EFFECTIVENESS OF COW-BASED ORGANIC FARMING AS A SOLUTION TO HARMFUL EFFECTS OF AGROCHEMICALS UNDER SROFR&TC(GGVS) IN LADPURA, KOTA, RAJASTHAN

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Development Management

by

Ishika Agrawal

Under the Supervision and Guidance of

Dr. Himadri Sinha

2025

GOYAL PROTEINS LIMITED

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To Whosoever It May Concern

This is to certify that ISHIKA AGARWAL, ROLL NO. - 0043, pursuing MBA (Development Management) from IIHMR University, Jaipur has undergone 14 weeks dissertation work in our organisation GOYAL PROTEINS LIMITED, KOTA RAJASTHAN in the of CSR initiative in SROFR&TC (GGVS) from 10th March – 10th June - 2025.

The internship undertaken by her, on which she was assigned the title "Effectiveness of Cow-Based Organic Farming as a Solution to Harmful Effects of Agrochemicals under SROFR&TC (GGVS) in Ladpura, Kota, Rajasthan.

I hereby certify that the work conducted by her was good to the best of my knowledge.

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Faculty Guide: Prof. Himadri Sinha

Place: IIHMR University, Jaipur

Date: 20th June 2025

School Dean: Prof. Himadri Sinha

Place: IIHMR University, Jaipur

Date: 20th June 2025

DECLARATION

I hereby declare that this dissertation titled **Effectiveness of Cow-Based Organic Farming as a Solution to Harmful Effects of Agrochemicals under SROFR&TC (GGVS) IN Ladpura, Kota, Rajasthan,** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Ishika

Ishika Agrawal
Date: 20th June 2025

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Place: IIHMR University, Jaipur
Date: 20th June 2024.

CONTENTS

ACRONYMS

Acronym	Full Form
GGVS	Goyal Gramin Vikas Sansthan
IIHMR	Indian Institute of Health Management Research
SROFR&TC	Shri Ramshantay Organic Farming Research & Training Centre
CSR	Corporate Social Responsibility

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ABSTRACT

The excessive use of chemical fertilizers and pesticides in conventional agriculture has led to severe environmental degradation, soil infertility, water contamination, and adverse health effects. In response, cow-based organic farming offers a sustainable alternative by utilizing natural inputs such as cow dung, urine, and indigenous preparations to restore soil health and promote eco-friendly farming practices. This study evaluates the effectiveness of cow-based organic farming in mitigating the harmful impacts of agrochemicals, with a specific focus on Ladpura tehsil in Kota district, Rajasthan.

Conducted under the initiatives of Shri Ramshantay Organic Farming Research & Training Centre (SROFR&TC), the research employs a mixed-methods approach, combining field surveys, cost-benefit analysis, and qualitative assessments to understand adoption patterns, benefits, challenges, and economic viability of cow-based organic farming. The study identifies key barriers to adoption and highlights the ecological and socio-economic benefits experienced by local farmers.

Findings suggest that cow-based organic farming can significantly improve soil fertility, reduce farming costs, and contribute to healthier ecosystems, offering a replicable model for sustainable agriculture in semi-arid regions. The research concludes with policy recommendations and practical strategies to scale up cow-based organic farming, empowering farmers and fostering sustainable rural livelihoods.

Keywords: Cow-Based Organic Farming, Farmer Adoption, Economic Feasibility, Soil Health, Sustainable Farming

CHAPTER 1: INTRODUCTION

1.1 Introduction

The excessive reliance on agrochemicals in conventional agriculture has caused significant environmental degradation, including declining soil fertility, contamination of water bodies, and biodiversity loss. These chemicals, while initially enhancing productivity, have resulted in long-term detrimental effects on ecosystem health and human wellbeing. In this context, sustainable agricultural practices are gaining attention as viable alternatives to chemical-intensive farming. One such approach is cow-based organic farming, which uses cow dung, urine, and other natural inputs to nurture soil health and promote environmentally sound agricultural practices.

Cow-based organic farming not only aims to restore ecological balance but also provides farmers with an economically sustainable method of cultivation. This dissertation focuses on evaluating the effectiveness of such farming systems in mitigating the harmful impacts of agrochemicals, with particular reference to implementation in Ladpura tehsil, Kota district, Rajasthan, under the initiatives of Shri Ramshantay Organic Farming Research & Training Centre (SROFR&TC), a unit of Goyal Gramin Vikas Sansthan.

1.2 Background of Cow-Based Organic Farming in India

India has a rich history of traditional agricultural systems deeply rooted in ecological principles and cultural practices. Cow-based organic farming has been an integral part of Indian agriculture for centuries, emphasizing the use of indigenous cattle and natural formulations like "Jeevamrit" and "Panchagavyan. The Green Revolution gradually decreased the use of traditional farming methods, leading to the widespread use of chemical pesticides and fertilizers in recent decades.

However, interest in organic farming has increased as a result of increased knowledge about the negative effects of agrochemicals. Cow-based farming has been marketed as a viable substitute through initiatives funded by numerous NGOs, government programs, and organizations like SROFR&TC. This method not only addresses ecological concerns but also aligns with the Indian ethos of sustainable living.

1.3 Profile of Goyal Proteins Limited and SROFR&TC

Goyal Proteins Limited, located in Kota, Rajasthan, is actively engaged in promoting sustainable agriculture through its CSR arm, the Goyal Gramin Vikas Sansthan. Shri Ramshantay Organic Farming Research & Training Centre (SROFR&TC), operating under this initiative, serves as a hub for training, research, and field implementation of cow-based organic farming.

SROFR&TC conducts awareness programs, offers practical demonstrations, and supports farmers in transitioning from chemical to organic farming practices. It plays a pivotal role in creating a replicable model of eco-friendly farming systems rooted in local knowledge and cow-based resources.

1.4 Identification of Specific Problem Area

The primary issue addressed in this study is the overuse of agrochemicals leading to soil degradation, health hazards, and economic burden on farmers. Conventional farming has intensified these problems, making it essential to explore environmentally safe and economically feasible alternatives.

1.5 Prevalence and Scope of the Problem

The prolonged use of chemical pesticides and fertilizers has had a major impact on farmers in Ladpura tehsil. These methods have increased the number of health disorders, contaminated groundwater, and caused soil infertility. The widespread dependence on synthetic inputs has also made farming costlier, reducing profitability for small and marginal farmers.

1.6 Overview of Existing Research

Previous research has highlighted the environmental and health benefits of organic farming. Studies have shown that cow-based organic practices can restore soil health, enhance biodiversity, and reduce input costs. However, there remains a gap in understanding the practical adoption, economic viability, and effectiveness of such systems at the grassroots level.

