



Increasing Farmer Profitability Through Improved Post-Harvest Management

Report by:



FarMart

| ecociate

in association with:



responsAbility



FarMart

The Good Food Economy



Project Evergrain is a capacity-building initiative launched by FarMart in 2025, in partnership with **responsAbility** and **Ecociate**, to reduce post-harvest losses among smallholder farmers. Implemented across selected districts in **Uttar Pradesh, Bihar, and Madhya Pradesh**, the project equipped farmers with practical knowledge and best practices to minimise losses during the critical stages of **harvesting, drying, storage, and transportation**. Through a combination of hands-on training and digital advisory, Project Evergrain aimed to improve post-harvest management, enhance grain quality, and strengthen smallholder farmer livelihoods.





A note from responsAbility

"The most impactful solutions are rarely built in isolation. They emerge when organizations with complementary expertise come together around a shared vision - combining innovation, local knowledge, and practical experience to address complex challenges.

Project Evergrain is an example of what is possible when technology, traditional knowledge, and development expertise come together with a common purpose. Through our Technical Assistance facility, responsAbility partnered with FarMart and Ecociate to implement an initiative focused on reducing post-harvest losses and strengthening resilience of smallholder farmers.

Project Evergrain reinforces an important lesson: when farmers are equipped with the right knowledge, practical tools, and timely information, they are better positioned to make informed decisions that strengthen their livelihoods. It is through this empowerment that meaningful and lasting change becomes possible.

We hope the learnings from Project Evergrain inspire further collaboration and practical innovation across agricultural value chains, helping build more resilient, efficient, and farmer-centric food systems."

Dr Maneesh Kumar Patasaraiya
(Senior Climate Advisory Specialist,
responsAbility Investments AG)



TABLE OF Contents

01	Executive Summary	05
02	Introduction and Project Context	08
03	Evergrain Project Design	13
04	Capacity Building & Impact Assessment	17
05	Impact Assessment Baseline & End-line Result	20
06	Assessment of Village Level Entrepreneurs (VLE)	29
07	Project Conclusion	33

Executive Summary



Post-harvest losses are a major challenge in paddy and wheat production systems, directly affecting efficiency and farmers' income. A significant share of these losses occurs during harvesting, drying, and storage, often due to poor practices, limited access to appropriate tools, and dependence on external service providers such as machine operators.

The study was conducted to evaluate the impact of targeted capacity-building intervention aimed at improving post-harvest management at the farm level among paddy and wheat farmers in three states, Uttar Pradesh, Madhya Pradesh and Bihar. The intervention focused on strengthening farmer practices across stages of harvesting, drying, storage and transport. It combined classroom training with digital reinforcements through the FarMart App, enabling farmers to revisit training content and receive timely advisories throughout the crop cycle. The approach was designed to address both knowledge gaps and practical constraints faced by farmers in field conditions.

The impact assessment findings show adoption of some of the recommended practices among the participant farmers within the first harvesting season. Adoption of tarpaulin or plastic sheet for drying harvested grains increased significantly from around 10 percent to nearly 70 percent. This shift in practice has reportedly reduced grain contamination and exposure to moisture, leading to

better quality grains and lower losses. Awareness related to harvesting practices, particularly optimal harvester combine speed, has also contributed to reduction in grain loss.

Exposure to moisture meters and trial usages increased compared to the baseline. Early experimentation may encourage sustained adoption as farmers gained a better understanding of the importance of grain moisture in preserving grain quality. It was found that increase in awareness of some practices may not necessarily lead to adoption as farmers weigh the economic costs against the expected benefits of adopting new practices. This indicates that factors such as cost, access, and ease of use, may influence the use and application of certain tools.

The intervention resulted in clear and measurable improvements in farmer practices and outcomes. Average post-harvest losses declined by **1.92 kg per quintal**, leading to an average saving of **2.05 quintals per farmer per season**. At a Minimum Support Price of INR 2,369 per quintal, this translated into an additional income of approximately **INR 4,800-4,860 per farmer**.

A significant number of farmers adopted immediate measures that could reduce losses with minimum efforts and resources, thus experiencing lesser levels of losses. This suggests that the intervention was effective in addressing some of the inefficient harvest and post-harvest practices, leading to lowering of losses and consistent outcomes among farmers.

Advisory services played an important role in supporting these changes. More than 60 percent of wheat farmers enrolled during training sessions received FarMart advisory messages on their mobile phones. Among those who received the message, 85 percent found the content relevant and useful. The continuity in engagement through digital messages has contributed to higher recall of messages and application of recommended practices during harvesting and post-harvest processes.

The wheat assessment was conducted with a sample size of 100 participant farmers, sampled from three districts, Raebareilly (Uttar Pradesh), Sagar and Tikamgarh (Madhya Pradesh) revealed an even sharper improvement compared to the paddy season. At baseline, 80 percent of wheat farmers were reporting losses exceeding 8 quintals per 100 quintals produced — a strikingly high proportion that points to how widespread the problem was before the intervention.

After 10 training programmes that reached over 1,100 farmers — including approximately 350 women farmers and 22 Village Level Entrepreneurs — the results were

substantial. Average post-harvest losses fell from 9.15 kg per quintal to 5.90 kg per quintal, a reduction of 3.25 kg per quintal. The share of farmers experiencing very high losses collapsed from 80 percent to just 12 percent. Tarpaulin-based drying, a simple and affordable practice, saw adoption rise from 10 percent to 53 percent — with untimely rainfall during harvest actually reinforcing its value in the field. Around 62 percent of farmers used the hermetic bags provided during training for seed or grain storage.

The economic value of these changes was direct and meaningful. Given average landholdings of 3.99 acres and wheat yields of 14.5 quintals per acre, each farmer saved an average of 2.20 quintals per season. At the prevailing Minimum Support Price of Rs 2,585 per quintal, this translated into an additional income of Rs 5,687 per farmer — achieved even as overall yields declined due to untimely rains, underscoring that post-harvest loss reduction provides a layer of resilience against climate stress.

Moisture meter adoption improved in awareness but remained constrained by access. Around 30 percent of farmers wanted to use a moisture meter but could not, while 22 percent cited simple non-availability nearby. This is clearly a supply-side gap rather than a resistance to change — 69 percent of non-users expressed intent to adopt once access improves, through VLEs, FPOs, or local traders.

Economic Impact Per Farmer Per Season



23+ Programs



2200+ Farmers



MP, UP and Bihar



Paddy and Wheat Season

Project Evergrain: Programme Reach & Impact Snapshot

58

Village Level Entrepreneurs Trained



Farmer Adoption of Best
Post-Harvest Practices (Paddy)

69%

Farmers adopted atleast
1 recommended practice



Farmer Adoption of Best
Post-Harvest Practices (Wheat)

83%

Farmers adopted atleast
1 recommended practice



350+

Women Farmers Reached



75%

of Farmers engaged with
advisory content on the
FarMart app

(85% found it useful!)





CHAPTER

01

Introduction and Project Context



1.1 Post-Harvest Losses in Grains: Context and Impact

Post-harvest losses (PHL) in food grains remain a significant concern, affecting food security, resource efficiency, and farmer livelihoods. It is estimated that nearly 14% of food produced globally is lost during harvest and the market place, with higher losses observed in developing and under-developed countries, which are affected by poor infrastructure, technology, and handling practices (FAO). In cereal crops such as rice and wheat, these losses are primarily associated with inefficient harvesting techniques, inappropriate drying methods, and poor storage conditions, leading to both quantitative and qualitative deterioration in grain quality.

In the Indian context, post-harvest losses assume greater importance given the scale of production and dependence as staple food grains. India produces over 330 million tonnes of food grains annually (MoAFW), yet a considerable portion is lost across the post-harvest value chain. Estimates suggest that losses in cereals range between 4% and 10%, depending on crop and region (ICAR; FAO). Studies by the Indian Council for Research on International Economic Relations highlight that inefficiencies in post-harvest handling, storage, and logistics contribute significantly to overall losses in the agricultural supply chain.

At the state level, major grain-producing states such as Uttar Pradesh, Bihar, and Madhya Pradesh face persistent challenges in managing post-harvest processes effectively. Evidence from regional studies conducted by ICAR institutes and State Agricultural Universities suggests that post-harvest losses in cereals can reach up to 8-10% under certain conditions, particularly due to improper drying, high moisture content, and inadequate storage facilities. In these regions, reliance on traditional practices, limited access to drying platforms, and constraints in storage infrastructure contribute significantly to avoidable losses.

The impact of post-harvest losses extends beyond the reduction in physical output. For small and marginal farmers, these losses directly translate into reduced marketable surplus and thus, lower income realisation. At a macro-view, the inefficient harvest and post-harvest processes lead to inefficiencies in the food supply chain and increase pressure on natural resources such as land, water, and energy used in production. Even marginal reductions in post-harvest losses can significantly improve food availability and farmer incomes without requiring additional production inputs - making it a critical focus area for sustainable agricultural development (FAO; ICRIER).

1.2 Key Stages of Post-Harvest Losses

Post-harvest losses in grains such as paddy and wheat do not occur at a single point, but across multiple stages starting from harvesting and continuing through handling, drying, storage, and transportation. Each of these stages presents its own set of challenges, and even small inefficiencies at any point can cumulatively result in significant losses.

