial viability of the farming practices that are encouraged in Farmer Cup's training sessions.



Looking at the district-specific data, respondents from Solapur reported 502% growth in in their net profit per acre, the highest among all districts. Farmers from Solapur reported high increase in yield after the program as well as savings on cultivation costs. During the study, it was also highlighted that in Solapur, around 10-15 farmer gats had come together to form an FPO, which further adds to better prices and market power. Other noteworthy improvements include Nandurbar and Washim, registering profit growth of 218% and 209% respectively. On the other end, Satara reported a smaller yet still substantial rise of 42% in their net profit. Each district experienced an increase in net profit, underscoring the



widespread impact of the initiative. These marked increases in net profits lend credence to the economic benefits and profitability of the Farmer Cup initiative, demonstrating how sustainable farming practices can lead to substantial financial gains for the farming community.



The data shows significant increase in net profit per acre across all three crops considered - Cotton, Maize, and Soyabean. Maize farmers reaped substantial financial gains with around 850% increase in net profit per acre, moving from INR 5,000 to INR 47,500[34]. This is high number is partly attributed to smaller survey respondents for Maize and participants recall, however, the respondents covered (both survey and FGD) shared that there was significant yield increase and improvement in quality of produce. This substantial growth highlights the significant return on investment that the Farmer Cup trainings can yield. Cotton, a major cash crop, also saw a robust increase of 123% in net profit per acre, increasing from INR 17,048 to INR 38,048. Similarly, Soyabean, another common crop, registered a 209% rise in net profit per acre, moving from INR 12,308 to INR 38,074. These remarkable increases across all crop types underscore the potential of Farmer Cup trainings in promoting sustainable yet profitable farming practices.

Baseline Study data on Agricultural Yield and Net Profit

The baseline study for first-timer gats (2024) with 110 survey respondents captured the pre-intervention (baseline) value for average yield per acre and net profit per acre (INR/acre).

Baseline

District	Yield per Acre	Net profit per acre (INR/acre)
Ahmednagar	10.2	21130.4
Sambhajinagar	13.7	17600.0
Beed	10.2	28000.0
Nandurbar	10.8	19527.8
Satara	12.1	20545.5

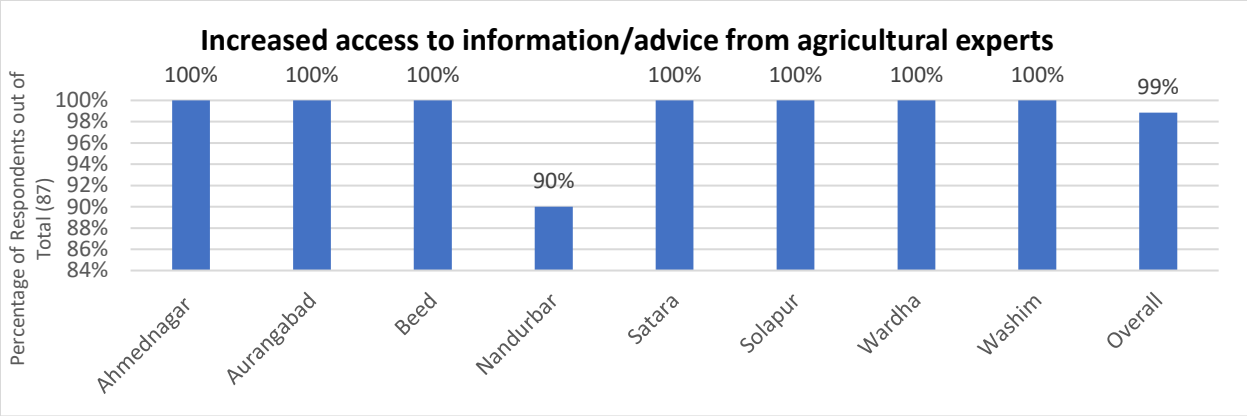
[34] Please note that the data points for Maize farmers was limited to five farmers which might affect the results.

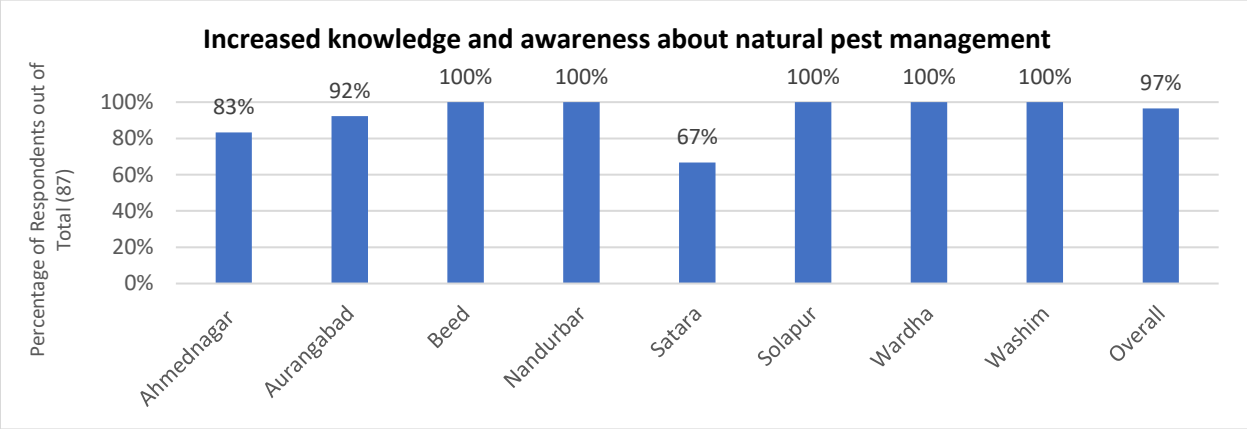
Solapur	5.4	4285.7
Wardha	6.0	12000.0
Washim	7.3	11460.0
Overall	**9.5**	**16818.7**

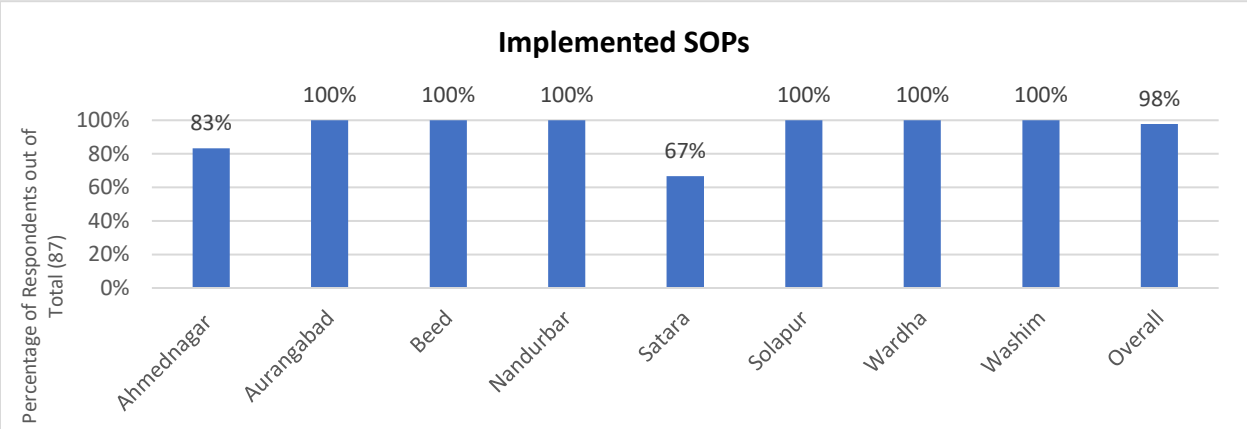
4.4.1.5 Improved knowledge and adoption of SOPs