1.7 Research Gaps

Despite available literature on organic agriculture, few studies provide empirical evidence on the real-world application of cow-based farming, especially in semi-arid regions like Kota. This research aims to fill this gap by evaluating field-level implementation under the guidance of SROFR&TC.

1.8 Research Purpose and Questions

This research aims to evaluate the viability and effects of cow-based organic farming as a sustainable remedy for the issues arising from agrochemicals. It seeks to answer the following key question:

- **How does cow-based organic farming function effectively as a sustainable solution?**

By exploring this central question, the study aims to generate insights into ecological, economic, and social outcomes of cow-based organic farming practices in rural Rajasthan.

CHAPTER 2: LITERATURE REVIEW

2.1 Review of Organic Farming Practices

In order to preserve soil fertility and lessen its negative effects on the environment, organic farming places a strong emphasis on using natural inputs and ecological processes. In India, traditional farming methods have relied extensively on organic manures, crop rotation, and biofertilizers before the Green Revolution introduced chemical fertilizers and pesticides. Cow-based organic farming, a subset of organic agriculture, utilizes cow dung, urine, and other cow-derived products like Panchagavya and Jeevamrit to enhance soil health and plant growth. These formulations supply essential nutrients, promote beneficial microbial activity, and improve soil structure, thus increasing crop productivity sustainably (Tripathi & Kumar, 2019).

The efficiency of organic inputs in lowering reliance on synthetic chemicals, enhancing soil organic carbon, and boosting biodiversity has been shown in numerous research (Kumar et al., 2020). Additionally, organic farming methods help to absorb carbon and lower greenhouse gas emissions when compared to conventional farming (Singh et al., 2018). However, challenges such as lower initial yields, labor intensity, and knowledge barriers often impede the adoption of organic farming practices among smallholder farmers.

2.2 Impact of Agrochemicals on Environment and Health

The widespread use of agrochemicals, including synthetic fertilizers and pesticides, has played a major role in increasing agricultural productivity worldwide. However, their overuse has resulted in serious negative consequences on soil health, water quality, biodiversity, and human health (Sharma & Tiwari, 2017). Chemical fertilizers can lead to soil acidification, depletion of essential micronutrients, and reduced microbial diversity (Patel & Jha, 2021). Pesticides contaminate water bodies through runoff, threatening aquatic ecosystems and posing risks to human populations through bioaccumulation and toxicity (Gupta et al., 2019).

Health studies have linked chronic exposure to agrochemicals with increased incidence of respiratory problems, cancers, neurological disorders, and reproductive issues among farming communities (Rao et al., 2020). The environmental costs associated with agrochemical pollution often outweigh the short-term economic gains from increased crop yields, underscoring the urgent need for sustainable alternatives.

2.3 Policies and Programs Promoting Organic Agriculture

Recognizing the environmental and health hazards of chemical-intensive farming, the Indian government and various non-governmental organizations have launched multiple

initiatives to promote organic agriculture. To encourage farmers to use environmentally friendly farming practices, programs like the National Mission on Sustainable Agriculture's (NMSA. There are now subsidies for organic inputs, the Organic Farming Scheme, and the Paramparagat Krishi Vikas Yojana (PKVY) in effect (Government of India, 2022). There are now subsidies for organic inputs, the Organic Farming Scheme, and the Paramparagat Krishi Vikas Yojana (PKVY) in effect (Government of India, 2022). For the grassroots spread of organic farming knowledge and technologies, particularly for cow-based organic farming, NGOs and training facilities like the Shri Ramshantay Organic Farming Research & Training Centre (SROFR&TC) are essential. They provide hands-on training, field demonstrations, and ongoing technical support to farmers, helping them transition from conventional to organic systems successfully (Sharma et al., 2021).

Despite these efforts, adoption rates remain low in many regions due to limited awareness, access to inputs, market linkages, and financial constraints. Research highlights the need for integrated policy approaches combining extension services, market support, and credit facilities to boost organic farming adoption (Singh & Patel, 2020).

CHAPTER 3: METHODOLOGY

3.1 Research Design:

This study combined qualitative and quantitative methods in a mixed-method research design. In order to obtain a thorough grasp of the efficacy of cow-based organic farming from both a numerical and experiential standpoint, this design was selected. The combination allowed for statistical analysis of data along with deeper insights into farmers' perceptions and practices.

3.2 The Study's Objectives

This study's primary goals were to:

- Evaluate the economic and environmental effects of organic farming methods based on cows.
- To analyze the adoption rate and benefits perceived by farmers practicing organic farming.
- To compare the cost and productivity of conventional versus cow-based organic farming methods.
- To identify challenges faced by farmers in transitioning to and sustaining organic farming practices.

3.3 Duration of Study

The study was conducted over a **three-month period** from **10 March 2025 to 10 June 2025**. This duration included field visits, data collection, analysis, and documentation phases.

3.4 Type of Study

The study is descriptive and analytical in nature. It aimed to describe the existing scenario of cow-based organic farming and analyze its implications on ecological and economic fronts. The case-study component added a focused exploration of select farmers' experiences.

3.5 Sample Size and Sampling Method

A sample size of 40 farmers from Ladpura tehsil, Kota, was selected. These farmers were chosen using purposive sampling, targeting individuals who had received training or were currently practicing cow-based organic farming under the SROFR&TC initiative. This ensured relevant, experience-based data.

3.6Data Collection Tools and Techniques

- Primary data was obtained via structured surveys, in-person interviews, field observations, and talks with farmers.

- **Secondary data** was sourced from research articles, government reports, SROFR&TC training documents, and organizational reports from Goyal Gramin Vikas Sansthan.
- Tools included:
    - Structured questionnaire (Annexed)
    - Cost-benefit analysis template
    - Observation checklists

3.7 Operational Definitions

- Cow-Based Organic Farming: A traditional farming system that utilizes cow-derived inputs such as dung, urine, and Panchagavya for soil fertility and plant protection.
- Adoption Rate: The proportion of farmers who have embraced and consistently practiced cow-based farming techniques.
- Sustainable Farming: Agricultural practices that ensure long-term productivity without harming the environment or human health.

3.8 Data Analysis Plan

- Quantitative data was analyzed using MS Excel to generate descriptive statistics such as frequencies, percentages, and cost-benefit comparisons.
- Qualitative data from interviews and field notes were thematically analyzed to identify patterns, challenges, and perceived benefits.
- Comparative graphs and tables were used to illustrate differences between chemical and organic farming systems.

3.9 Ethical Considerations

- Informed consent was acquired from all participants before data collection.
- Participants were apprised of the study's goal and guaranteed that their replies would remain secret and utilized exclusively for academic purposes.
- Care was taken to respect the privacy of respondents, and participation was entirely voluntary.
- The study followed ethical guidelines as prescribed by IIHMR University.