Harvesting is often the most critical stage where a large share of losses begins. There is an increased adoption of combine harvesters across the three states, though the machines are not operated most efficiently leading to significant grain losses. Combine harvester operators have been operating the machines at higher than recommended speeds and applying improper settings leading to high grain shattering and spillage in the field. Farmers have limited say in managing the speed of machine operations, as they are themselves technically unaware.

Drying of paddy grains has been a critical part of post harvest management as the climate is cooler and there is high moisture in the air. The conditions become less conducive for drying if there is untimely rain. Proper moisture management is essential, yet many small and marginal farmers continue to rely on open-field drying on bare ground. This not only leads to uneven drying but also increases the chances of contamination and spoilage. Higher moisture becomes a challenge to safe storage as issues of pest infestation, fungus and moisture ingress affects the grain quality. This challenge is further aggravated by poor ventilation of the storage space affecting the grain quality and thus quantitative loss.

Evidence from national-level studies supports these observations. As shown in the below table, a major proportion of losses in both paddy and wheat occurs at the farm level, particularly during harvesting and immediate post-harvest operations, accounting for nearly 79-81% of total losses (CIPHET, 2015).

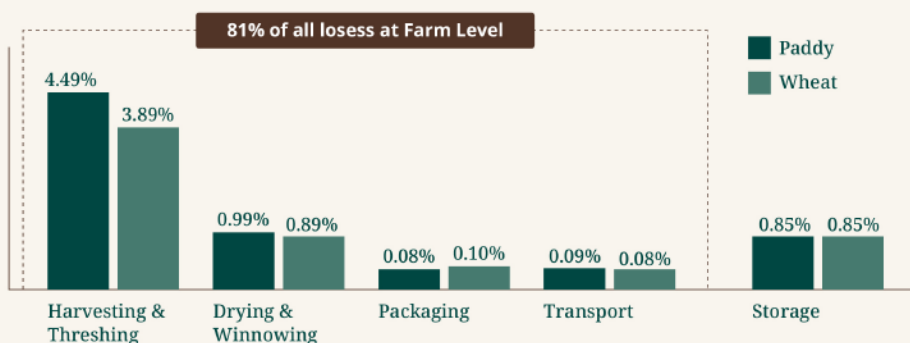
Percentage Loss Across Different Stages of the Value Chain (Paddy and Wheat)

Commodity	Post-Harvest* (on farm)	Packaging	Transport	Storage [†]	All-India Loss (%)	Farm-Level Share (%)
Paddy	4.49	0.08	0.09	0.85	5.51	81.5%
Wheat	3.89	0.10	0.08	0.85	4.92	79.1%

*Include harvesting, collection, threshing, winnowing, and drying.

[†]Includes farm, godowns, wholesalers, retailers, and processors. Source: CIPHET (2015)

Figure: Post-Harvest Loss Distribution Across the Value Chain - Paddy and Wheat
(Source: CIPHET 2015)



1.3 Importance of Post-Harvest Loss Management

Managing post-harvest losses in grains is critical for improving overall agricultural efficiency and farm outcomes. While increasing production has long been the focus of agricultural development, reducing post-harvest losses offers an equally effective and cost-efficient way to improve food availability (FAO).

One of the most direct impacts of effective post-harvest loss management is on farmer income. Studies in the Indian context suggest that a significant proportion of losses occurs at the farm level, and reducing these losses can increase the marketable surplus available to farmers without additional production costs (CIPHET; ICAR). For small and marginal farmers, who operate under tight resource constraints, this translates into higher net returns and improved livelihood security.

At a broader level, post-harvest loss management plays a crucial role in strengthening food security. In a country like India, where demand for food grains continues to grow, minimising losses in staple crops can significantly improve overall food availability. Efficient post-harvest practices also contribute to better utilisation of natural resources. When losses are minimised, the land, water, energy, and labour invested in crop production are used more effectively.

Additionally, improved post-harvest management enhances the quality of produce reaching the market. Better drying, handling, and storage practices help maintain grain quality, reduce contamination, and minimise pest-related damage. Grains with golden shine, healthier look, grain weight and grain length are important quality assessment parameters in the marketplace.



1.4 Need for Farmer Capacity Building

Prevention of post-harvest losses requires more than availability of technologies and infrastructure; it depends on farmers' awareness, skills, and farm practices. Small and marginal farmers often rely on traditional knowledge and locally accepted post-harvest practices, leading them to view a certain level of loss as unavoidable. As farm operations become increasingly mechanized, farmers need the technical knowledge to operate and manage equipment effectively to minimize post-harvest losses.

A key challenge observed across regions is the gap between the availability of farm-tech machineries that offer opportunity for adopting effective and efficient practices at the farm level, and the knowledge and appropriate tech-adoption. Technologies such as moisture meters, tarpaulin-based drying, and improved storage solutions are increasingly being promoted; however, their uptake remains limited due to lack of awareness, limited technical understanding, and perceived cost barriers. In many cases, farmers are not fully aware of the extent of losses occurring at different stages, which reduces the perceived need for adopting improved practices.

Capacity building plays a critical role in bridging these gaps by enabling farmers to make informed decisions and adopt context-appropriate practices. Structured interventions that combine technical knowledge with practical demonstrations have found to be effective in improving awareness and adoption of post-harvest management practices. Participatory approaches, where farmers are actively engaged in discussions and encouraged to share their experiences, further strengthen learning outcomes and increase the likelihood of behavioural change.



1.5 About Project Evergrain

Project Evergrain is an initiative focused on reducing post-harvest losses in staple crops such as paddy and wheat through targeted skilling interventions among farmers and village level entrepreneurs. The project was designed with the understanding that a significant share of post-harvest losses occurs during the process that starts with harvesting and continues through drying, storage and transport.

The project was implemented across selected districts in Uttar Pradesh, Bihar, and Madhya Pradesh, covering key grain-producing districts, where post-harvest losses were a persistent challenge. These districts were identified for their high production of paddy and/or wheat, and presence of FarMart procurement teams in the district. The project primarily engages with small and marginal farmers through FarMart's network of Village Level Entrepreneurs (VLEs), who serve as critical last-mile procurement and service partners. These farmers often face constraints such as limited market access, lower exposure to improved technologies and practices, and restricted access to information and resources, making them particularly vulnerable to post-harvest losses.

A key aspect of Project Evergrain is its focus on addressing knowledge and practice gaps at the farm level, through training and providing relevant and timely digital information to farmers. The intervention is structured around strengthening farmer awareness and promoting improved post-harvest management solutions that are locally available, relevant, practical, and low-cost. The project also incorporated an assessment component to understand baseline conditions and measure changes in farmer practices and outcomes during the immediate next harvest season.

1.6 Project Evergrain: Objectives

- Strengthen farmer awareness of critical post-harvest loss stages - harvesting, threshing, drying, handling, and storage.
- Promote adoption of practical, low-cost, and scalable post-harvest management solutions.
- Develop and deliver context-specific training content based on a structured Training Needs Assessment.
- Assess the effectiveness of capacity building interventions through baseline and post-intervention studies.
- Improve farmer incomes by reducing avoidable quantitative and qualitative grain losses.
- Strengthen last-mile advisory support and access to post-harvest services, using the FarMart App.





CHAPTER

02

Project Evergrain: Design

2.1 Capacity Building on Post-Harvest Loss Management

The capacity building component of Project Evergrain was designed to address critical gaps in farmer awareness and practices related to post-harvest loss management. Recognising that a significant proportion of losses occurs at the farm level, the intervention focused on developing a structured approach to strengthen farmer knowledge and promote the adoption of improved practices across key stages of the post-harvest value chain.

Design of Training Needs Assessment

The first step in designing the intervention involved conducting a Training Needs Assessment (TNA) to understand existing farmer practices, knowledge gaps, and key challenges across different stages of post-harvest management. The assessment focused on identifying critical loss points in activities such as harvesting, threshing, drying, and storage. It also captured farmer perceptions, constraints, and decision-making patterns to ensure that the intervention would be relevant to on-ground realities. The findings from the TNA formed the basis for developing targeted and context-specific capacity building content.

Geography and Profile of Farmers

The capacity building intervention was implemented across selected districts in Uttar Pradesh, Bihar, and Madhya Pradesh, covering regions where paddy and

wheat are the dominant crops. These geographies were chosen based on their production significance as well as the prevalence of post-harvest challenges. The project primarily engaged with small and medium farmers, who are more susceptible to post-harvest losses due to limited access to resources, infrastructure, and technical knowledge.

FarMart has operational presence in the districts for procurement of different types of grains. They use a network of village level entrepreneurs (VLEs) to source grains from farmers. The VLEs operate in the villages, providing agri-inputs to farmers and subsequently procure the grains from small and marginal farmers who have small surplus. This network of VLEs become important touchpoints for FarMart to reach directly or indirectly with the farmers.

Design of Training Delivery

The design of the capacity building approach focused on ensuring that the content was practical, easy to understand, and directly applicable at the farm level. Training modules were developed based on insights from the training needs assessment (TNA), with emphasis on critical stages where losses are most prominent. The content covered key aspects such as improved harvesting practices, moisture management, safe drying methods, proper handling, and storage techniques. Special attention was given to promoting low-cost and scalable solutions, and the overall design emphasised a participatory and farmer-centric approach.