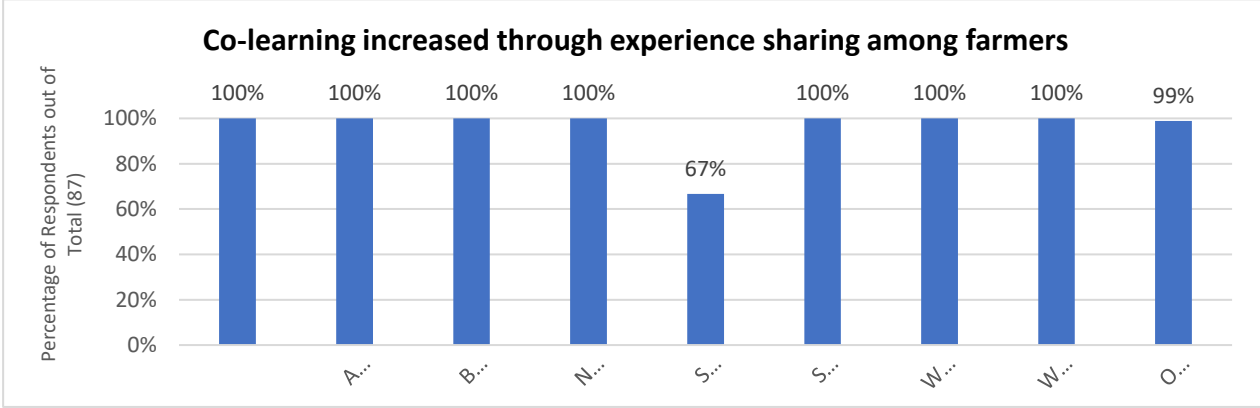
The Farmer Cup initiative had a positive impact on improved knowledge and awareness about natural pest management among farmers. Across all districts, 99% of participants reported an improved access to information/advice from agricultural experts, emphasizing the effectiveness of the trainings provided. Every district, except for Beed, reported a 100% improved access to information/advice from agricultural experts.

According to the data, around 97% of respondents shared that there has been an increase in knowledge and awareness about natural pest management across all districts. A significant 98% of the respondents reported that they have implemented the SOPs exemplifying the practical applicability and effectiveness of these trainings. The program has also fostered an environment of co-learning and experience sharing among farmers across districts. Around 99% of participants, on average, reported an increase in collaborative learning.


Increased access to information/advice from agricultural experts
Percentage of Respondents out of Total (87)
100%
98%
96%
94%
92%
90%
88%
86%
84%
100%
100%
100%
90%
100%
100%
100%
100%
99%
Ahmednagar
Aurangabad
Beed
Nandurbar
Satara
Solapur
Wardha
Washim
Overall

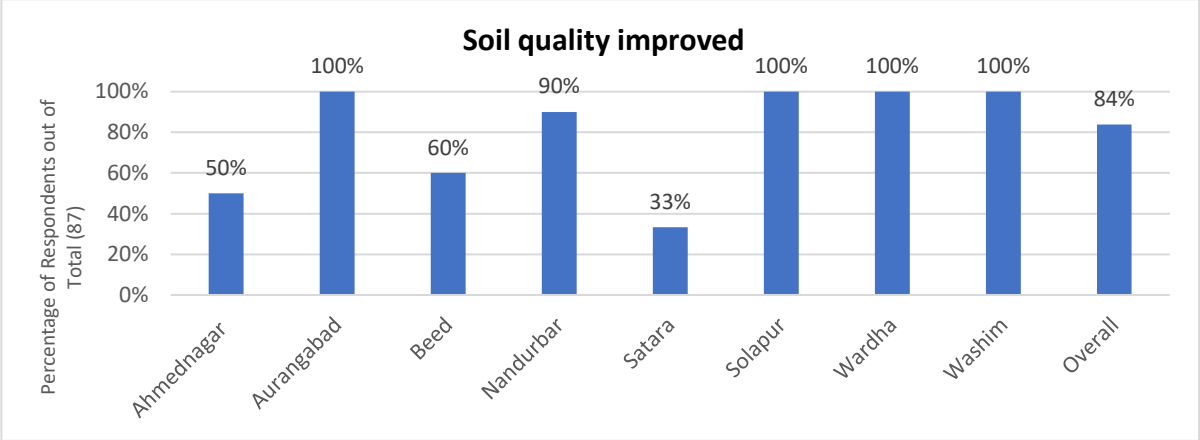

Increased knowledge and awareness about natural pest management
Percentage of Respondents out of Total (87)
100%
80%
60%
40%
20%
0%
83%
92%
100%
100%
67%
100%
100%
100%
97%
Ahmednagar
Aurangabad
Beed
Nandurbar
Satara
Solapur
Wardha
Washim
Overall

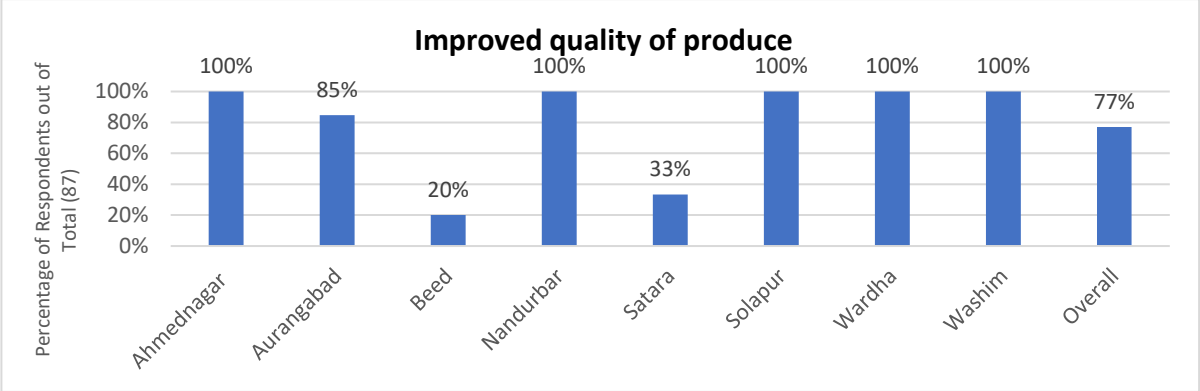

Implemented SOPs
Percentage of Respondents out of Total (87)
100%
80%
60%
40%
20%
0%
83%
100%
100%
100%
67%
100%
100%
100%
98%
Ahmednagar
Aurangabad
Beed
Nandurbar
Satara
Solapur
Wardha
Washim
Overall

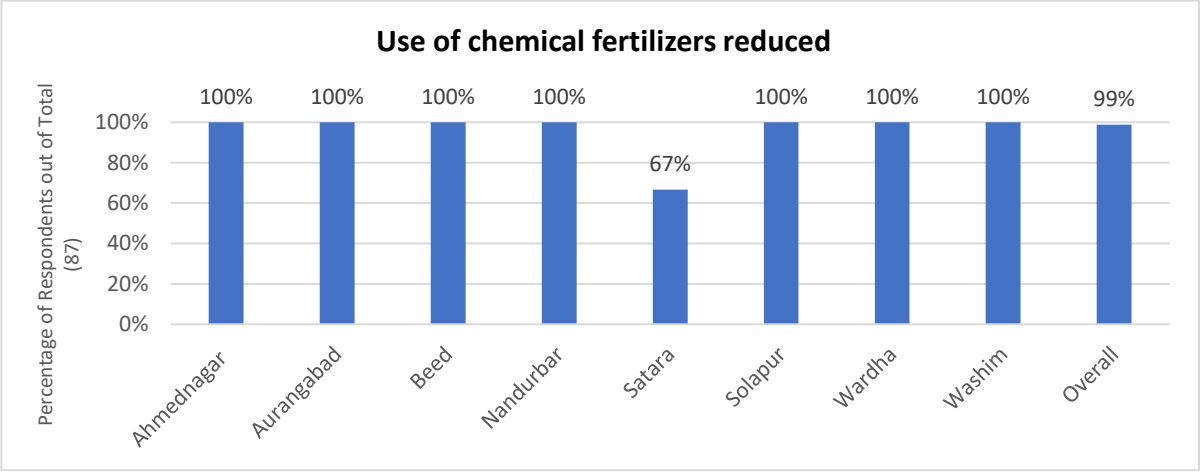

Co-learning increased through experience sharing among farmers
Percentage of Respondents out of Total (87)
100%
80%
60%
40%
20%
0%
100%
100%
100%
100%
67%
100%
100%
100%
99%
A...
B...
N...
S...
S...
W...
W...
O...