CHAPTER 4: ANALYSIS OF FINDINGS

4.1 General Profile of Respondents

A. Gender wise distribution of respondents: Only 40 male farmers were surveyed from 22 villages in Ladpura tehsil.

B. Distribution of land according to farming type: Farmers practiced two types of farming namely organic and conventional. Average land under organic farming per farmer was found to be 24.71 bigha and for conventional was 28.06 bigha (Table 4.1).

Table 4.1: distribution of land according to farming type (in Bigha; 1 Acre = 1.5 Bigha)

Type of Farming	**Average land in Bigha**
Organic Farming	24.71
Conventional Farming	28.06

4.2 The adoption of cow-based organic farming by farmers under SROFR&TC, Ladpura tehsil, Kota

A. Farming experience

Average experience of organic farming per farmer was found 2.13 years. Out of total number of respondents, 65% had 1-2 year's experience, 35% had 3-5 years of experience (Table 4.2).

Table 4.2: Organic farming experience of farmers

Experience	**No. of Farmers**	**Percentage**
1–2 years	26	65%
3–5 years	14	35%

B. Perceptions, Benefits, and Satisfaction

Farmer Satisfaction Levels with Cow-Based Organic Farming: Out of the total respondents, 82.5% farmers were found to be very satisfied, and 17.5% were moderately satisfied with cow-based organic farming practices. Key benefits highlighted by farmers included improved food quality, enhanced soil fertility, and better family health (Table 4.3, Figure 4.1).

Table 4.3: Satisfaction Levels

Satisfaction Level	No. of Farmers	Percentage
Very Satisfied	33	82.5%
Moderately Satisfied	7	17.5%

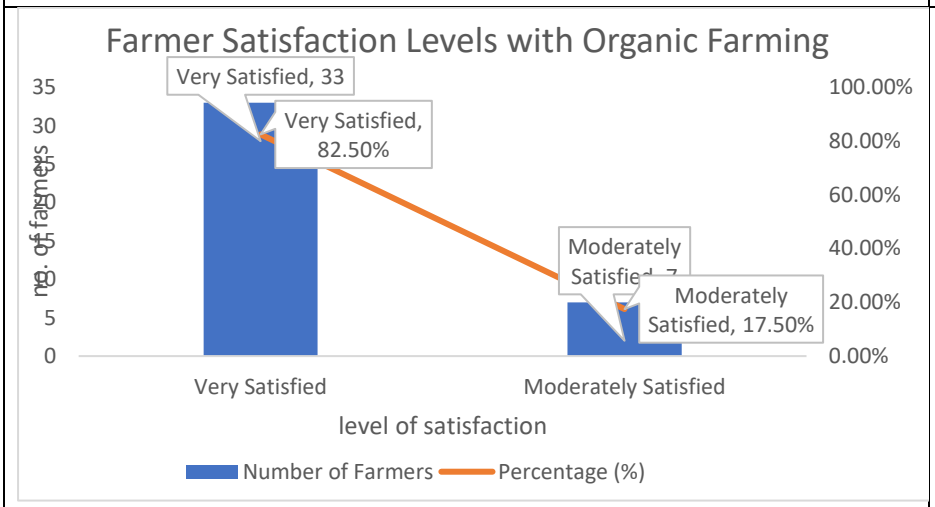

Figure 4.1: Farmer Satisfaction Levels with Organic Farming Outcomes

C. Adoption and Use

Motivation for Adoption of Cow-Based Organic Farming:
All 40 farmers surveyed practiced both conventional and cow-based organic farming. The adoption of organic methods was primarily driven by concerns related to health, economic viability, and environmental sustainability. A significant 90% of farmers acknowledged the role of SROFR&TC / GGVS in motivating and guiding them towards adoption, while only 10% adopted it through self-motivation (Table 4.4, Figure 4.2).

Table 4.4: Motivation Sources for Adoption

Source	No. of Farmers	Percentage
SROFR&TC / GGVS	36	90%
Self-motivated	4	10%

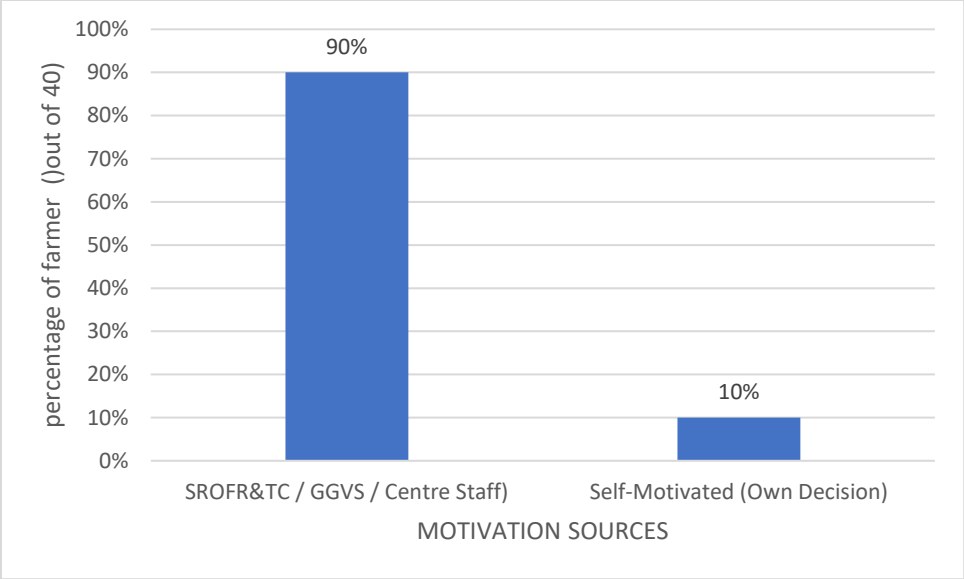

Figure 4.2: Farmers' Motivation Source for Adopting Organic Farming (in %)

D. Institutional Support

All respondents (100%) reported receiving institutional support in the form of training ranging from 1 to 6 months, along with provision of seeds, soil and product lab testing, and continuous field-level guidance. This comprehensive support system played a crucial role in enabling the effective adoption and implementation of cow-based organic farming practices.

4.3 The extent to which conventional farming is being replaced by cow-based organic farming

A. Use of Inputs

All farmers (100%) reported complete discontinuation of chemical fertilizers and pesticides after adopting cow-based organic farming. Instead, they switched to natural inputs—60% of farmers used Saral compost, while 40% relied on fresh cow dung and urine for soil enrichment and crop nutrition (Table 4.5, Figure 4.3).