To maximize practical learning and farmer engagement, the training was delivered through a combination of live demonstrations, visual aids, and instructional videos that illustrated the implementation of recommended post-harvest practices. Rather than relying solely on one-way knowledge dissemination, the sessions were highly participatory, encouraging farmers to share their experiences, discuss challenges encountered during harvesting and post-harvest operations, and collectively identify practical solutions. This interactive approach enabled trainers to contextualize recommendations to local farming conditions, foster peer-to-peer learning, and build farmer confidence in adopting improved practices.



2.2 Impact Assessment

Project Evergrain incorporated an impact assessment component to evaluate the effectiveness of capacity building interventions in improving farmer practices and reducing post-harvest losses. The assessment is structured to capture changes in awareness, behaviour, and outcomes by comparing baseline conditions with post-intervention findings.

Baseline

The baseline assessment was conducted prior to the implementation of capacity building activities to establish a reference point for existing farmer practices, awareness levels, and post-harvest losses. The assessment for paddy and wheat was conducted across selected districts in Uttar Pradesh, Bihar, and Madhya Pradesh with a sample of 93 farmers, capturing existing practices related to harvesting, drying, handling, and storage, along with estimation of post-harvest losses. The sampled farmers were randomly selected from the universe of paddy and wheat producing farmers who were associated with the VLEs in the respective sample districts.

District Maps - Baseline Assessment Wheat & Paddy

Uttar Pradesh

Selected District:

Sitapur



Bihar

Selected District:

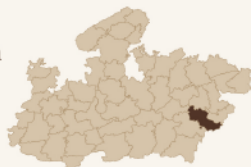
Rohtas



Madhya Pradesh

Selected District:

Mandla



Post Capacity Building

The post-intervention assessment was conducted after the completion of capacity building activities to evaluate changes in farmer awareness, adoption of improved practices, and reduction in post-harvest losses. The paddy assessment was conducted with 89 farmers in Uttar Pradesh (Barabanki), Bihar (Rohtas), and Madhya Pradesh (Mandla). The wheat impact assessment was subsequently conducted with 100 farmers across Uttar Pradesh (Raebareli) and Madhya Pradesh (Sagar and Tikamgarh), the findings of which are incorporated in this report.

Methodology

The impact assessment followed a structured approach to ensure reliability and comparability of findings across baseline and post-intervention stages. A pre- and post-assessment design was adopted to capture changes in farmer practices, awareness levels, and post-harvest losses over time. Data was collected from farmers who participated in the capacity building sessions using structured questionnaires, ensuring consistency in information across both stages.

The study covered key post-harvest stages including harvesting, drying, handling, and storage, with a focus on identifying changes in adoption of improved practices. In addition to quantitative data, qualitative inputs from farmer interactions were also considered to better understand behavioural changes and practical challenges.

Sample Geography

The study was conducted across selected districts in three states - Uttar Pradesh, Bihar, and Madhya Pradesh. In Uttar Pradesh, districts including Sitapur, Barabanki, Jaunpur, Chandauli, Jhansi, and Kanpur were covered. In Bihar, the districts of Rohtas, Kaimur, and Buxar were included, while in Madhya Pradesh, the intervention was focused in Mandla district.

Sampling

The sampling was guided by practical considerations related to crop cycles and farmer availability across different geographies. Since harvesting periods for paddy and wheat varied across states and districts, the selection of locations was aligned with the timing of crop harvest. The baseline assessment was conducted in districts Sitapur (Uttar Pradesh), Rohtas (Bihar), and Mandla (Madhya Pradesh), whereas the post-intervention assessment was carried out in districts where farmers were available immediately after the intervention period.

The baseline assessment adopted a structured sampling design covering both paddy and wheat farmers. From a total population of 1,000 farmers per crop, a sample of 100 farmers was selected for each crop, representing 10 percent of the population. The sample was drawn using a multi-stage approach, with districts and villages selected based on project coverage, followed by selection of marginal and small farmers within villages to ensure representation across geographies and farm profiles.

From a statistical standpoint, the selected sample size provides adequate precision for program-level estimation. Assuming maximum variability and applying finite population correction, the sample corresponds to an approximate margin of error of ± 9.3 percent at a 95 percent confidence level. A consistent sampling framework was applied across both paddy and wheat to enable comparability of results across crop systems.

The achieved sample was 93 farmers for wheat and paddy both for baseline assessments and 89 farmers for post-intervention assessment in Paddy and 100 farmers for post-intervention assessment in Wheat season, which is closely aligned with the planned sample size.

Study Tools

Data was collected using structured survey tools designed to capture quantitative information on farmer practices, awareness levels, and post-harvest losses. Data collection was carried out digitally using mobile phones by the Ecociate team, with questionnaires administered through Google Forms. In addition to farmer surveys, a separate

set of questionnaires was developed for Village Level Entrepreneurs (VLEs) to assess their capacity to support farmers through services such as storage, moisture meters, and other logistical support at the village or panchayat level. The study also assessed the impact of training on business growth of VLEs.

A qualitative approach was adopted to conduct group discussion with farmers and understand the intangible factors associated with farmer behaviour and attitude towards technology adoption and adopting new skills.

Data Validation and Limitations

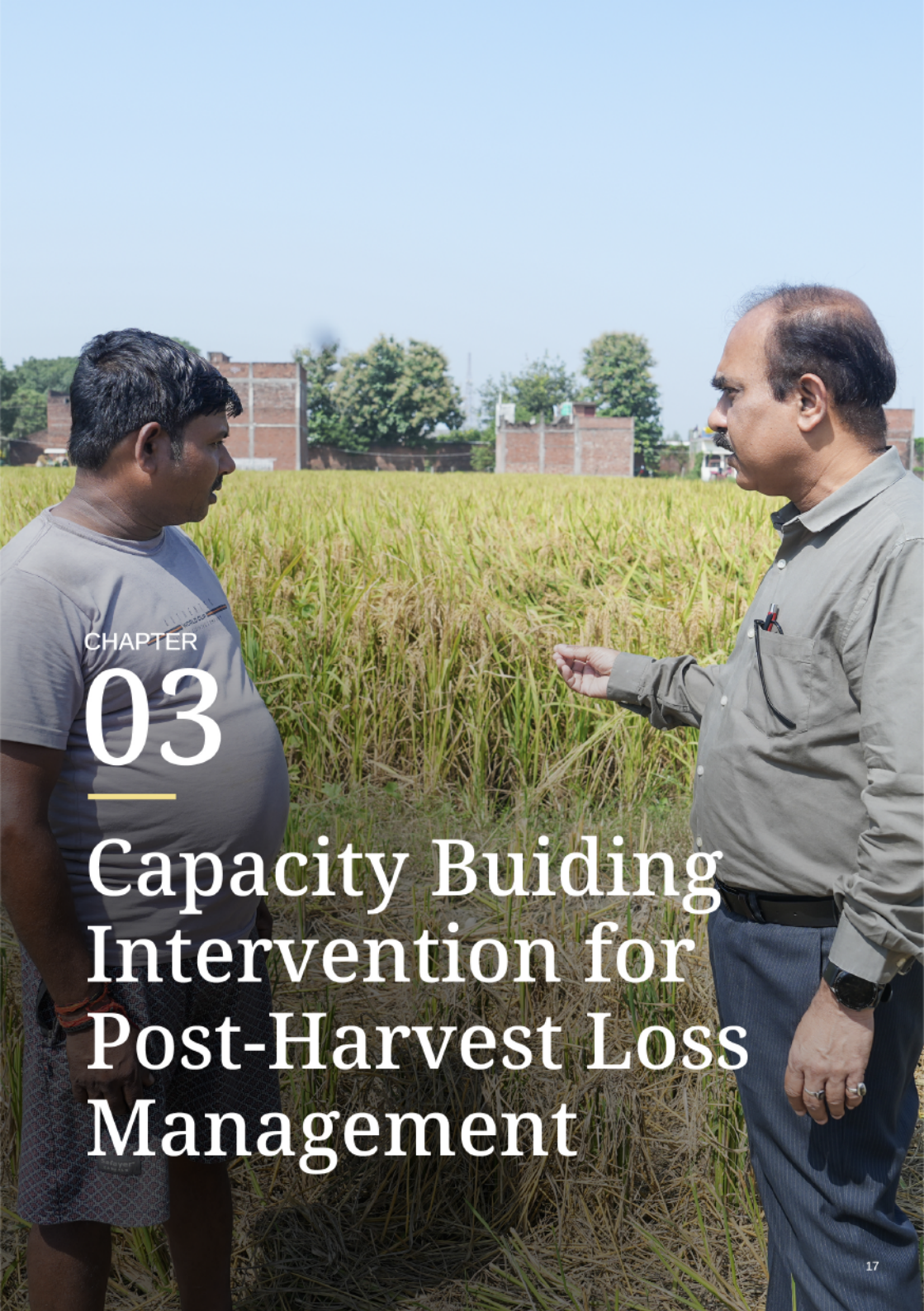
The data for this study is based on farmer responses, including their recall of post-harvest practices and losses. To improve accuracy, responses were cross-checked during field interactions and reviewed for consistency. Critical information areas were validated during group discussions.

The baseline and post-intervention assessments were conducted with different sets of farmers. The farmers covered in the baseline had similar landholding and crop growing behaviour. The sampled farmers were identified through the network of VLEs. Farmers sampled for the post-intervention assessment had participated in the training sessions and were expected to apply some or all of the processes that could reduce post-harvest losses. This means the comparison is between two different sets of farmers and not a track of the same farmers during the project period.