4.4.1.6 Improved quality of produce and soil, and reduced usage of chemical fertilizer

According to the respondents, the program has positively impacted the soil quality, quality of their produce and reduced their usage of chemical fertilizers. An average of 84% of participants reported improvements in quality of soil, indicating that the trainings successfully emphasized the crucial role of soil health in sustainable farming. One of the farmers from Solapur shared that two years back they had to use tractor rotavator to break through the lumps of soil as using chemicals had degraded the quality of soil. He remarked that they had to spend extra time to break down these hard lumps and prepare the field for sowing. However, they have been using organic fertilizers and NPM methods for the last two







years and they observe that the soil is moist now and the problem of lumps has reduced. Similarly, farmers across districts shared that they have observed improved water retention capacity of soil and have also reduced the number of times they irrigate their field in some cases. Around 77% of respondents reported that their produce quality had improved after the Farmer Cup initiative. Some of the farmers highlighted how their crops are taller than the ones of their neighbours who are not part of the Farmer Cup. In terms of reducing the use of chemical fertilizers, an impressive 99% of respondents overall agreed that the program helped them decrease their reliance on chemical fertilizers, marking a significant shift towards sustainable farming practices. The trainings- residential training and Digital Sheti Shalas helped farmers understand that using organic fertilizers and reducing use of chemicals can contribute positively to the quality of soil and crop yield. Moreover, access to agricultural experts where they can get resolution to their doubts, as well as reliable support from Paani's field coordinator had further reassured and provided confidence to the farmers to shift to organic fertilizers.

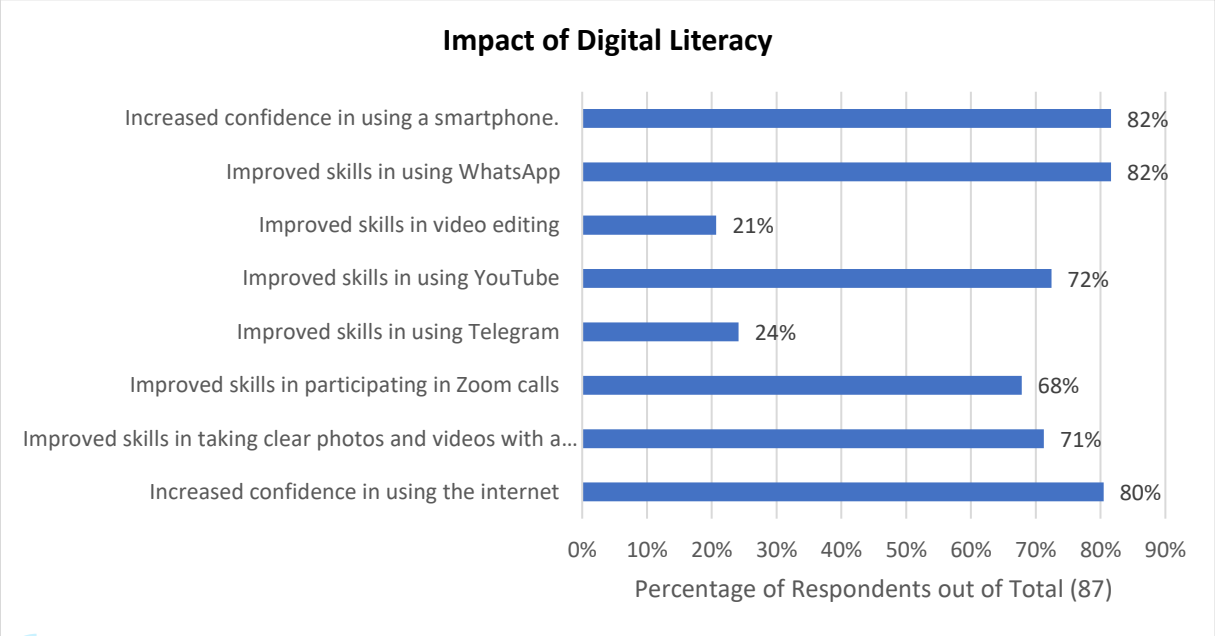
4.4.1.7 Improved market power

The respondents share that the program contributed towards enhancing their position within the marketplace and helped in achieving higher prices for their products through collective purchases and sale. Overall, 45% of participants reported an increase in their power in the marketplace, a considerable development given the traditionally weak bargaining position of small and medium farmers. Prior to the program, farmers often purchased inputs like seeds, fertilizers, pesticides, etc. individually, leaving them vulnerable to exploitative pricing by vendors. By pooling resources, the farmer gats negotiate bulk purchases at discounted rates. During field visits, it was also observed, that some of the farmer gats were wearing similar colours or same sarees in certain cases. The farmer gats shared that they actively tried to follow a dress code and coordinate their dresses as this gives a strong message of a unified team-spirit of the gat as they interact with the vendors. In Solapur about 88% of the farmers respectively reported improved market power post the program. Around 43% of the respondents, on average across all districts, reported that they were able to obtain higher prices for their produce. In Wardha, all the respondents confirmed increased pricing, followed closely by Solapur where 75% of farmers reported getting better prices for their produce. In Solapur, around 10-15 farmer gats have joined together as a farmer producing company, to improve their collective bargaining power at the market. In Nandurbar, one of the women-led gats supported by ATMA are in the process of setting up a tur-dal processing centre which would enhance their income and reduce reliance on external processing units. Some of the farmer gats in Ahmednagar have attended a regional-level farmer expo/exhibition. Additionally, one of the farmer gats decided to participate and advertise in the expo and expressed their enthusiasm in building their skills in marketing to improve their sales. In Satara, during the pilot study, it was observed that the district official and agricultural department were very pro-active and supported the farmer gats in selling their produce.

4.4.2 Impact on Digital Literacy

The Farmer Cup activities have also played a role in enhancing the digital literacy skills among farmers, allowing them to effectively navigate technological platforms. Overall, an impressive average of 80% participants reported increased confidence in using the internet as a direct result of their involvement in the Farmer Cup. This was matched by an equally commendable 82% who reported boosted confidence in

using a smartphone. Similarly, improved skills in using platforms like YouTube and WhatsApp were reported by 72% and 82% of participants respectively.