Table 4.5: Type of Organic Inputs Used

Input Type	% of Farmers
Saral Compost	60%
Fresh Cow Dung/Urine	40%

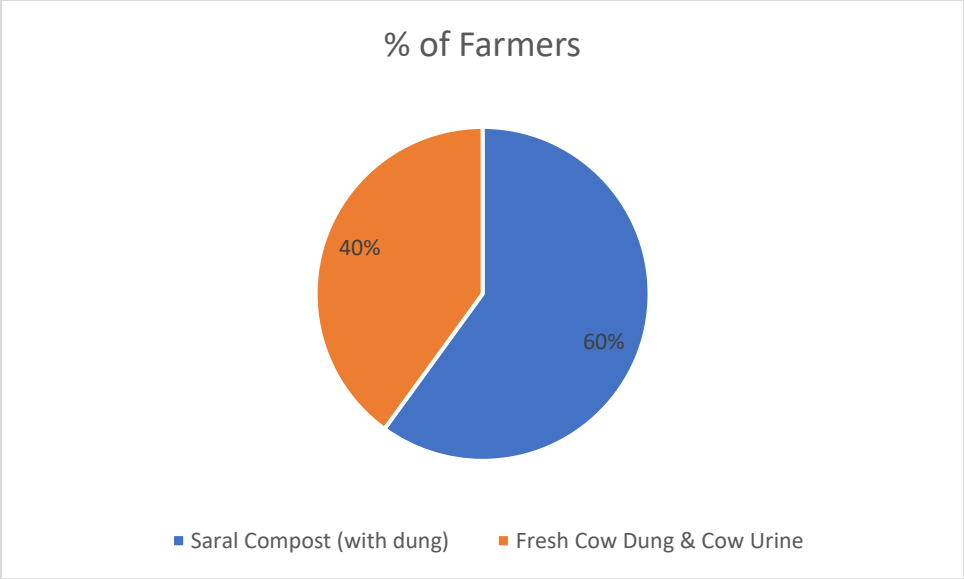

Figure 4.3: Type of Organic Inputs Used by Farmers

Purpose of Cow Dung/Urine Use in Organic Farming: Cow dung and urine were utilized by farmers for multiple purposes. 55% of farmers used them to prepare Jeevamrit or organic manure (Khaad), 35% used them as natural spray or medicine for pest and disease control, and 10% applied them specifically for enhancing wheat crop growth (Table 4.6, Figure 4.4).

Table 4.6: Purpose of Cow Dung/Urine Use % of Farmers

Usage	**% of Farmers**
Spray / Medicine	35%
Wheat Growth	10%
Jeevamrit / Khaad	55%

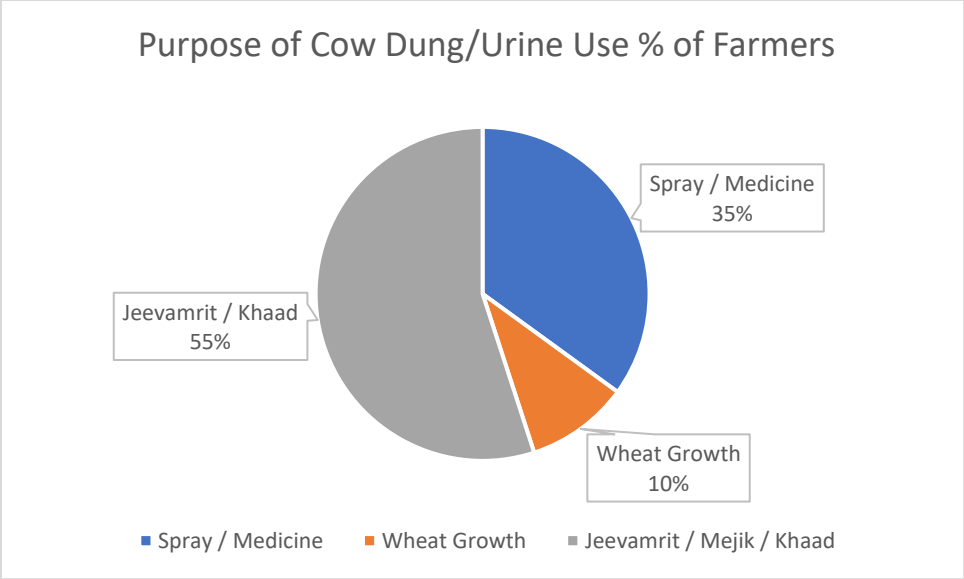

Figure 4.4: Purpose of Cow Dung/Urine Use % of Farmers

B. Dual Practice and Transition

All farmers continued to practice both conventional and cow-based organic farming; however, they were gradually shifting more of their land towards organic methods. Organic farming was primarily preferred for cultivating cereals and vegetables, owing to its perceived benefits in terms of health, soil quality, and sustainability.

C. Crop Types Cultivated by Farmers

The majority of farmers focused on staple and seasonal crops. 80% of farmers cultivated Rapeseed- wheat while 20% grew Rice- chickpea/ Gram using cow-based organic farming practices (Table 4.7, Figure 4.5). These choices reflect the adaptability of organic methods to commonly grown regional crops.

Table 4.7: Crop types cultivated by farmers

Crop Type	% of Farmers
Rapeseed -Wheat	80%
Rice – Chickpea/Gram	20%

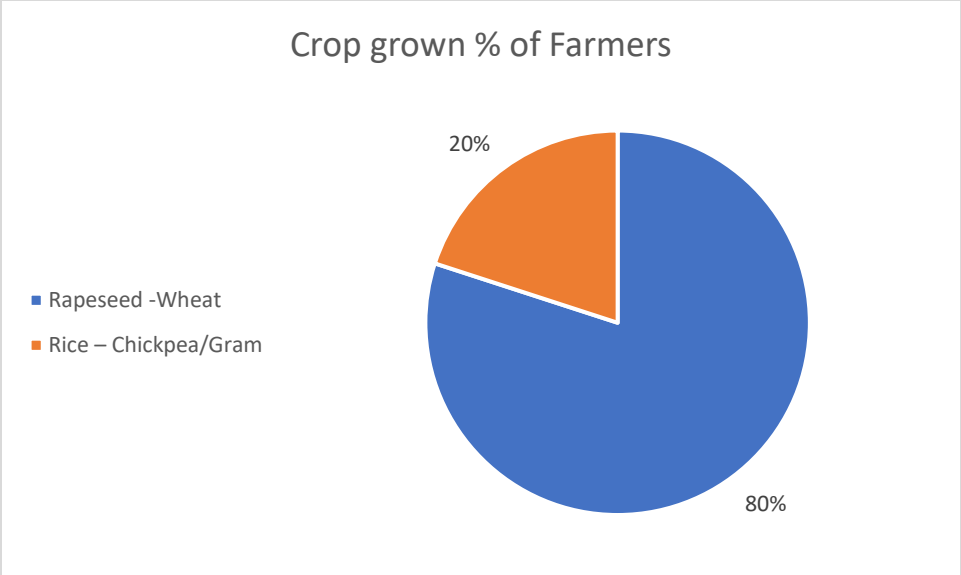

Figure- 4.5: Crop Types Cultivated by Farmers

D. Challenges

- Barriers to Full Replacement of Conventional Farming: Despite the growing shift toward cow-based organic farming, several challenges hindered its complete adoption. Key barriers included labor-intensive farming processes, limited market access for organic produce, and gaps in advanced training and technical knowledge. These factors slowed the transition from conventional to fully organic practices.