"Farmer experiences were central to our methodology. Alongside quantitative assessments, we created space for farmers to share their challenges, decisions, and perspectives, ensuring that the findings reflect realities from the field-not just numbers."

Saroj Mohanta
(Co-founder & Director, Ecociate)



A photograph of two men standing in a lush green rice field. The man on the left is wearing a grey t-shirt and patterned shorts, looking towards the man on the right. The man on the right is wearing a grey button-down shirt and blue trousers, gesturing with his right hand towards the rice plants. In the background, there are brick buildings and trees under a clear blue sky.

CHAPTER

03

Capacity Building Intervention for Post-Harvest Loss Management

3.1 Training Need Assessment

The Training Need Assessment (TNA) for paddy and wheat was conducted using structured questionnaires and field-level interactions with farmers to assess their existing practices, level of awareness, and gaps across key stages of post-harvest management. The assessment was intended to measure the awareness, attitude and practices at different stages of harvesting, threshing, drying, and storage, for paddy and wheat. The study deep-dived into the technical knowledge of farmers on various farm-tech applications that they are exposed to or apply in their own fields.

For example, many farmers were aware that moisture content affects grain quality, but they were not clear about when exactly moisture should be measured or how to use a moisture meter in practice. In harvesting, farmers acknowledged that combine harvesters lead to some losses, but very few were aware that machine speed plays a major role in determining the extent of these losses.

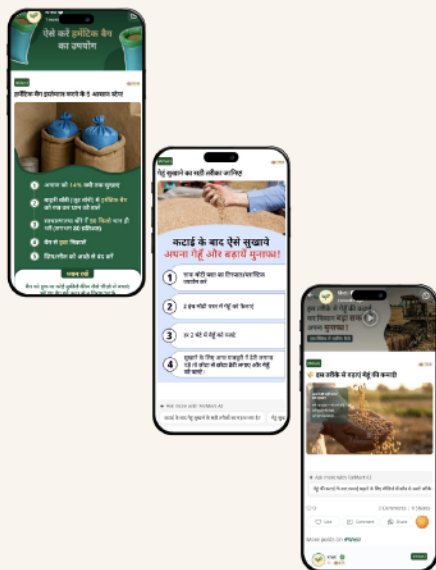
In drying practices, farmers generally knew that crops need to be dried, but there was limited clarity on the number of days required for proper drying. In threshing, farmers were unaware of technical parameters such as the recommended RPM of threshers or the benefits of using tarpaulin sheets to avoid contamination. Storage-related practices revealed gaps in the use of improved storage solutions such as hermetic bags, with farmers citing issues of pest attacks and moisture damage.



3.2 Development of Training Content

The training sessions for paddy and wheat were planned separately. Paddy and wheat training sessions were conducted about one month before harvest, enabling farmers to apply the recommended practices during the upcoming harvest season. The development of training content for paddy and wheat was based on a combination of field-level insights from the TNA and detailed secondary research. Reference materials from ICAR, CIPHET, ADM Institute, FAO, and other sources were reviewed to validate observations and align content with recommended scientific and cost-efficient practices. The modules were structured around the complete post-harvest value chain, covering stages such as harvesting, threshing, drying, handling, transportation, and storage - organised stage-wise with causes of losses and corresponding best practices at each step.

A structured approach was adopted to ensure sessions progressed in a logical and engaging manner. The module began with an initial ice-breaking segment, where different post-harvest technologies were shown visually to initiate discussion. This was followed by the harvesting stage, where video demonstrations were used to show how combine harvesters function, including internal working aspects, after which causes of losses and best practices such as speed management was discussed.

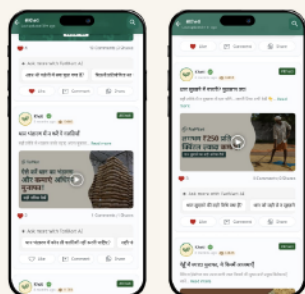


The training module focused on the harvesting process, both using harvester combine and the manual harvesting as this process resulted in maximum losses of grains. Farmers are known to use both forms of harvesting depending on size of plot, distance between plots and climatic conditions. The association of grain moisture with losses due to shattering and/or breaking of grain was highlighted. Similarly, economic loss resulting from grain spoilage after higher than recommended speed of harvester or high speed of thresher, was designed to sensitize the farmers towards improving income.

The module covered the process of drying the grains post harvest to reduce moisture that improves its resistance to pests, fungus or insects. This process was more relevant for paddy as the harvested grains necessarily require drying before storage or selling in the market. Wheat is harvested in April when the atmospheric moisture is less and temperature is rising. Thus wheat may not require drying as paddy, however, a day of drying may be relevant to reduce moisture levels for adequate storage conditions. Thus arises the need for drying grains on a clean and dry surface to minimize contact with moisture or soil. Plastic sheets were recommended for collection of clean and dry grains which fetches better market price.

The training content on storage of grain produce, focused on the portions kept for selling in the market and the other portions that are stored for self-consumption. Improved practices such as the use of hermetic bags, pallets, and proper stacking methods were part of the training discussion and demonstration to address gaps observed in traditional storage practices.

The modules were developed in a powerpoint based slide presentation, using visuals, short points, and comparisons. Video clips, including demonstrations of moisture meters, grain dryers, combine harvesters, and hermetic storage methods, were integrated to improve understanding. The training content was prepared in Hindi to ensure readability, comprehension and ease of understanding for the farmer audience.



3.3 Training Delivery

The training sessions for paddy was planned and implemented in early October 2025, while the training sessions for wheat was implemented in later part of February 2026. The training sessions on post harvest loss management for paddy, covered 13 locations spread across districts in UP, Bihar and MP. More than 1100 farmers attended the training sessions. The sessions were also attended by the village level entrepreneurs, aggregation and procurement partners of FarMart. 34 VLEs attended the 13 training sessions.

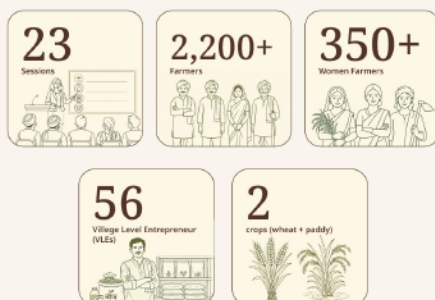
The training sessions on wheat covered 10 locations spread across six districts in UP and MP. More than 1100 farmers attended the training sessions. The ten sessions were attended by 22 VLEs in two states.

The capacity building sessions for paddy and wheat were designed and delivered through a participatory and well-structured approach to ensure active farmer engagement and effective knowledge transfer. Each session was planned for an average participation of 70-80 farmers to maintain better interaction and manageability at the venue.

The training delivery was interactive in nature, combining visual presentations, video demonstrations, and open discussions. Farmers were encouraged to share their experiences and raise questions, making the sessions more engaging and grounded in real field situations.

Training Coverage by State

State	Paddy	Wheat	Total
Uttar Pradesh	7	5	12
Bihar	4	--	4
Madhya Pradesh	2	5	7





CHAPTER

04

Impact Assessment: Baseline and Endline Results

Findings of Baseline Assessment and Post Capacity Building

Paddy - Baseline Findings

The baseline assessment for paddy was conducted across selected districts in Uttar Pradesh, Bihar, and Madhya Pradesh, covering a sample of 93 farmers. The findings indicate that post-harvest management practices at the farm level were traditional, with limited awareness of scientific methods to reduce losses.

A significant number of farmers relied on combine harvesters for harvesting; however, they had limited control over machine operations such as speed and calibration. High harvesting speeds often resulted in grain shattering and increased field losses. Drying practices were predominantly unstructured - most farmers dried produce directly on open fields without the use of protective sheets. Only about 10% reported using tarpaulin or plastic sheets.

Awareness and usage of moisture measurement tools were minimal, with negligible adoption of moisture meters. Storage practices were also largely traditional, exposing produce to risks of pest infestation and quality deterioration. Post-harvest losses were found to be substantial, with nearly 91% of farmers reporting losses exceeding 8 kgs per quintal of production. On average, losses were estimated at around 10.2 kg per quintal.

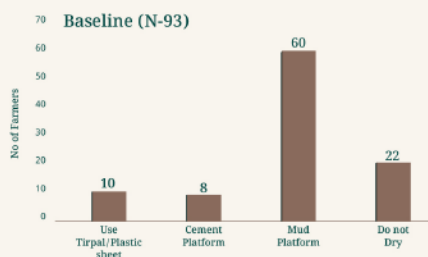


Figure: Adoption of Drying Practices (paddy) - Baseline Findings

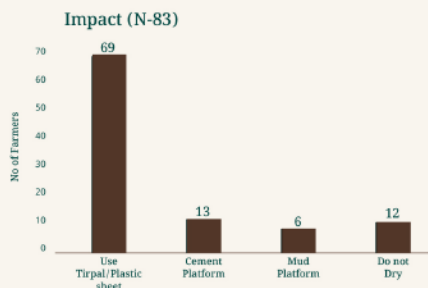


Figure: Adoption of Drying Practices (paddy) - End-line Findings

Adoption of Recommended Post harvest management practices

The paddy findings showed that farmers adopted practices more quickly when the solution was practical, low-cost, and easy to integrate into existing farm operations. The strongest shift was seen in drying practices, where the use of tarpaulin sheets increased sharply from around 10% at baseline to nearly 69% after the intervention. Farmers could directly observe improvements in grain cleanliness and reduced spoilage, which supported faster adoption within a single season.