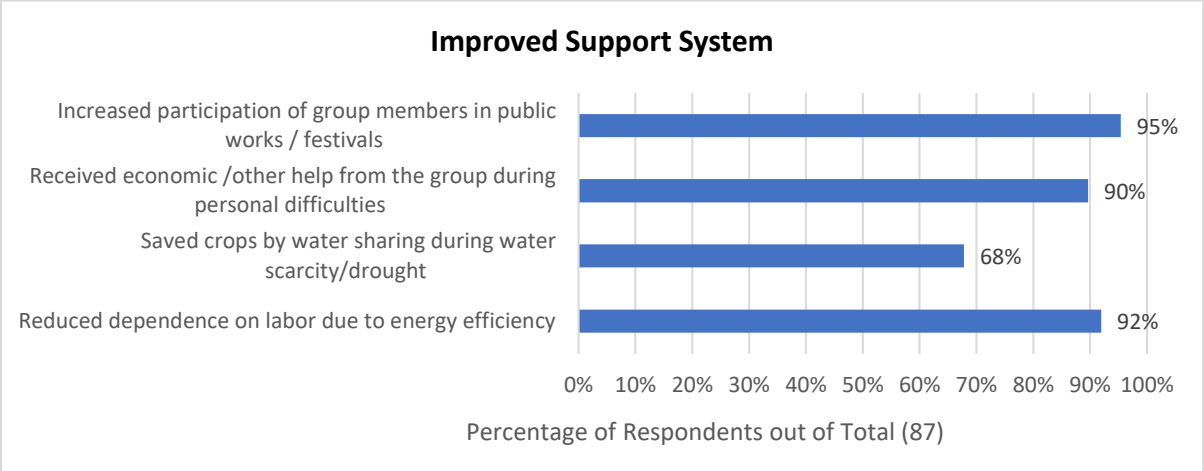
> *"The introduction of the app has brought in a more structured method of documentation, something we had never practiced before. This documentation will greatly help us in managing our work more effectively in the long term."*
>
> - Samarth Shetkari Gat, Sambhajinagar

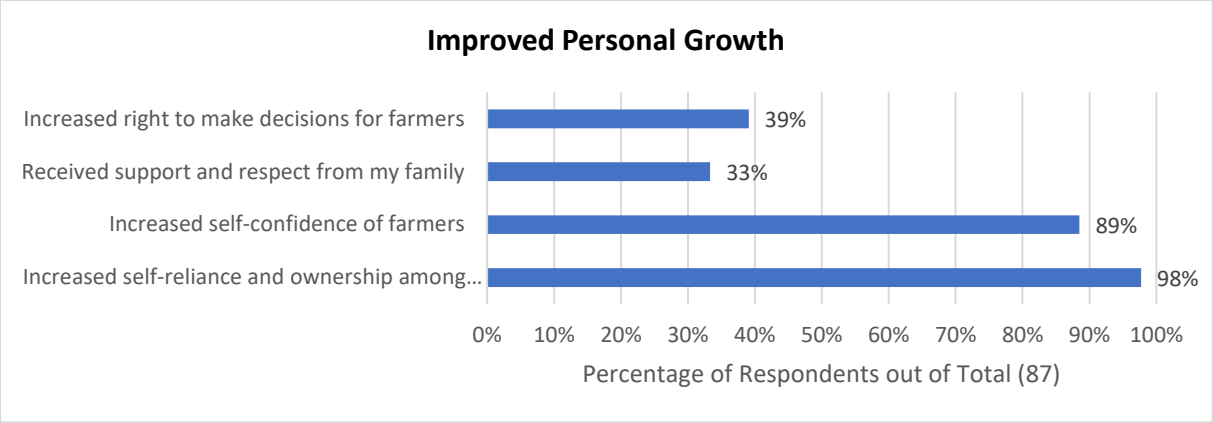
4.4.3 Impact on Social and Community Relations

Respondents shared that the Farmer Cup has also strengthened the support system among farmers. This is reflected in the high percentages of farmers who confirmed that the initiative has helped them to reduce dependence on labor due to collective farming, share water during periods of scarcity/drought, receive economic help during personal difficulties, and increased participation in public works and festivals.

Around 92% of participating farmers reported reduced dependence on labor due to increased collective labor practices. This reduction is significant in promoting sustainability and reducing operating costs for farmers. Around 68% shared that during water scarcity or drought situations, their crops have been protected/saved owing to water sharing among gat/collective members. About 90% of respondents shared that they received economic or other help from the group during personal difficulties. Furthermore, this sense of community transcends into social aspects as well, with 95% of overall participants indicating increased participation of group members in public works and festivals. The survey results highlight the contribution of collective farming in fostering a spirit of collaboration, solidarity, and mutual support among farmers, both in their agricultural practices and social life, thus enhancing their resilience.

> *"Working together has now reduced our costs significantly. Earlier, nobody used to keep vigilance on another's farm. Now, there is a sense of togetherness because of which everyone takes care of each other's farms. It has become easier to distribute work, and we also save time as everyone comes together to complete tasks quickly."*
>
> - Yashwant Shetkari Gat, Satara





The Farmer Cup initiative has also played a pivotal role in boosting the personal growth of the farmers, as clearly reflected in aspects like self-reliance, self-confidence, family support, and decision-making. An overwhelming 98% of farmers overall have reported that the program has increased their sense of self-reliance and ownership within their groups. The initiative has also significantly impacted the farmers' self-confidence levels, with an overall increase reported by 89% of the participants. This aspect is crucial as it empowers farmers to confidently engage in their farming practices, take risks, and experiment with new sustainable techniques. Receiving support and respect from family is another area where the impact has been felt with an overall average of 33%. Wardha district notably stands out with 100% of the farmers indicating they received increased family support and respect post their involvement in the initiative. On the power of decision making, the initiative has also made significant strides, with 39% of farmers overall reporting an increased right to make decisions. Around 71% of women respondents for impact study shared that there was an improvement in their decision-making right post program-intervention.

> *"I faced a lot of resistance from my family, even when I wanted to go for the training. I had to say that I have given 22 years of my life to you and your family, I just need three days to attend this training.*
>
> *When I went for the training, it was much more than I had expected. I came back from the training, worked single handedly on 1 acre farm to grow corn, the results were astonishing. The productivity improved by 3 times. My family, mainly my husband, could see the visible change of the efforts and SOPs, this year he has asked me to grow corn in 5/6 acre of land. I feel much more empowered, my ideas are accepted now, I am being treated equally."*
>
> -Vasundhara Mahila Shetkari Gat, Solapur

CASE STUDY HIGHLIGHT

> He maz navin kutumb aahe.
> This is my new family.

Sunita's *(name changed)* story is one of tragedy, loss, but ultimately, hope. She had never worked on a farm or taken any major decisions for her family until two years ago. Her life turned upside down after her husband's death due to the negligence of not washing hands after applying chemical fertilizers in his farm. Sunita became a widow with two children to feed, and no source of income. She decided on two things: to return to her parents' house and hate farming.

Nimantrak of *Jagat Janani Mahila Shetkari Gat* was aware of her situation and encouraged her to join the group. Nimantrak and the other members of the gat visited Sunita's house every day for two weeks until she agreed to join. Initially, Sunita did not attend the training sessions. However, she heard many stories from other group members and started taking an interest in learning new ways of farming. The members of the group also provided financial support whenever she was in need, and they took care of her children as their own. Through collective buying, Sunita was able to save money, and Irjik or collective labor activity was something she enjoyed more than other aspects of farming. The group members earned more money through Irjik at other farmlands within the village.

Today, Sunita carries a positive attitude towards life and wishes to dedicate her time and energy to spread the knowledge she has learned through the farming group to more and more people. She expressed her desire to attend the training session next year and is looking forward to it. She is grateful to the other members of the group for their support and for helping her through the darkest time of her life.

Sunita's story has become an inspiration to many within her community. Her personal tragedy has made her more resilient and empathetic towards others. In addition to working on her own farm, Sunita has become an active member of the farming group. She expressed her interest in training and guiding other farmers in the village with their work and even mentors' new members.