4.4: The reduction of harmful side effects caused by agrochemicals

A. Pest Control Methods

All surveyed farmers (100%) reported a complete elimination of chemical pesticide use, opting instead for neem-based and other traditional pest control methods. This transition not only ensured safer crop production but also contributed to the reduction of harmful environmental and health impacts previously associated with agrochemical use.

B. Health and Environmental Perceptions

Farmers widely observed improvements in family health and soil quality after shifting to cow-based organic farming. Notably, 100% of respondents agreed that organic practices are more environmentally sustainable compared to conventional methods.

C. Transition Barriers

Despite the long-term benefits, farmers faced **initial yield reductions due to soil adaptation** and noted the **high labor demands involved in preparing organic inputs** like compost and Jeevamrit. These factors posed challenges in the early stages of transitioning to fully organic practices.

4.5: To assess the production cost and economic feasibility of cow-based organic farming

A. Changes in Yield

Regarding crop yield, 60% of farmers reported an increase in yield after transitioning to cow-based organic farming. The remaining 40% experienced an initial decline, primarily due to soil adjustment, but observed yield stabilization over time. This indicates that while short-term challenges exist, the long-term potential of organic methods is promising. (Table 4.8), (figure 4.6).

Table 4.8: Perceived Yield Change After Adopting Organic Farming

Yield Change Category	Percentage of Farmers
Increased Yield	60%
Decreased Yield (Initially)	40%

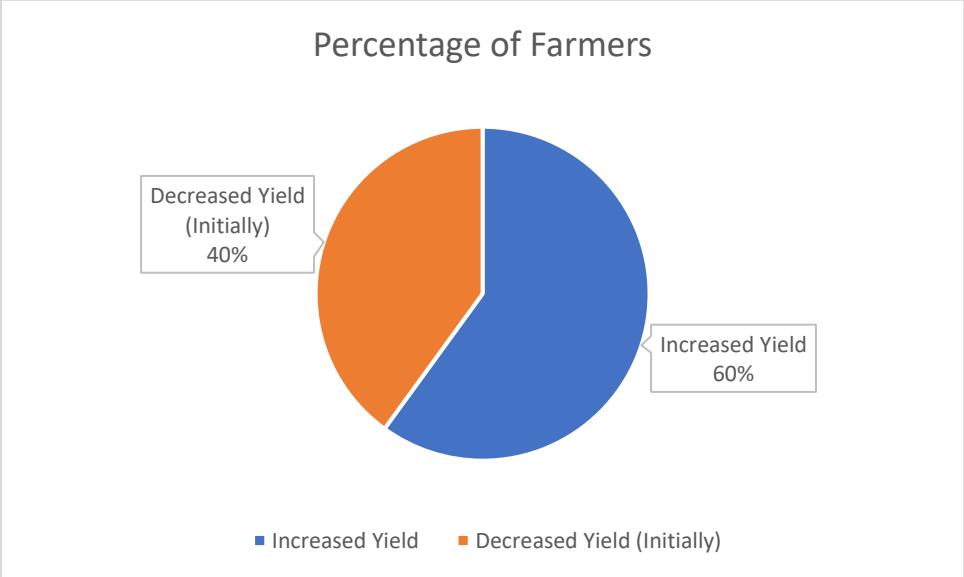

Figure 4.6: Perceived Yield Change After Adopting Organic Farming

Comparison of Yield Ranges: Organic vs. Conventional Farming: As per the yield data, organic farming produced yields ranging between 1000 to 1700 kg, whereas conventional farming yielded between 1700 to 2000 kg (Table 4.9), (Figure). Although conventional farming showed higher maximum yields, cow-based organic farming demonstrated competitive output with the added benefits of lower input costs and sustainability.

A comparison of yield ranges further supports these findings:

Farming Method	**Yield Range (kg per bigha)**
Organic Farming	1000 – 1700 kg
Conventional Farming	1700 – 2000 kg

Table 4.9: Comparison of Yield Ranges: Organic vs. Conventional Farming

Farming Method	**Min Yield**	**Max Yield**
Organic Farming	1000	1700
Conventional Farming	1700	2000

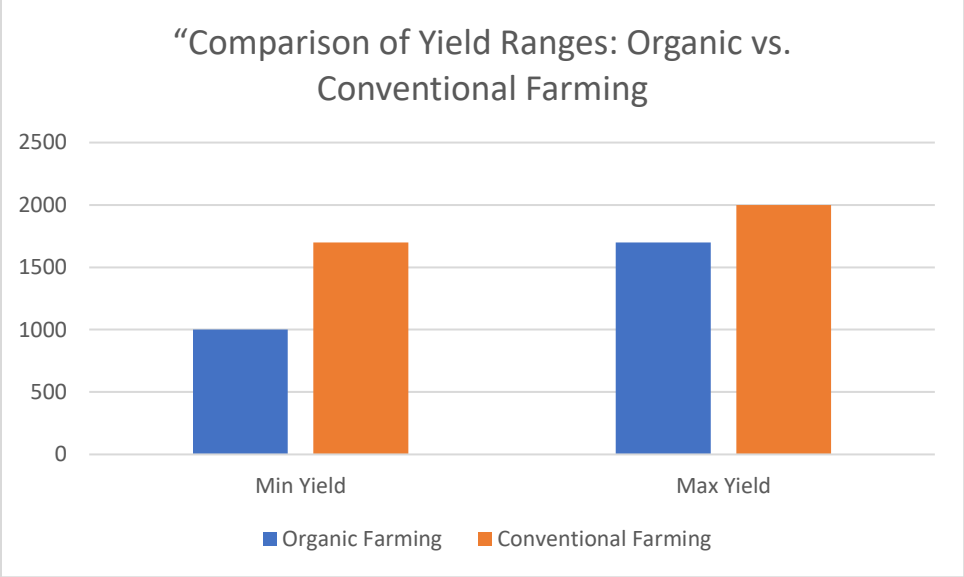

Figure 4.7: Comparison of Yield Ranges: Organic vs. Conventional Farming

B. Cost, Income, and Economic Feasibility

Cost and Income Comparison – Organic vs. Conventional Farming

While all surveyed farmers practiced organic farming, data for conventional methods was collected purely for comparison purposes. On average, organic farming demonstrated clear economic advantages. Based on responses from 40 farmers:

- Average cost per bigha in organic farming was ₹15,900, which is significantly lower than the conventional cost of ₹19,875, reflecting a 20%–30% reduction in input costs due to decreased reliance on chemical fertilizers and pesticides.
- Average income per bigha from organic farming stood at ₹39,875, compared to ₹32,500 from conventional methods—an increase of approximately ₹7,375 or 22.7% in earnings (Table 4.10), (Figure 4.8).