Moisture meter usage improved compared to baseline levels, with around 25% of farmers reporting usage during harvesting and drying operations after the intervention. However, adoption remained limited overall. The findings suggest that while farmers increasingly understood the importance of moisture management, regular usage continued to depend on access, local availability, and familiarity with the devices.

Awareness related to harvesting practices also improved during the intervention period. Average harvesting losses reduced from around 3.1 quintals per acre at baseline to 2.84 quintals per acre after the intervention. Farmers showed better understanding of the role of combine harvester speed in grain losses, although many still had limited control over machine settings because harvesting operations were largely managed by external operators.

Baseline (N-71)

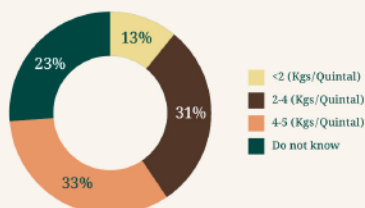


Figure: Harvester Combine Losses (kg/quintal)- Baseline Findings

Impact (N-67)

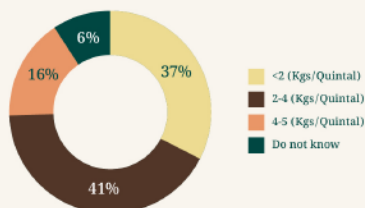


Figure: Harvester Combine Losses (kg/quintal)- End-line Findings

Reduction in Post Harvest Food Loss

The intervention also contributed to a sharp reduction in cases of very high post-harvest losses. Farmers reporting losses above 8 quintals per 100 quintals reduced significantly from 91% at baseline to around 35% after the intervention. This indicates that the programme was particularly effective in improving some of the most inefficient post-harvest practices at the farm level.

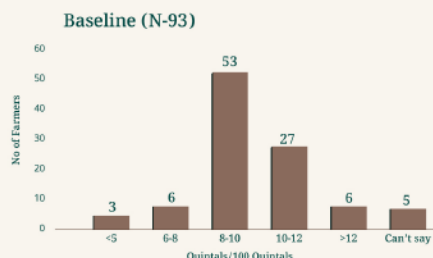


Figure: Reduction in Post Harvest Losses (Paddy) - Baseline Findings

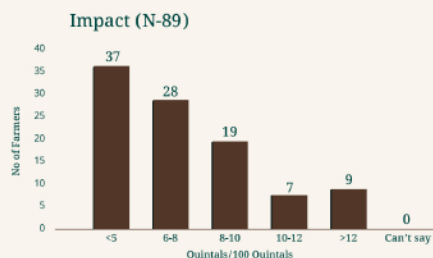


Figure: Reduction in Post Harvest Losses (Paddy) - End-line Findings

Economic Impact

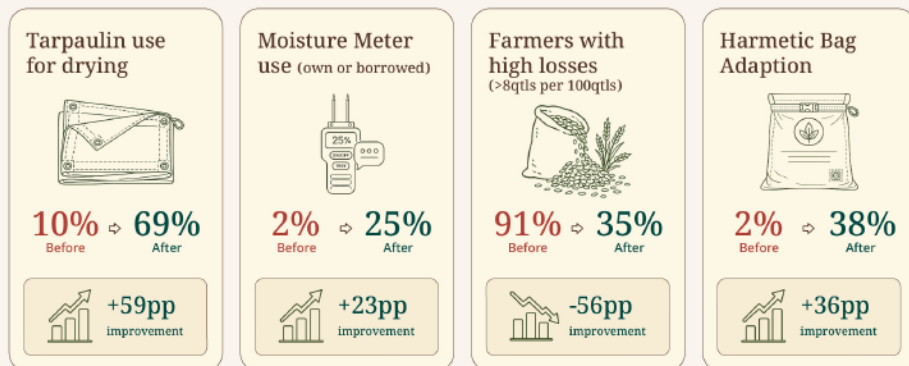
The reduction in losses translated into measurable economic gains for farmers within a single season. Average post-harvest losses declined from 10.2 kg per quintal to 8.28 kg per quintal, resulting in an estimated saving of around 2.05 quintals per farmer per season. At the prevailing MSP of Rs 2,369 per quintal, this translated into an additional income of nearly Rs 4,800–4,860 per farmer.

FarMart App Engagement

Digital advisory also played an important role in reinforcing learning throughout the season. More than 75% of farmers received advisory messages on their mobile phones that directed them to the FarMart App, where they could revisit training modules, watch demonstration videos, and access practical guidance on harvesting, drying, storage, and moisture management throughout the season. This helped reinforce key messages and supported the adoption of improved post-harvest practices.



Baseline Assessment versus Post Capacity Building Findings: Paddy



PP = Percentage Points

Key Insights

Farmers don't adopt practices just because they are told to. They pick what fits easily into their daily work. The strongest shift was in drying. The jump in tarpaulin use from about 10 percent to nearly 70 percent shows that simple and low-cost solutions spread quickly when farmers can see the benefit directly. Cleaner grain and lower loss are easy to notice, so the practice sticks.

Moisture meters tell a different story. Even after the training, adoption is still limited. This suggests that understanding the benefit is not enough. Cost, access, and ease of use matter just as much. If a tool is not easily available or feels complicated, it does not get picked up at scale.

Some changes happened quickly because the gap was mainly about awareness. Practices like drying and basic harvesting understanding improved within one season. That points to a simple issue. A lot of loss was happening because farmers did not have the right information, not because they were unwilling to change.

At the same time, not everything is in the farmer's control. In mechanized harvesting, the machine is often operated by someone else. Even if the farmer knows that speed

affects loss, they may not be able to influence how the machine is used. This limits how much change can happen at that stage.

Most of the gains came from small changes. A reduction of 1.92 kg per quintal may not look big, but it adds up to around 2 quintals saved per farmer in a season. That is where the real value lies. Small improvements across stages create a meaningful income gain.

Advisory support also played a role. Farmers who received regular messages were more likely to apply what they learned. One-time training helps, but follow-up makes the difference when decisions are actually being made.

There is also a clear drop in cases where losses were very high. This shows that the intervention helped correct the worst practices first. Fixing these high-loss situations has a strong effect on overall outcomes.

What this points to is simple. Farmers are open to change, but adoption depends on how practical a solution is and whether they can actually use it in their situation. Making tools easier to access and use will matter as much as the training itself.



"I cultivate 6 acres of paddy, and every year I lost nearly 5-6 quintals of grain after harvest, worth around ₹12,000-15,000. I accepted these losses as a normal part of farming until I attended the Evergrain training. Through practical field demonstrations, I learned that most of these losses could be prevented by following simple scientific post-harvest practices. After adopting the recommended harvesting, drying, and storage techniques, my post-harvest losses reduced to just 1-2 quintals - a reduction of nearly 70-80%. I also started using the hermetic bags provided by FarMart during the training to safely store my paddy seeds for the next season. Seeing their effectiveness, I later purchased 30 additional hermetic bags through my local VLE to safely store my grain. This training has not only increased my income by reducing post-harvest losses but has also given me the confidence to manage my harvest scientifically and protect the quality of my produce."

Vishal Yadav - Farmer, Barabanki, Uttar Pradesh
Evergrain Paddy Season Training Participant

Findings of Baseline Assessment and Post Capacity Building

Wheat – Baseline Findings

The baseline assessment for wheat was conducted across selected districts in Uttar Pradesh, Bihar, and Madhya Pradesh, covering a sample of 93 farmers. The findings reveal that post-harvest management practices at the farm level were largely traditional, with limited awareness of scientific methods to reduce losses.

More than 55% of farmers used combine harvesters for wheat harvesting, particularly small and medium farmers. Manual harvesting was practised among marginal farmers where field access was limited. Nearly 76% of farmers paid rental charges between Rs 1,800 and Rs 2,000 per acre for the combine harvester. Farmers were largely unaware of the optimal harvesting speed, and speeds exceeding 2 acres per hour led to grain losses of 3–4 quintals per acre. Average losses recorded during baseline were 3.17 kg per quintal.

Drying practices were predominantly unstructured. Most farmers dried wheat directly on mud platforms or open fields, with only around 10% using tarpaulin or plastic sheets. Moisture meter usage was negligible – only 15% of farmers had seen or used one, primarily those with access to the instrument. Awareness of the recommended 12–14% moisture level at mandis or government procurement centres was limited. Storage practices were largely traditional, exposing produce to the risk of pest infestation and quality deterioration. A large proportion of farmers – 80% – reported losses exceeding 8 quintals per 100 quintals of production, with average losses estimated at 9.15 kg per quintal.

Wheat – Endline Impact Assessment Results

The post-intervention assessment for wheat was conducted with a sample of 100 farmers across Raebareli (Uttar Pradesh) and Sagar and Tikamgarh (Madhya Pradesh). The findings indicate measurable improvements in farmer awareness and adoption of improved post-harvest practices following the capacity building intervention, delivered through 10 training programmes covering 1,100+ farmers including approximately 350 women farmers and 22 Village Level Entrepreneurs.