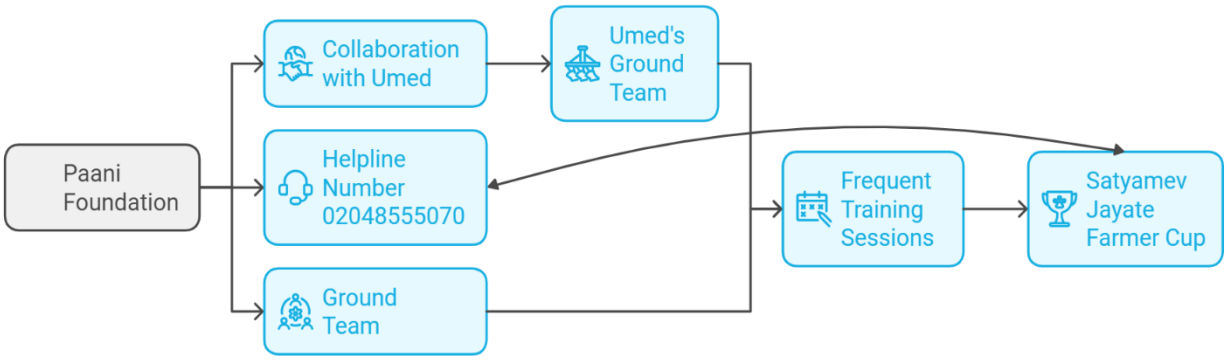
Ultimately, Sunita's story exemplifies the power of community support and the willingness to learn. It shows that people can recover from even the most challenging of circumstances with the help of others. In her case it was a farmer collective that supported her like family and helped her get back on her feet.

- Jagat Janani Mhila Shetkari Gat

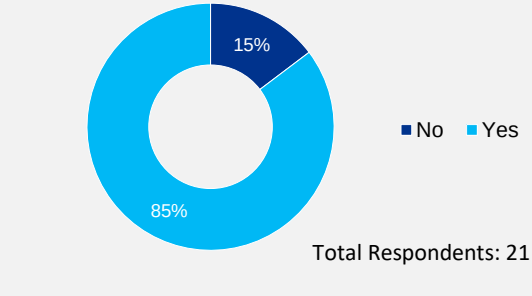
4.5 Digital First Pilot Model

Paani Foundation has been working towards the goal of promoting sustainable and scientific agricultural practices and collective farming through the Satyamev Jayate Farmer Cup. However, the current field-heavy model of mobilization and handholding comes with the limitation of being human resource intensive. To address this challenge and scale up the program, Paani Foundation is piloting its Digital First model which integrates digitalized communication and strategic partnerships in the current program implementation model. This model is currently being piloted in Farmer Cup 2024 in 8 talukas of the Wardha district. The aim of this model is to use technology-led communication to assist and lead several aspects of the Farmer Cup such as mobilization efforts, follow ups and handholding support.

One of the initiatives is the Paani Foundation helpline number (02048555070) and the Communication Centre Team at Wardha. In Wardha, Paani team has partnered with UMED Abhiyan, a component of the Maharashtra State Rural Livelihoods Mission (MSRLM). UMED Abhiyan focuses on women's empowerment and boasts a robust network of female representatives in the Wardha district, particularly in rural areas. Paani Foundation has devised a digital-first hybrid model of scaling, which is currently. This collaboration has significantly enhanced the dissemination of information regarding the Satyamev Jayate Farmer Cup, leading to an increase in registered groups (gats). Notably, due to the partnership with Umed, there has been a higher registration of female groups compared to male groups.

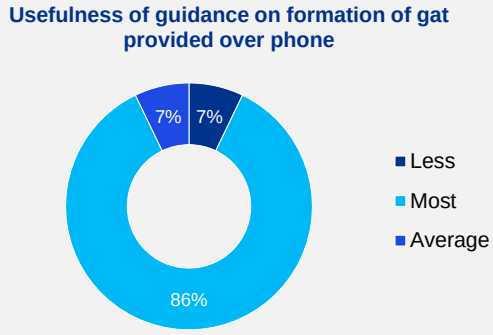


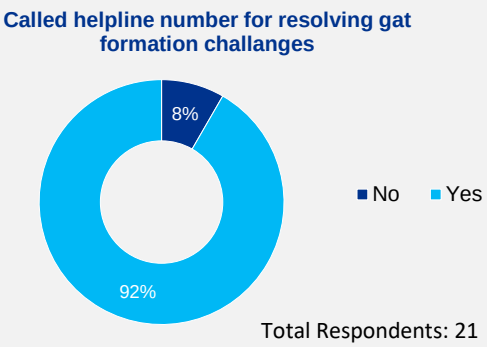
In the Wardha digital-first model, the formation of gats is one of the critical first steps; most respondents received updates from the Paani Foundation team, indicating effective communication channels, as shown in the adjacent graph.



Whenever a gat encounters difficulties in formation, they can seek assistance by calling the helpline number. Over 92% of the 21 survey respondents shared that they called the helpline number for support with gat formation. Feedback from participants suggests that most participants find valuable guidance through this support system.

The respondents shared that individuals from the gat who are most familiar with the Farmer Cup app are the ones likely to call the helpline on behalf of the collective to address their queries and receive solutions. The politeness and timely responses from helpline representatives encourage farmers to reach out without hesitation.





Total Respondents: 21

Participants expressed that the helpline representatives have effectively utilized WhatsApp's screen-sharing function to assist gat members, which has proven beneficial to them. A few respondents reported that network issues affected their ability to access helpline services. Apart from the helpline number, the respondents shared that they have also reached out to UMED Abhiyan representatives and occasionally the agriculture department for support and information. Around 86% of the survey respondents for Wardha Model shared that guidance shared over phone for gat formation was useful.

The following insights and suggestions areas were highlighted during detailed discussion with key stakeholders from UMED Abhiyan team as well as Block Agriculture officer.

- **Empowerment of Women**: The stakeholders emphasized the need for targeted efforts for women farmers and that the women involved in the program should focus not only on competing for the Farmer Cup but also on enhancing their overall income and livelihood. This reflects a broader vision of empowerment that goes beyond competition to include economic stability. Additionally, the overarching goal of enhancing farmers' quality of life was emphasized by government officials beyond the focus on winning competitions.
- **Effective Communication and Monitoring**: There was a strong emphasis on the necessity of effective communication during training sessions to ensure clarity and understanding among participants. To maintain farmer motivation and engagement, regular follow-ups on training sessions were recommended, ensuring that learning is reinforced

Block Mission Manager, UMED, Arvi

over time. One of the stakeholders emphasized the importance of immediate query resolution through the call centre highlighting the need for such responsive support systems. The stakeholders also reiterated that the farmers would require time to adapt to new communication channels, emphasizing the need for patience and support during this transition period.

Block Agriculture Officer, Arvi

• **Collaboration and Joint Efforts**: Stakeholders underscored the need to enhance collaboration between UMED, Paani Foundation, and the Agriculture Department. Joint training sessions were suggested to align efforts and leverage each organization's strengths, highlighting the need for a unified approach to achieve common goals. They also highlighted the need for setting clear targets for all stakeholders to ensure vital information effectively reaches farmers, enhancing accountability of the field teams.

Baseline

- **Adaptation to Digital Model**: Concerns regarding the shift towards digital model indicate a potential risk of reducing the effectiveness and cohesion of farmer collectives over time. Stakeholders recognize the importance of balancing digital communication with traditional in-person meetings to support the farmer groups. The stakeholders reiterated the necessity of in-person interactions with farmers as these engagements are crucial for building trust and ensuring that farmers fully understand and benefit from implemented initiatives.

District Head, UMED, Wardha

Thus, the digital-first model pilot in Wardha district represents an evolution in the Paani Foundation's approach to promoting sustainable agriculture through the Satyamev Jayate Farmer Cup. By integrating digital communication and strategic partnerships, particularly with Umed, the program has the potential to increase its outreach and bring Farmer Cup to other areas of Maharashtra. The successful formation of gats and the high engagement with the helpline demonstrate the model's capacity to provide timely support and valuable guidance to farmers. However, stakeholders have emphasized the need for a balanced approach that combines digital tools with sufficient in-person interactions to foster trust and cohesion. As this model continues to evolve, it holds promise for scaling up the Farmer Cup program that has not only improved agricultural practices and increased yield but also contributed towards building support systems for the farmers and improving community resilience.