Table 4.10: Comparative Average Cost and Income per Bigha (40 Farmers): Organic vs. Conventional Farming

	Organic:	**Conventional**
Average Cost per Bigha of 40 farmers	15,900	19,875
Average Income per Bigha of 40 farmers	39875	32500

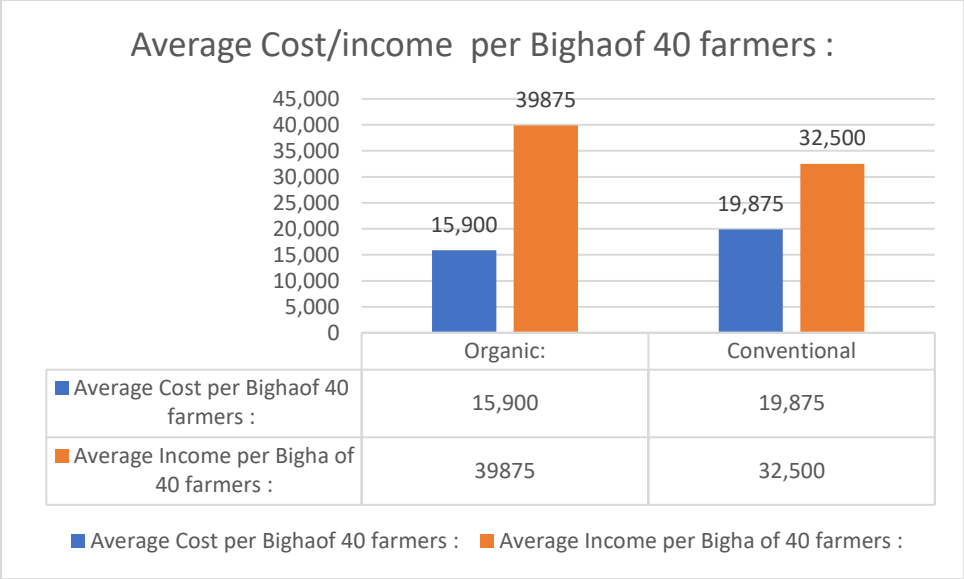

Figure 4.8: Comparative Average Cost and Income per Bigha (40 Farmers): Organic vs. Conventional Farming

4.6: To evaluate the cost-benefit ratio compared to conventional methods

A. Comparative Analysis

In the comparative analysis, farmers perceived cow-based organic farming as more favorable than conventional methods across several dimensions. It was rated higher in terms of sustainability, health benefits, and biodiversity conservation. A major advantage highlighted was reduced water usage, with only 12.2% of farmers associating higher water demand with organic farming, compared to 87.8% for conventional methods (Table 4.11, Figure 4.9). Additionally, farmers emphasized that organic farming is more self-reliant, climate-resilient, and better suited for long-term economic and ecological sustainability.

Table 4.11: Perceived Water Demand

Method	% of Farmers
Conventional	87.8%
Cow-based Organic	12.2%

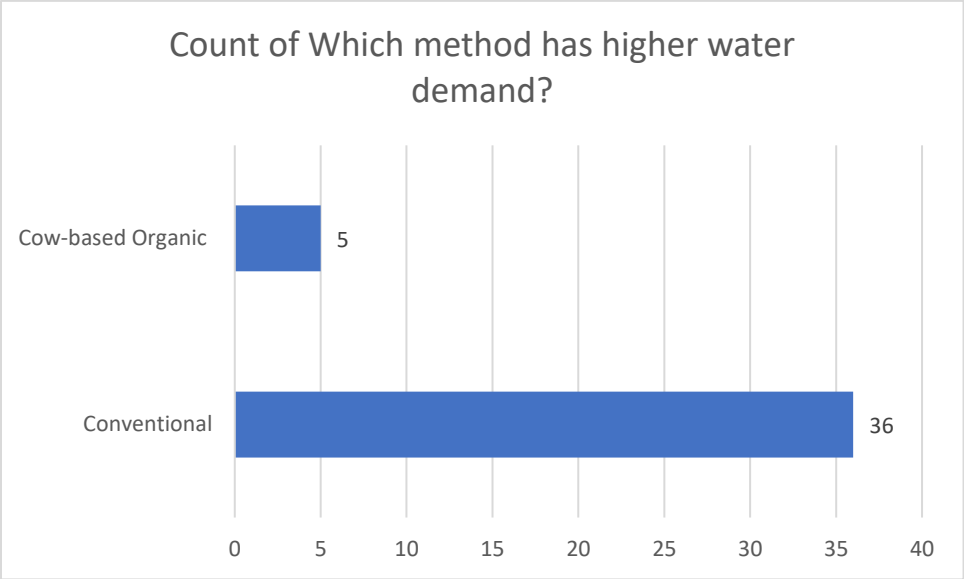

Figure4.9: Perceived Water Demand by Farming Method

- Bar chart showing farmer perceptions on which farming method demands more water.
- Farmers stated organic farming is more self-reliant, climate-resilient, and suitable for long-term gains.

CHAPTER 5: RESULTS AND DISCUSSION

5.1: The Adoption of Cow-Based Organic Farming by Farmers under SROFR&TC, Ladpura Tehsil, Kota

A. Organic Farming Experience

The data reveals that the average experience in cow-based organic farming is 2.125 years. Among the 40 surveyed farmers:

- 65% had 1–2 years of experience.
- 35% had 3–5 years of experience.
- None had more than 5 years of experience.

This indicates that cow-based organic farming is a relatively recently adopted practice, likely catalyzed by the institutional efforts of SROFR&TC.

B. Farmer Perceptions and Satisfaction

A substantial 82.5% of farmers reported being very satisfied, citing improved food quality, better soil health, and enhanced family well-being as major benefits. Only 17.5% were moderately satisfied. This highlights strong perceived positive outcomes among adopters.

C. Motivational Factors for Adoption

Motivation to adopt cow-based organic farming came primarily from:

- SROFR&TC / GGVS (90%)
- Self-motivation (10%)

This underscores the key role of institutional guidance in promoting sustainable practices in the region.