Adoption of Recommended Post Harvest Management Practices

A significant improvement was observed in harvesting practices. Farmers demonstrated improved awareness regarding the impact of combine harvester speed on grain losses. Average assessed losses per acre reduced from 3.17 quintals at baseline to 2.70 quintals after the intervention. After training, farmers expressed intent to adopt the optimal speed of approximately 1 acre per hour to minimise losses – though this requires willingness to pay higher hiring charges that cover the cost of slower operation. More than 7% of farmers were already paying over Rs 2,000 per acre, indicating a segment willing to invest in optimal harvesting speed.

Baseline (N-65)

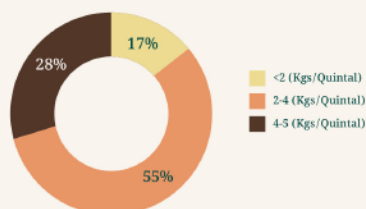


Figure: Harvester Combine Losses (kg/quintal)- Baseline Findings

Impact (N-61)

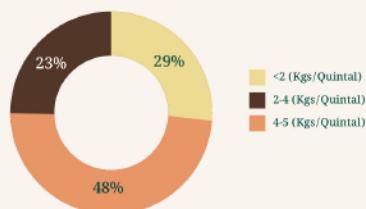


Figure: Harvester Combine Losses (kg/quintal)- End-line Findings

Substantial improvements were observed in drying practices. The use of tarpaulin or plastic sheets for drying increased from approximately 10% at baseline to 53% after the intervention – a gain that was further reinforced by untimely rainfall during the harvest season, which underscored the practical value of protective drying methods to farmers. Use of mud platforms for drying reduced from 60% to 29%.

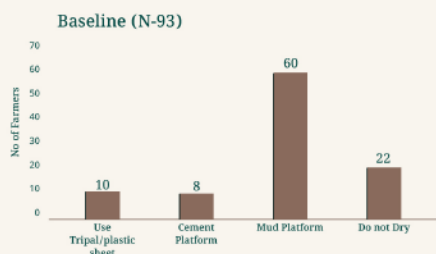


Figure: Baseline adoption of drying practices (wheat)

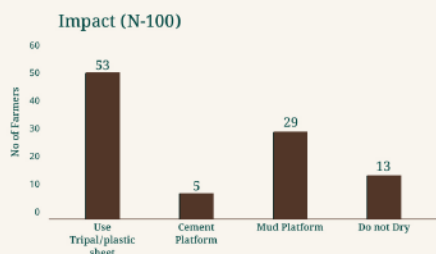


Figure: End-line adoption of drying practices (wheat)

Moisture meter awareness improved but adoption remained limited. Of the farmers assessed post-intervention: 33 percent did not feel the need to use one, reflecting continued reliance on traditional practices; 30 percent wanted to use a moisture meter but could not, pointing to a clear demand gap; 22 percent cited lack of local availability as the key barrier; 10 percent used their own device; and 5 percent borrowed one from FPOs, VLEs, or societies. Among those yet to adopt, 40 percent expressed intent to use a moisture meter if available nearby, 29 percent showed willingness to arrange one themselves, and only 9 percent felt it was unnecessary — making this clearly an access challenge rather than an awareness problem. Around 62% of farmers used the hermetic bags provided during training for seed or grain storage.

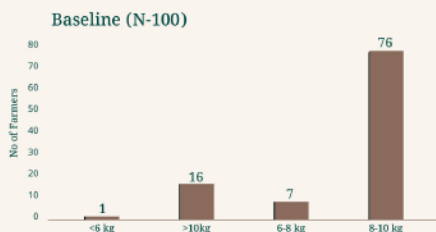


Figure: Reduction in Post Harvest Losses (wheat)- Baseline Findings

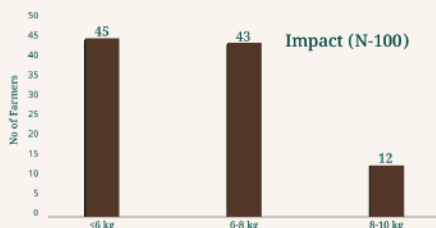


Figure: Reduction in Post Harvest Losses (wheat) - End-line Findings

Reduction in Post Harvest Food Loss

The proportion of farmers reporting losses greater than 8 quintals per 100 quintals fell dramatically from 80% at baseline to only 12% after the intervention. Average post-harvest losses declined from 9.15 kg per quintal to 5.90 kg per quintal – a reduction of 3.25 kg per quintal.

Economic Impact

The reduction in post-harvest losses translated into tangible economic benefits for wheat farmers. Given an average farmer landholding of 3.99 acres and an average yield of 14.5 quintals per acre, total production was approximately 57.90 quintals per farmer. The reduction in losses of 3.25 kg per quintal resulted in an average saving of 2.20 quintals per farmer per season. At the prevailing Minimum Support Price (MSP) of Rs 2,585 per quintal, this translated into an additional income of approximately Rs 5,687 per farmer within a single agricultural season – demonstrating the direct financial value of adopting improved post-harvest management practices.

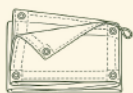
FarMart App Engagement

More than 60% of farmers received FarMart advisory messages on their mobile phones, with 85% of those recipients finding the messages relevant and useful. Around 66% rated the training as useful and relevant for reducing post-harvest losses.



Baseline Assessment versus Post Capacity Building Findings: Wheat

Tarpaulin use for drying



10% $\Rightarrow$ **53%**
Before After



+43pp
improvement

Moisture Meter use (own or borrowed)



2% $\Rightarrow$ **15%**
Before After



+13pp
improvement

Farmers with high losses (>8qtls per 100qtls)



80% $\Rightarrow$ **12%**
Before After



-68pp
improvement

Harmonic Bag Adaption



0% $\Rightarrow$ **62%**
Before After



+62pp
improvement

PP = Percentage Points

Key Insights

The wheat findings showed a similar trend to paddy: farmers adopted practices faster when the solution was simple, affordable, and easy to use. The increase in tarpaulin use from 10% to 53% was strongly influenced by untimely rainfall during the season. Farmers could directly see how tarpaulins protected grain during drying, which made the benefit clear and practical.

Moisture meter adoption was limited mainly because farmers could not easily access the devices, not because they were unwilling to use them. In fact, 71% of non-users either wanted to use a moisture meter or said it was not available to them. This highlights the need to improve local availability through village-level entrepreneurs (VLEs), FPOs, and input dealers instead of focusing only on awareness generation.

The issue of high combine harvester speed remains a bigger operational challenge. Even when farmers understand that faster harvesting increases grain losses, they often do not control machine settings because the harvesters are hired from outside operators. This means

future interventions should engage harvester operators and service providers directly, along with farmers, to reduce losses effectively.

Women farmers also played an important role in wheat post-harvest activities. Around 70% were aware of major loss points during harvesting, drying, and storage. Tarpaulin-based drying was the most commonly adopted practice among women participants, and many showed interest in using moisture meters in the future. The programme's effort to include 350 women farmers helped improve participation and strengthened adoption at the household level.

Despite lower yields caused by untimely rains, farmers still saw an average income gain of Rs 5,687 per season through reduced post-harvest losses. This shows that post-harvest management can act as a practical buffer during climate-related disruptions. When crop production is affected by weather shocks, reducing losses after harvest becomes an important way to protect farmer income.





Rani Ahirwar

Smallholder Farmer

Location: Dhamna, Madhya Pradesh

Age: 38 Years

Gender: Female

Landholding: 2 Acres

Crop: Wheat

Rani Ahirwar, a smallholder farmer from Dhamna village in Madhya Pradesh, traditionally determined the harvesting time by observing neighbouring farmers. With limited knowledge of optimum grain moisture, harvester settings, and scientific post-harvest management, avoidable grain losses were a regular challenge that reduced the quantity of marketable produce.

Through the Evergrain Post-Harvest Management Training, Rani learned practical techniques such as identifying the right harvest moisture, checking grain moisture using a moisture meter, operating harvesters at the recommended speed, and adopting improved drying practices using tarpaulin sheets. Guided by her local VLE and FPO, she implemented these practices during the harvesting season, including investing in a tarpaulin sheet and ensuring harvesting was carried out under recommended conditions.