CONCLUSION AND RECOMMENDATIONS

5 Chapter V: Conclusion and Recommendations

5.1 OECD-DAC

5.1.1 Relevance

A measure of the extent to which the intervention objectives and design respond to beneficiaries, global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change.

The Farmer Cup program is designed to support farmers in Maharashtra who often face significant challenges due to climate change, erratic weather patterns, and market uncertainties. By encouraging the formation of crop-specific collectives, the program enables farmers to pool resources, share knowledge, and enhance their bargaining power. This collective approach is crucial for small and marginal farmers who often struggle to navigate the complexities of modern agriculture alone. Paani Foundation is also actively working to increase the participation of women-led farmers in the Satyamev Jayate Farmer Cup, which is reflected in the growing numbers of women-led gats participating in the Farmer Cup.

According to the respondents who attended the three-day residential training program, the training was relevant and designed to cater to their needs and the challenges they face during farming. They shared that the curriculum and the training methodologies, such as films, games, and demonstrations, during the training, was engaging and motivated them to try these agricultural methods and participate in the Farmer Cup.

Across impact and baseline study, around 63% respondents shared that they did not seek or receive guidance from agricultural experts before participating in the Farmer Cup. This underscores the need for improving farmer's access to experts, which the Farmer Cup Program does through their Digital Sheti Shala sessions. Additionally, the knowledge/practice pre-levels highlight the need for training and knowledge transfer, with only 11% of respondents indicating that they practiced the key SOPs before the intervention.

5.1.2 Coherence

A measure of the extent to which the intervention is compatible with other interventions in a country, sector, or institution.

Alignment of the programme with National Priorities and Sustainable Development Goals:

The Sustainable Development Goals (SDGs), commonly referred to as the global goals, were established by all United Nations members in 2015 with the aim of eradicating poverty, preserving the environment, and guaranteeing that everyone lives in peace and prosperity by 2030. India was a key contributor to the development of the SDGs and is dedicated to fulfilling them by 2030.

Due to the nature of the intervention, the programme has an impact on a wide range of SDG-related outcomes, as shown below:

SDG Goal	Targets	Program
GOAL 1 **No Poverty:** End poverty in all its forms everywhere 	**1.1** Eradicate extreme poverty for all people everywhere, currently measured as people living on less than USD 1.25 a day. **1.2** Reduce at least by half the proportion of men, women, and children living in poverty in all its dimensions according to national definitions. **1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.	The Farmer Cup enhances rural livelihoods by empowering farmers through collective action and scientific farming methods. By increasing agricultural productivity and income generation, the initiative directly contributes to poverty alleviation and strengthens community resilience.
Goal 2 **Zero Hunger:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture. 	**2.1** By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round. **2.3** By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment. **2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality. **2.a** Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.	The Farmer Cup promotes sustainable agricultural practices that enhance food security by fostering local food production and improving access to agricultural knowledge. Through initiatives like Digital Sheti Shalas, farmers gain direct access to expert guidance, empowering them to make informed decisions that lead to increased agricultural yields. The program encourages diverse crop cultivation and efficient resource management, resulting in significant productivity improvements among participating collectives. Additionally, by promoting non-pesticide management (NPM) techniques, the Farmer Cup reduces reliance on chemical inputs, contributing to safer food production and healthier ecosystems.

Goal 3 **Good Health and Well-being:** Ensure healthy lives and promote well-being for all at all ages. 	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	By promoting non-pesticide management (NPM) practices, the Farmer Cup reduces reliance on harmful chemicals in agriculture, leading to safer food production. This shift not only improves health outcomes for farmers but also contributes to overall community well-being.
Goal 4 **Quality Education:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. 	**4.6** By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	The initiative includes comprehensive training programs that equip farmers with essential skills in sustainable agriculture. By integrating digital literacy components through the farmer cup app, the Farmer Cup enhances farmers' ability to adapt to changing market conditions.
Goal 5 **Gender Equality:** Achieve gender equality and empower all women and girls. 	**5.1** End all forms of discrimination against all women and girls everywhere. **5.5** Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life	The Farmer Cup actively promotes the participation and inclusion of women-led farmer collectives, ensuring they have equal access to resources, training, and decision-making processes. The program also has specific women-focused awards to further motivate women farmers to participate in the program. By providing targeted training and support, the program enables women to adopt sustainable agricultural practices, thereby improving their economic stability and community influence. This fosters gender equality within agricultural communities and enhances the overall productivity of these collectives.
Goal 8 **Decent Work and Economic Growth:** Promote sustained, inclusive, and sustainable economic growth, full and	**8.2** Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labor-intensive sectors.	The program enhances livelihoods through improved agricultural productivity while promoting sustainable economic growth within farming communities. By facilitating collective farming practices, the Farmer Cup creates decent work

productive employment, and decent work for all. 		opportunities in rural areas. Some of the gats shared that they sometimes even offer their collective labor services and earn additional income.

Through these strategic activities, Paani Foundation's Farmer Cup significantly contributes to achieving multiple Sustainable Development Goals (SDGs), fostering a holistic approach to rural development that empowers farmers while promoting sustainability.

Paani Foundation has established strategic partnerships with grassroot organizations such as UMED Abhiyan and Atma to enhance field mobilization efforts. These collaborations are vital for reaching out to farmers and facilitating access to resources and training. Additionally, they have partnered with agricultural universities and researchers to design and conduct the Digital Sheti Shalas, where regular sessions with experts are hosted on zoom for the farmers. This partnership with agricultural universities not only improves farmers' access to agricultural knowledge and expert guidance but also provides essential ground-level exposure for the researchers. By understanding the real challenges faced by farmers, these experts can design targeted solutions that address specific needs.

5.1.3 Effectiveness

A measure of the extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups.

Key Activities	Highlights
Residential Training	• Around 62% of the impact study respondent and 60% of baseline respondents shared that they had attended the three-day residential training. *(Around 2837 hours of residential training collectively for the survey respondents[35])*
Digital Sheti Shala	1. Attendance: • According to the impact study respondents, around 93% of the farmers shared that they attend the sessions always or often. Around 65% reported that they often attended the session, and about 28% shared that they always attend the sessions.

[35] Assuming 8 hours of training hours per day for three days.

	• For baseline, around 76% shared that they attend the sessions often or always. Around 18% shared they occasionally attend, and about 6% reported that they have only attended it once till now. 2. Around 67% of all survey respondents[36] shared they had received resolutions to their queries from the agricultural experts, whereas the remaining expressed that they had not asked any questions. 3. All the respondents[37] shared that they receive guidance on their farming practices and the challenges they face at the digital sheti shalas. 4. All of the respondents shared that these sessions have positively impacted their method of farming and the results.
Field Schools	• Impact: About 79% of farmers across all districts have attended these field school programs. • Baseline: Around 83% respondents shared that they had attended the field schools.
Farmer Cup App	• Impact: According to the survey results, about 50.57% of respondents report that they are regular users of the Farmer Cup app, a significant proportion, 39%, share they use the app when necessary. • Baseline: Around 47% of respondents shared that they used farmer cup app regularly and about 39% reported that they use the app when required.

5.1.4 Efficiency

A measure of the extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way.

Timeliness of delivery or implementation of project interventions: The programme was implemented on time by Paani Foundation with support from their strategic partners such as UMED Abhiyan in the selected regions (Wardha) as per the timelines of Farmer Cup process.

Cost efficiency of project activities: It was also found out through interaction with the Paani Foundation team members that there was no overshooting of the budget, and all the activities were executed well within the allocated budget. Payment milestones were clearly defined as such, and interventions were implemented in the districts in consultation with the key stakeholders.