D. Institutional Support

All farmers reported receiving:

- Training (1–6 months)
- Seed distribution
- Soil testing support

- Field-level technical assistance

5.2: The Extent to Which Conventional Farming is Being Replaced by Cow-Based Organic Farming

A. Input Use and Substitution

All surveyed farmers completely stopped using chemical fertilizers and pesticides. Instead, they relied on:

- Saral compost (60%)
- Fresh dung and urine (40%)

This reflects a major shift in the input paradigm from synthetic to natural.

B. Purpose of Cow Dung and Urine Use

Farmers used cow-based inputs for:

- Jeevamrit / compost preparation (55%)
- Natural sprays/medicines (35%)
- Wheat growth promotion (10%)

This highlights the multipurpose utility of cow-based resources in organic farming systems.

C. Dual Practice and Crop Choice

Though all respondents still practiced both farming types, there is a visible trend of land conversion towards organic methods. Crops cultivated under organic systems included:

- Wheat and Sarson (80%)
- Dhan and Chana (20%)

The tendency to use organic methods for cereals and vegetables is consistent with their sensitivity to chemical residues and consumer preference.

D. Challenges in Transition

Key barriers in replacing conventional farming included:

- Labor-intensive input preparation
- Limited market access for organic produce

- Training and awareness gaps

5.3: The Reduction of Harmful Effects Caused by Agrochemicals

A. Pest Management and Agrochemical Avoidance

All 40 farmers completely eliminated chemical pesticide use and adopted:

- Neem-based formulations
- Traditional pest control methods

This shift contributes to **lower environmental toxicity** and **healthier produce**.

B. Perceived Health and Environmental Impact

All farmers reported:

- Improved family health
- Better soil texture and microbial activity
- Overall environmental improvement

These findings confirm that cow-based organic farming is perceived as ecologically safer and socially beneficial.

C. Barriers to Complete Transition

Despite the benefits, initial adoption faced challenges such as:

- Yield drop during soil transition
- Time-consuming organic input preparation

These practical limitations can be mitigated through better support mechanisms and scalable organic input solutions.

5.4: To Assess the Production Cost and Economic Feasibility of Cow-Based Organic Farming

A. Yield Pattern Comparison

Farmers observed:

- 60% reported yield increase over time
- 40% experienced initial yield decline, which later stabilized

Organic yield range was 1000–1700 kg/bigha, compared to 1700–2000 kg/bigha in conventional farming. Though initially lower, organic yield became more stable and predictable over time.

B. Cost and Income Comparison

Data from 40 farmers showed:

- Average organic cost per bigha: ₹15,900
- Average conventional cost: ₹19,875
- Average organic income per bigha: ₹39,875
- Average conventional income: ₹32,500

This indicates a 20–30% cost reduction and 22.7% income gain in organic farming.

These findings strongly support the economic feasibility of cow-based organic farming in the long run.

5.5: To Evaluate the Cost-Benefit Ratio Compared to Conventional Methods

A. Sustainability and Resource Use

Farmers reported that organic farming had:

- Lower water requirements (only 12.2%) compared to conventional (87.8%)
- Better outcomes in terms of:
    - Biodiversity
    - Climate resilience
    - Self-reliance

These benefits make organic farming more sustainable, climate-friendly, and economically viable over time.

CHAPTER 6: CONCLUSION

This study aimed to assess the adoption, effectiveness, economic feasibility, and sustainability of cow-based organic farming among 40 farmers in Ladpura Tehsil, Kota, supported by SROFR&TC. Based on extensive field-level data and farmer responses, the following conclusions are drawn:

6.1: The Adoption of Cow-Based Organic Farming

Cow-based organic farming has gained momentum among small and medium farmers in the study area. The average experience was 2.125 years, with 65% of farmers practicing for 1–2 years. The adoption was significantly influenced by institutional support, especially from SROFR&TC and GGVS, which provided training, inputs, and guidance. Over 82.5% of farmers expressed high satisfaction, citing benefits like better soil fertility, improved food quality, and enhanced family health. This shows a positive perception and willingness to continue the practice.

6.2: The Extent to Which Conventional Farming is Being Replaced

Though dual farming practices still exist, a clear transition toward cow-based organic farming is underway. Farmers have begun allocating more land to organic farming, particularly for cereals like wheat and vegetables. They have completely eliminated the use of chemical fertilizers and pesticides, replacing them with natural alternatives like saral compost and cow-based formulations. However, the transition remains gradual due to labor requirements, market limitations, and knowledge gaps.

6.3: The Reduction of Harmful Effects Caused by Agrochemicals

A major shift was observed in pest management practices, with all farmers relying on neem-based or traditional methods and completely avoiding chemical pesticides. This shift led to improved environmental health and significant enhancement in family health and soil quality, as reported by all respondents. The findings reinforce the environmental and social value of cow-based organic farming in reducing agrochemical harm.

6.4: To Assess Production Cost and Economic Feasibility

Economically, cow-based organic farming proved feasible and beneficial:

- Lower input cost (₹15,900 vs ₹19,875 per bigha) in organic farming.
- Higher income generation (₹39,875 vs ₹32,500 per bigha).

Although initial yield drops were noted due to soil transition, 60% of farmers eventually experienced increased or stabilized yields. Over time, this model is more cost-effective

and generates better net returns, making it an attractive alternative to conventional farming.

6.5 Conventional Methods

Cow-based organic farming showed better performance in terms of:

- Lower water use (12.2% vs 87.8%)
- Sustainability
- Health and biodiversity
- Climate resilience and self-reliance

These attributes make it a long-term solution for sustainable agriculture, especially in water-scarce and climate-vulnerable regions like Rajasthan.

Overall Conclusion: The study concludes that **cow-based organic farming is a sustainable, eco-friendly, and economically viable alternative** to conventional agriculture. With adequate institutional support, training, market access, and policy push, it holds the potential to **transform rural agriculture** by reducing chemical dependency, improving farmer livelihoods, and contributing to environmental conservation.

CHAPTER 7: CASE STUDY

IMPACT OF COW-BASED ORGANIC FARMING ON SELECTED FARMER – NARENDRA SINGH, BARODIYA VILLAGE, KOTA.

1. Farmer Profile

Narendra Singh is a progressive farmer from **Barodiya village**, under **Bardiya Panchayat**, Ladpura Tehsil, Kota, Rajasthan. He belongs to a large family of **10 members**, comprising **7 females and 3 males**. He owns **1.5 bighas of land under organic cultivation** and **40 bighas under conventional farming**, all of which are **fully irrigated**. He also maintains **5 cows**, which are central to his organic farming practices.

2. Transition to Organic Farming

Narendra has been practicing **cow-based organic farming for the past 5 years**. His exposure and shift towards organic farming came through the support of **Shri Ramshantay Organic Farming Research & Training Centre (SROFR&TC)**, where he was introduced to natural inputs like **Jeevamrit**, **cow dung**, **cow urine**, and **Dash Parni Ark**.