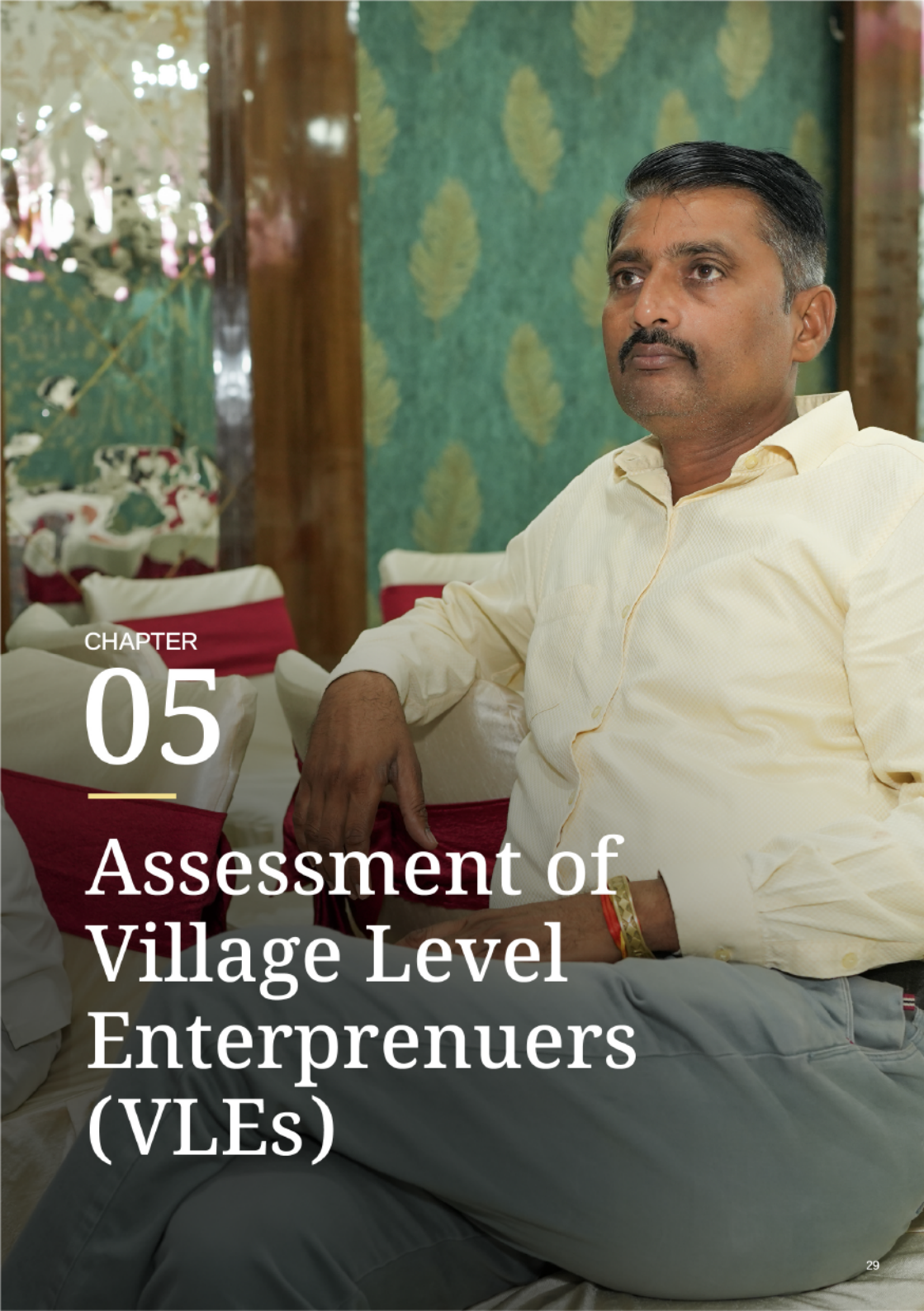
The adoption of these scientific practices significantly reduced post-harvest losses and improved the quantity of grain available for sale, demonstrating how small investments and better knowledge can lead to higher incomes for smallholder farmers.

As a result:

- 2.5–3 quintals of additional wheat became marketable by reducing post-harvest losses.
- ₹1,000–1,200 invested in improved harvesting and drying practices created long-term reusable assets.
- Adopted scientific harvesting practices, including moisture testing, recommended harvester speed, and drying grain on tarpaulin sheets.
- Increased confidence in making harvesting decisions based on scientific recommendations rather than traditional practices.

“Earlier, I harvested my crop simply by following what other farmers were doing. I didn’t know the right moisture level for harvesting or how harvester speed could affect grain losses. After the Evergrain training, I checked the crop moisture before harvesting, ensured the harvester operated at the recommended speed, and dried my wheat on a tarpaulin sheet instead of the ground. These small changes cost me only around ₹1,000–1,200, but they helped me save nearly 2.5–3 quintals of wheat that I would have otherwise lost. This training has not only increased my income but also made me a more informed farmer. I hope more farmers adopt these practices so that together we can reduce post-harvest losses and improve our livelihoods.”

Rani Ahirwar
Farmer, Dhamna, Madhya Pradesh



CHAPTER

05

Assessment of Village Level Enterprenuers (VLEs)

The training sessions on post harvest loss management for paddy and wheat conducted by FarMart, was attended by the partner village level entrepreneurs (VLEs). The thirteen paddy training sessions were attended by 34 VLEs in the respective districts in October 2025, while the ten wheat training sessions were attended by 22 VLEs in the respective districts, in February 2026.

VLEs manage the purchase of grains from farmers and store them to sell at better prices. There is a need to be aware of technologies available for drying, cleaning and safe storage. Often warehousing at appropriate temperature and moisture levels become important as climate change is witnessed across regions. Untimely rainfall and rising temperatures are impacting cropping cycles, yield and storage. It therefore becomes important that VLEs are able to grow their business with their customer farmers. Post harvest management reduces losses and this cumulatively improves the potential of customer farmers.

An impact assessment of the training session and post training behavior of farmers in their engagement with VLEs was conducted in the three states. Since the paddy training districts were different from the wheat training districts, the VLEs were sampled from the different districts in the three states, Madhya Pradesh, Uttar Pradesh, and Bihar. 12 VLEs were sampled from the total of 56 VLEs who attended the sessions.

12 of 12 found the training useful and relevant

10 of 12 broguth in new farmer customers after training

12 of 12 say they have benefited from working with FarMart

05 of 12 added new services or brought new equipment

5.1 Procurement Performance During the Season

The 12 VLEs sampled for assessment were stratified, randomly and selected based on geography and the training session attended. The business profile from the context of size of business, number of associated farmers and the outreach into villages, varied significantly among VLEs. A few are operating at a large scale, while a few were young and building their business base. Most VLEs were managing between 3,000 and 20,000 quintals.

Paddy Season 2025

Five of the 12 VLEs were active in paddy this season. Karuna Shankar in Barabanki procured around 20,000 quintals and Kamal Ahuja in Mandla did 15,000 to 17,000. The others were either wheat focused or inactive in paddy this year.

Wheat Season 2025 to 2026

Wheat shows a good spread of growth stories. Bhupendra Singh in Sagar grew from 12,000 last year to expecting upto 17,000 quintals in the current year. Baalveer Singh in Kanpur Dehat handled 10,000 quintals. Harendra Singh Bundela grew from 700 to 1,000 quintals in his first full year with FarMart.



"The Evergrain paddy season training has significantly strengthened both my business and my relationship with farmers. After the training, many farmers started approaching me for moisture meters, tarpaulin sheets, and hermetic bags to protect their harvested crops. The training enabled me to build relationships with around 15–20 new farmers. By supporting them with post-harvest solutions and technical guidance, I earned their trust, and many later chose to sell their produce to me. Farmers now trust my advice because I can confidently recommend the right post-harvest practices and products. This has enhanced my reputation in the community and enabled me to procure better-quality grains than before. Seeing the growing demand from farmers after the training, I expanded my business beyond grain procurement by supplying tarpaulin sheets and launching a moisture meter rental model, creating an additional source of income while helping farmers adopt better post-harvest practices."

Vishal Yadav - Akash Producer Company
Mohania, Kaimur, Bihar | Paddy Season



5.2 Key Operational Changes Observed After Training

Things VLEs are doing differently

- Telling farmers to slow down the harvester speed. Higher speeds leads to high grain losses. This was the most important message from the training session.
- Moisture checking before procurement is now a standard step, not just a suggestion.
- Tarpaulins, plastic sheets and hermetic bags are now part of conversations with farmers at harvest time.

Business decisions made after training

- Bhupendra Singh bought and installed new farm equipment strengthening the custom hiring centre. The new equipment included rotavator, super seeder and spraying unit
- Kamal Ahuja built a WhatsApp farmer network for sharing commodity prices on daily basis, triggering price transparency.
- Karuna Shankar opened a new shop in a village, expanding his reach to farmers living in the proximity. Farmers now have a new option to sell their commodity.

Procurement Impact on VLEs Post Capacity Building

Category	Capacity Building Attended	Procurement Before (in quintals)	Procurement After (in quintals)	Absolute Grwoth (in quintals)	% Growth
Wheat (6 VLEs)	Feb Training	44,900	51,00	6,200	13.80%
Paddy (6 VLEs)	Oct Training	38,500	41,650	3,350	8.70%

"After the training, I witnessed a remarkable behavioural change, especially among our women farmers. Instead of rushing to sell their harvest at any moisture level, they now dry and store their produce properly, wait until it reaches the recommended moisture standard, and sell it at a better price."

The training also strengthened our Farmer Producer Company. As more farmers joined us, we formed two new farmer clusters. We distributed 63 tarpaulin sheets to support better post-harvest management, and our cluster centre has become a trusted place where many farmers regularly come to check the moisture content of their produce before selling. The training has created a positive impact not only on our financial performance but also on our social standing, as farmers increasingly look to us for guidance and support."

Abhilasha Pal -
CEO, Ken Betwa Women Farmer Producer Company



For wheat VLEs, the assessment was conducted at a stage when part of the seasonal procurement had already taken place and the remaining procurement was relatively predictable to the VLEs. Therefore, the reported increase in wheat procurement should be interpreted with caution, as it reflects both actual procurement completed and expected procurement that was already foreseeable to them.

For paddy VLEs, the assessment was conducted after the procurement season, when total procurement volumes were already known to the VLEs. Therefore, the reported increase in paddy procurement reflects a complete and more final picture of seasonal procurement performance.