Duplication/ overlap of project activities: Duplication of effort arises when similar interventions are needlessly undertaken within the same community/ location due to poor knowledge management and

[36] Across impact and baseline study
[37] Across impact and baseline study

inadequate coordination of projects, thereby resulting in fund and resource inefficiency. However, in this case, it was observed that the beneficiaries did not have access to any other similar program in the region during field observations and interaction with respondents.

5.1.5 Impact

A measure of the extent to which the intervention has generated or is expected to generate significant positive or negative, intended, or unintended, higher-level effects.

The table below presents the summary of findings of the impact of Farmer Cup[38].

Impact on Agriculture and Livelihood	
Savings during Farmer Cup	• Collective Fertilizer Purchase: **INR 1584** • Collective Labor/Irjik: **INR 5979** • Savings due to other means: **INR 7554** • Approximate Total Savings: **INR 15,117**
Reduction in use of Chemical Pesticide	• **98%** of respondents acknowledged that the program has helped them reduce their reliance on chemical pesticides. • **87%** of respondents shared that there has been a reduction in their usage of chemical pesticide sprays. • Cost savings: **INR 4,240** due to reduced use

Improved Yield	• On average, there's been around **71% increase** in yield.
	  • Soyabean: 6.6 to 12.1 quintals per acre (approx.)
	  • Cotton: 6.8 to 11.7 quintals per acre (approx.)
	  • Maize: 13.3 to 27.8 quintals per acre (approx.)

Increase in Net Profit per acre	• Around 163% rise in average net profit per acre from **INR 14,919 to INR 39,240**
Improved knowledge and adoption	• **99%** of participants reported an improved access to agricultural experts. • **98%** of the respondents reported that they have implemented the SOPs. • **97%** of respondents shared that there was an increase in awareness about natural pest management methods. • **99%** of participants shared that there was an increase in collaborative learning.
Improved quality of produce, soil, and reduced use of chemical fertilizers	• **84%** of participants reported improvements in quality of soil. • **77%** of respondents reported that their produce quality had improved. • **99%** of respondents expressed that their reliance on chemical fertilizers has reduced.
Improved market power	• **45%** of participants reported an increase in their power in the marketplace.

[38] Based on the impact study. Please note pre-levels for impact indicators have been shared in the preceding baseline study chapter.

	• **43%** of the respondents, on average across all districts, reported that they were able to obtain higher prices for their produce
Impact on Digital Literacy	
Increased confidence in using Internet	**80%**
Increased confidence is using a smartphone	**82%**
Improved skills in participating in Zoom Calls	**68%**
Improved skills in taking clear photos and videos	**71%**
Improved skills in using YouTube	**72%**
Improved skills in using WhatsApp	**82%**
Impact on Social and Community Relations	
Improved Support System	• **92%** of participating farmers reported reduced dependence on labor due to increased collective labor practices. • **68%** shared that during water scarcity or drought situations, their crops have been protected owing to water sharing among gat/collective members. • **90%** of respondents shared that they received economic or other help from the group during personal difficulties. • **95%** of respondents indicating increased participation of group members in public events and festivals.
Improved Personal Growth	• **89%** of participants reported improved self-confidence. • **33%** shared that there has been increase in support and respect from family. • **39%** of respondents expressed an increase in right to make decisions.

5.1.6 Sustainability

A measure of the extent to which the net benefits of the intervention continue or are likely to continue.

Sustainability of the Farmer Cup program can be understood through three key dimensions of stakeholder participation, capacity building and financial convergence.

The program emphasizes stakeholder engagement and actively involves local community leaders, district/block agricultural department officials as well as grassroots organizations throughout its implementation stages. This inclusive approach ensures that diverse perspectives are considered, which fosters a sense of ownership among stakeholders. The Farmer Cup program places a significant emphasis on building knowledge and facilitating knowledge transfer within the communities. This approach is realized through various methods, including residential training sessions, Digital Sheti Shalas, and field schools, all aimed at promoting scientific and sustainable agricultural practices and improving access to

agricultural experts. The promotion of crop-based SOPs has been effective, as these guidelines have demonstrated tangible results for farmers on the ground, contributing to the sustainability of the learnings from the program. Paani Foundation has also introduced DSS sessions on rabi crops, which are not included in the Farmer Cup marking system, due to request by farmer collectives as some of them choose to collectively farm for rabi season as well. This demand highlights the value that farmers place on the knowledge and learning support provided by Paani Foundation, even beyond the competition framework.

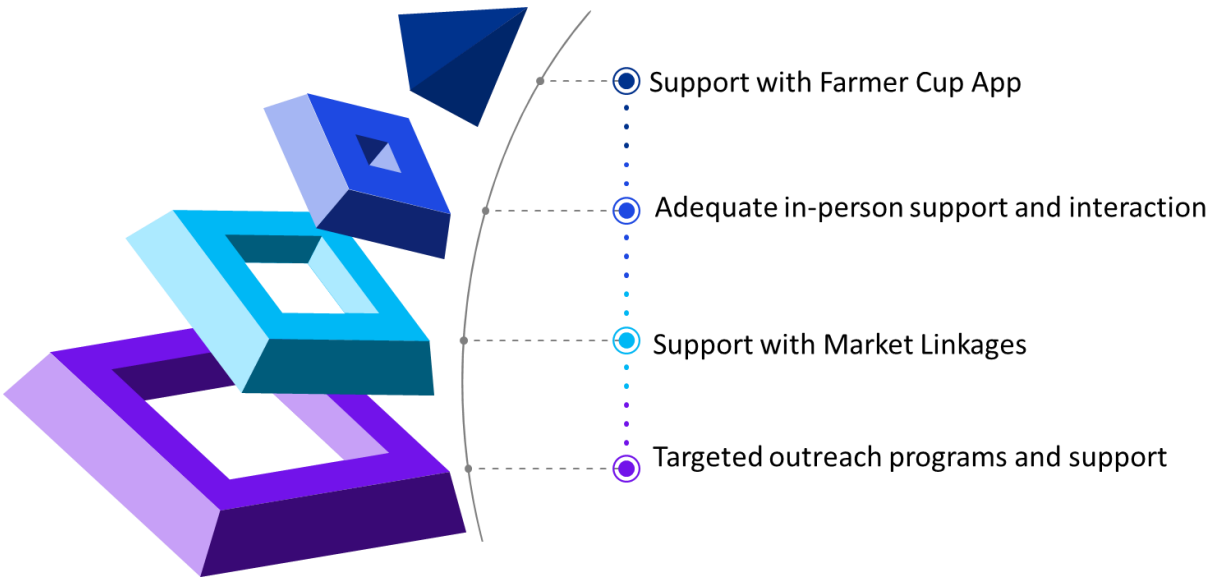
In case of experienced gats, particularly those who may have been close runner up, winning of the Farmer Cup is not the priority or sole aim. Many collectives continue to engage in collective farming practices despite not prioritizing or being overly enthusiastic about winning the Farmer Cup prize. They recognize the substantial benefits of working together, which not only include monetary advantages from shared labor costs, support during periods of water scarcity, but also benefits such as improved social support system. According to the study, respondents expressed an enhanced sense of community spirit, increased participation in community celebration which contributes to building a collaborative environment where farmers can rely on one another for support.

The Farmer Cup's focus on knowledge transfer and collective farming not only equips farmers with essential skills but also cultivates a resilient agricultural ecosystem that thrives on collaboration and shared success. The collectives serve as vital nodes of support for farmers, fostering a culture of cooperation that extends beyond individual groups. Numerous anecdotal instances highlight the collaboration not only within each collective but also among different gats from various villages. This inter-gat cooperation showcases the potential of collective farming for building resilient community support systems.

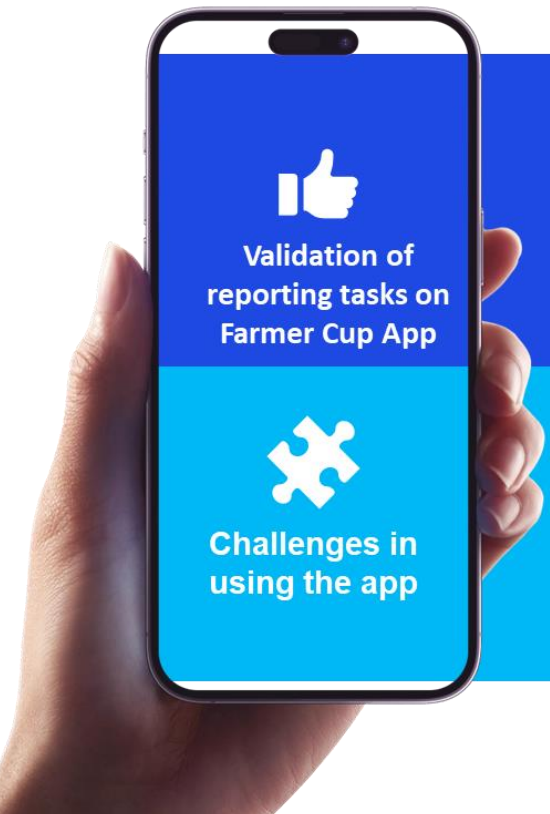
5.2 Key Recommendations

This section outlines key recommendations for the Farmer Cup program, drawing from our comprehensive study and consultations with farmer gats – encompassing both, the impact, and the baseline study. These recommendations are drawn from the challenges and support requirements expressed by the farmers across the eight districts of Maharashtra.

The key recommendations are as follows:



1. Support with Farmer Cup App



KEY ISSUES

- Basis field observations and discussions, it was highlighted that farmer gats often sought reassurance from the coordinators on whether they are adequately performing the SOPs as well as reporting tasks for the Farmer Cup App like capturing clear photos and videos.
- Farmer gats from the Digital First Model shared that the helpline support was particularly useful in guiding them through these small tasks and validating that the submission on Farmer Cup has been adequate.

- Many farmers are reluctant to use the Farmer Cup app, fearing incorrect entries that could affect their group, resulting in mostly young farmers and select individuals (nimantraks) managing app tasks.
- Survey findings indicate that 50.57% of respondents use the app regularly, while 39.08% do so only when needed, and 2.30% struggle with its use.
- Key challenges identified include poor network and internet speeds (59% of respondents) and technical glitches on the app (37%).

KEY RECOMMENDATIONS

Leverage Helpline Support

Real-time support through helpline is particularly useful for offering guidance and reassurance on these smaller tasks and queries.

Feedback Mechanism in App

Implement a feature within the app that automatically provides feedback to farmers once they upload photos or videos, whether they need to reupload it.

Minimize Technical Glitches

Prioritize resolving the technical issues, such as app lag and glitches, that negatively impact user experience.

Paani Foundation has piloted an initiative for training youth as App Mitras to support the farmers in accessing and using the Farmer Cup App.

2. Adequate in-person support and interaction

KEY ISSUE

Both farmers and stakeholders highlighted the need to ensure adequate in-person interactions, particularly in the digital first model.

One of the gats shared that they requested the coordinator to pay an additional visit and support them with one of the NPM techniques of bird perch (dining table of birds).

Farmers shared:

Respondents from pilot model echoed this, as they shared that more in-person interactions would be fruitful. They shared that attending the field school was very helpful and motivated them.

Stakeholders such as the Block Agriculture Officer and Block Mission Manager of UMED shared their concerns regarding the shift towards digital model and the need for adequate in-person meetings to support the farmer groups and build trust and cohesion of collectives/gats.

KEY RECOMMENDATIONS

Community Mentor Gats

- Implementing a program where experienced high-performing gats, serve as mentors and community resource persons, for offering in-person support and fostering peer-to-peer learning.
- Selected Mentor Gats undergo a series of training sessions aimed at honing their communication, SOP knowledge, and technical skills.
- Recognition/Awards can be designed to incentivize Mentor Gats and promote knowledge exchange and mentorship. This can be included in the Farmer Cup Marking System.
- Communication platforms for mentor gats and mentees can be facilitated through the Whatsapp or Telegram groups, adding features on the Farmer Cup App, etc.

Adequate Staff for Field Visits

Basis discussion with the project coordinator for Digital First Model in Wardha, it was suggested that approx. one person for covering two talukas would be required in addition to the communication support provided digitally.

3. Support with Market Linkages

KEY ISSUES

Market linkage for Organic Produce

- Farmers shared their struggles around market linkages and obtaining good prices for their produce, particularly organic produce.
- Some of the farmer gats have requested for guidance on strengthening their market linkages for organic farm produce.

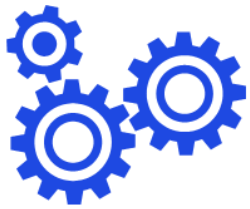
Guidance to set up FPOs

- Some of the gats expressed the need for guidance and support for establishing FPOs to act as aggregators and strengthen market linkages.

One of the farmer gats shared that they went to Nasik to visit Sahayadri Farms, one of India's leading farmer-producer company, focused on the export and processing of fruits and vegetables. Farmer gats expressed that this inspired them, and they aspire towards building/being part of such export-oriented platform.

In Solapur, 10-15 farmer cup gats/groups have come together to form an FPO, enhancing their collective bargaining power and simplifying the process of connecting with market players.

KEY RECOMMENDATIONS



Training and Entrepreneurial Skills Program

- Training in market analysis techniques, business planning, financial management skills, enabling participants to identify and target viable markets for their produce, create business plans.
- Sessions focusing on any value addition, from basic processing techniques to packaging and branding, where applicable.
- Guidance on achieving certifications (organic, fair trade, etc.) and meeting quality standards to access premium markets and prices.
- Information on accessing finance through agri-business loans and grants.
- Incorporating modules on digital marketing and the use of e-commerce platforms to reach broader markets directly.

4. Targeted outreach and support

POTENTIAL AREAS

Women

- Partnering with UMED for ground mobilization has contributed towards increase in women participation. Thus, continued collaboration with organizations working with women would help ensure their active participation.

Tenant Farmers

- Around 2% of the baseline respondents were tenant farmers highlighting an opportunity to enhance outreach to this marginalized group.
- Tenant or lease-land farmers face significant challenges related to access to resources and land security.

Youth

- During field observations, there were 1-2 anecdotal incidents of youth from cities coming back to farming.
- Designing targeted outreach for young farmers through youth engagement workshops, campaigns featuring stories of young farmers who have returned to the agricultural sector, incentivizing gats with young members, etc.

"I used to live in Mumbai before moving to the village and was not acquainted with farming. However, the formal education provided by Paani's training has enabled me to understand it thoroughly. I have developed a profound interest in collective farming and greatly enjoy the camaraderie of the Gat members."

-Mhasoba Mahila Shetkari Gat, Parodi

KEY RECOMMENDATIONS

- Utilizing design tools like empathy maps might be useful for understanding the varied needs, experiences, and aspirations, and designing tailored mobilization strategy as well as follow-up support. Key farmer personas can be identified such as tenant farmers, women, youth, large-land holding farmers, elderly farmers, etc.

- Additional support and activities can be designed for stakeholders, basis their needs and challenges. For example, according to the study women gats tend to face more challenge from their household and society during residential training and gat formation.

- Facilitating interaction between women-led farmer groups across districts through online and offline meetings. Participation in existing Women-led Farmer Networks or building a network of women-led farmer groups can foster peer learning.

Paani
FOUNDATION

Contact:
www.paanifoundation.in