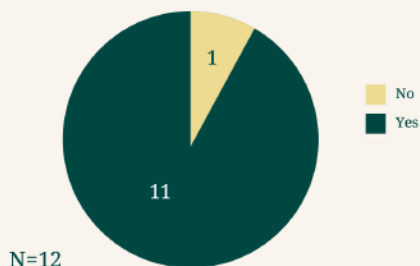
Out of 12 VLEs assessed, 11 VLEs reported that they had new farmer customers after the training, while only 1 VLE had reported no new customers.

Most VLEs attributed the increase in customer base to meeting new farmers at the training session. Some of the farmers witnessed FarMart recognizing the VLE and contacted the VLE for guidance.

One VLE discovered a large group of farmers from a village seeking his services. He went ahead to open a procurement centre in that village itself, attracting more farmer customers.

The assessment question on number of farmer customers did not generate a quantitative response as VLEs do not maintain a database. They could qualitatively mention increase or no increase.

VLE Response to increase in Customer Base





CHAPTER

06

Project Conclusion

Project Evergrain demonstrated that post-harvest losses of paddy and wheat can be reduced through better awareness and improved farm-level practices. The project reached more than 2200 farmers which included producers of paddy and/or wheat in Uttar Pradesh, Bihar, and Madhya Pradesh. The project organized 23 training sessions, 13 for paddy growing farmers and 10 for wheat growing farmers, reaching more than 2200 farmers and 56 village level entrepreneurs.

The project also reached the farmers through digital messages on the mobile phones and a App that offered multiple information services. The farmers who participated in the training sessions were the early recipients of the messages related to crop health, crop protection, post harvest loss management and market prices.

The project had also conceived to assess the impact of the training sessions on the awareness and change in behaviour, if any, among farmers. The technical awareness of quantity of paddy and wheat losses during harvest and post-harvest processes, and its economic implications were an eye opener for the participants. The requirement to be vigilant during the post harvest processes and ease of adoption of practices, was considered as 'low difficulty' and implementable. The assessment was designed to measure the change in awareness, willingness to adopt efficient practices and adoption of better practices, therefore leading to reduced post harvest losses.

The impact of the training was found to effectively increase technical awareness of farmers with machines and equipment, leading to informed utilization.

- The optimal speed of harvester combine was not previously discussed or understood by the farmers. The dependence on external service providers for harvesting restricted the access to knowledge about the operations of the harvester combine. The speed of combine operations was two times or more than the recommended one acre in one hour (4kms per hour). This speed was leading to excessive shattering of grains and also spoilage due to poor calibration of different pressure points in the machine. The training provided the crucial information and the method to monitor the machine operations that minimizes grain losses and retain grain quality.
- Farmers adopting manual method of harvesting were also not adequately aware of the use of thresher and its speed of operations. Threshers were being used at 1500 rpm or more instead of the recommended 800-1000 rpm. Thus the threshers scattered a significant quantity of grains due to high speed. Excessive quantities pushed into the machines caused kernels to break or the machine getting frequently jammed. The awareness about thresher speed and putting

appropriate quantities into the thresher led to lesser loss and better grain quality.

- Moisture meters were discussed in the training not as instruments but as an integrated service that needs to be associated with preparation for harvesting, drying of grains, storage and the mandi or market pricing. The importance of moisture measurement during all four stages was a revelation for farmers. Moisture meters are not readily available with traders in villages or sometimes not even with procuring commission agents. The information led to about 1/4th of the participating farmers to explore the availability of moisture meter and an intent to use it effectively in future.
- There was a significant increase in use of plastic sheets or tarpaulin for drying of grains, both among paddy farmers and the wheat farmers. The plastic sheets was low cost and readily available in local markets, leading to quick adoption. The adoption was influenced by untimely rains, both, during paddy harvest and also during wheat harvest. In absence of dry spaces for drying and storing, the plastic sheets provided the relevant low cost solution to farmers.
- More than 300 women farmers participated in the wheat training sessions which was considered useful by the women as they get involved in different stages of the farm activities including post harvest processes. Use of plastic sheets reduced their efforts to clean up mud surfaces and plastering them before drying the grains.
- Digital advisory messages from FarMart through its App and also direct messaging, was received by the farmers. Some of the information that was recalled by farmers were weather information, protection of produce from pests and fungus, storage methods, commodity prices, and other farm information, which felt to be useful and timely. Women farmers played an active role in post-harvest operations, especially in drying and storage activities, and showed good awareness of practices related to loss reduction.



Assessment of paddy growing farmers, post training and post harvest season, revealed that the percentage of farmers losing more than 8kgs per quintal, dropped from 91% during baseline study to 35% after the training. This is a significant number of farmers, (55%), reporting a lesser quantity of losses. The average post-harvest losses reduced from 10.2 kg per quintal to 8.28 kg per quintal.

The reduction in losses resulted in direct financial benefits for farmers. Paddy farmers saved an average of 2.05 quintals (having average landholding of 4.95 acres), in November 2025, resulting in additional income of around Rs 4,800–4,860 per farmer.

Assessment of wheat farmers who were participants in the training session, revealed that the percentage of farmers losing more than 7Kgs per quintal reduced from as high as 80% during baseline to 12% post the training, a reduction of 68%. This reduction was possible as wheat grains are less brittle than paddy grains and the harvesting time for wheat is during rising temperature and less moisture in the atmosphere. The study assessed the average reduction in losses from 9.15 kg per quintal to 5.90 kg per quintal.

Wheat farmers saved an average of 2.20 quintals (having average landholding of 3.98 acres), which translated into nearly Rs 5,687 of additional income per farmer.

Farmers were able to assess an increase in their income even though they feared loss of crop due to untimely rainfall, both during paddy harvest season and later during wheat harvest season. Even when production declined, better post-harvest management helped farmers reduce avoidable losses and protect their income. The project findings show that reducing post-harvest losses does not depend only on large infrastructure or expensive technology. Small improvements in awareness, handling, drying, storage, and access to basic tools can reduce losses and improve farmer income within a short period. The results from the project provide clear evidence that focused post-harvest interventions can create measurable impact at the farm level.



A Note from FarMart

"Project Evergrain has reaffirmed a belief that has always guided FarMart's work - that sustainable progress is created when technology and practical knowledge come together to empower farmers. Throughout the project, we saw this belief come to life as farmers embraced simple, practical solutions that strengthened post-harvest management practices and enabled them to retain more value for their harvests.

The experiences and insights gained through Evergrain have deepened our understanding of how farmers adopt and sustain new practices. They will continue to inform how we build our technology, engage with farming communities, and develop solutions that respond to real challenges on the ground.

While this report marks the completion of Phase 1 of Project Evergrain, it is only the beginning of a larger journey. Every harvest represents months of hard work, resilience, and hope. As we look ahead, our ambition is to ensure that more of that effort is preserved, more value reaches farmers, and every harvest contributes to a stronger and more sustainable food system."

Tannya Garg

(Director, Impact & Partnerships, FarMart)



References

Food and Agriculture Organization of the United Nations. (2019). The state of food and agriculture 2019: Moving forward on food loss and waste reduction. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/ca6030en/ca6030en.pdf>

Jha, S. N., Vishwakarma, R. K., Ahmad, T., Rai, A., & Dixit, A. K. (2015). Assessment of quantitative harvest and post-harvest losses of major crops and commodities in India. ICAR All India Coordinated Research Project on Post Harvest Technology, ICAR Central Institute of Post Harvest Engineering and Technology (CIPHET). Ministry of Food Processing Industries, Government of India.

(PDF) Assessment of Quantitative Harvest and Post-Harvest Losses of Major Crops/Commodities in India

Indian Council of Agricultural Research. (2022). Handbook of agriculture (7th ed.). Indian Council of Agricultural Research.

Jena, P. C., Das, R., Gulati, A., & Winter-Nelson, A. (2024, May). Estimating harvest and post-harvest losses of wheat, paddy, maize, and soybean in India: A study based on survey in Madhya Pradesh, Punjab, and Bihar. In A. Gulati, R. Das, & A. Winter-Nelson (Eds.), Reducing post-harvest losses in India: Farmer-level interventions and grain management strategies (pp. 1–33).

Indian Council for Research on International Economic Relations.

<https://icrier.org/pdf/Reducing-post-harvest-losses-in-India.pdf>

Jena, P. C., Das, R., Gulati, A., & Winter-Nelson, A. (2024, May). Estimating harvest and post-harvest losses of wheat, paddy, maize, and soybean in India: A study based on survey in Madhya Pradesh, Punjab, and Bihar. ResearchGate.

https://www.researchgate.net/publication/380295937_Estimating_Harvest_and_Post-harvest_Losses_of_Wheat_Paddy_Maize_and_Soybean_in_India_A_study_based_on_survey_in_Madhya_Pradesh_Punjab_and_Bihar

Ministry of Agriculture & Farmers Welfare. (2024). Advance estimates of production of foodgrains for 2023–24. Department of Agriculture & Farmers Welfare, Government of India.

NABARD Consultancy Services Pvt. Ltd. (NABCONS). (2022). Study to determine post-harvest losses of agri-produce in India (reference year 2020–22). Ministry of Food Processing Industries, Government of India.

Department of Agriculture & Farmers Welfare, Ministry of Agriculture & Farmers Welfare. (2023). Crop residue management: Operational guidelines 2023–24. Government of India.





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