He underwent a **4-month comprehensive training program** at the center, which included:

- Practical field demonstrations
- Laboratory guidance
- Seed distribution
- On-farm mentoring

3. Farming Inputs and Practices

Narendra applies **organic compost (saral khaad)** prepared using cow dung and urine. He avoids all chemical fertilizers and pesticides in his organic fields. The primary crops grown organically are **wheat and mustard**. His entire input is based on **cow-derived natural preparations**, and he strictly follows seasonal application practices.

4. Economic Analysis

Parameter	Organic (per bigha)	Conventional (per bigha)
Land Area	1.5 bigha	40 bigha
Yield	1000 kg	1700 kg
Input Cost	₹20,000	₹25,000
Income	₹45,000	₹30,000
Profit	₹25,000	₹5,000

Narendra **earns ₹45,000 per bigha from organic farming**, compared to **₹30,000 from conventional**, despite a lower yield. The **reduced input cost** and **market premium** make organic farming significantly more profitable. However, he **does not earn any supplementary income** from compost or cow urine sales.

5. Challenges Encountered

- **Labor shortage** during peak organic input preparation seasons.
- Occasional **shortage of khaad (organic compost)**.
- **Limited market access** for organic produce, especially in bulk.

6. Perception and Satisfaction

Narendra is **very satisfied** with the outcomes of cow-based organic farming. He reported improvements in:

- **Soil fertility**
- **Animal health**
- **Household food quality**
- **Environmental sustainability**

He strongly recommends organic farming to other farmers and believes it provides **better results for land, animals, the environment, and the surroundings**. He also reported

that **cow-based farming is more sustainable**, while **conventional farming has higher water demand**.

7. Support from SROFR&TC

Narendra's transition and success were possible due to **holistic support** from the SROFR&TC:

- He was **trained for 4 months**.
- Received **free seeds** and **ongoing technical assistance**.
- Got access to **laboratory support**, **field visits**, and **demonstration plots**.
- When asked for suggestions for improvement, he mentioned **no changes needed**, highlighting his complete satisfaction with the center's services.

8. Conclusion

Narendra Singh's case clearly demonstrates how **cow-based organic farming**, even on a smaller land parcel, can yield **higher profits**, ensure **ecological balance**, and contribute to **long-term agricultural sustainability**. With continued institutional support, such models can be **replicated across rural Rajasthan** to reduce dependency on agrochemicals and empower farmers towards self-reliant farming systems.

CHAPTER 8: REFERENCES

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CHAPTER -9 - QUESTIONAIRE

S. No.
Section A: Farmer Profile

1. Name:
2. Father's name:
3. Gender:
4. Numbers of Member in family:

- Male:
- Female:

5. Village/Location:
6. Tehsil:
7. District:
8. Panchayat:
9. State:
10. Pin code:
11. Landholding size (in biga): organic/ conventional
12. Irrigated /farming land (in biga): all

- Organic:
- Conventional:

13. Number of years in farming:

Section B: Current Farming Practices

1. What type of farming do you currently practice?
    - Conventional
    - Cow-based Organic
    - Both

2. Since how many years have you been practicing cow-based organic farming? What inspired/motivated you to adopt cow-based organic farming and who/ by whom?

Section C: Use of Inputs- for organic farming

1. What inputs do you use for fertilization? (e.g., fresh cow dung, cow urine, saral compost)
2. Do you use cow dung or cow urine in farming? If yes, how frequently and for what? Spray, medicine, growth wheat, with khaad, jeevamrit, spray)
3. What types of pest control methods do you use?
    - Chemical pesticides
    - Organic methods (e.g., neem, dash Parni ark)
    - Both
4. Which types of crop/ what crops produce in organic farming?

Section D: Yield and Production

1. Have you observed any change in crop yield after shifting to cow-based organic farming?
    - Increased
    - Decreased
    - No change
2. What is your average yield (kg/biga,) for major crops under organic vs. conventional methods?

Section E: Economic Aspects

1. What is your approximate cost of production per biga in:
    - Conventional farming: ₹
    - Organic farming: ₹

2. Are you able to sell your organic produce at a better price than conventional?
    - Yes
    - No

3. Has your overall income improved after switching to organic farming?
    - Yes
    - No

4. Do you earn any extra income from cow-based farming (e.g., selling compost, ghee, cow urine, seeds etc.)?
   o Yes (please specify source): _____
   o No

5. Income from organic farming per biga in?
    - Organic: ₹
    - conventional: ₹

Section F: Challenges and Support

1. What challenges do you face in organic farming? (Tick all that apply)
    - Lack of training
    - Low yield
    - Market access
    - Labor shortage
    - Others: _____
2. Have you received any training or support (field support) for organic farming from centre?
    - Yes (Source: NGO/Govt/SROFR&TC)
    - No

Section G: Perceptions and Satisfaction

1. Do you believe cow-based organic farming is better for the environment?
    - Yes
    - No

2. Are you satisfied with the outcomes of organic farming?
    - Very satisfied
    - Moderately satisfied
    - Not satisfied

3. Would you recommend other farmers to adopt cow-based organic farming?
    - Yes
    - No

Section H: Comparative Analysis of Farming Methods

1. What is your approximate cost of production per biga in:

- Conventional farming: ₹____
- Cow-based organic farming: ₹_

2. Which method benefits land, animals, and all living organisms more?
o Conventional
o Cow-based Organic

3. Which method has higher water demand?
o Conventional
o Cow-based Organic

4. Which method is more sustainable overall (economically, socially, environmentally)?
o Conventional
o Cow-based Organic

5. Which method promotes self-reliance and self-sufficiency?
o Conventional
o Cow-based Organic

6. Which method supports a healthier lifestyle (for farmer/family)?
o Conventional
o Cow-based Organic

7. Which method provides better food quality?
o Conventional
o Cow-based Organic

8. Which method promotes village-based and farm-based systems more?
o Conventional
o Cow-based Organic

9. Which method encourages animal husbandry practices more?
o Conventional
o Cow-based Organic

10. Which method is more suitable for addressing climate change?
o Conventional
o Cow-based Organic all answer - Cow-based Organic

Section I: Support & Training from Centre (SROFR&TC)

1. How did you get connected with the training or support centre?
   - Self-visit
   - NGO
   - Govt Department
   - Others: _____
   - (Explain briefly): _____
2. From How many months of training did you receive?

3. Are you continue taking training every month or on an average month? Answer accordingly

4. Did the centre provide field-level support after training?
o Yes
o No

5. Did the centre provide laboratory support (e.g., testing soil, formulations)?
o Yes

o No

6. Do you get/ source seeds from the centre?
o Yes
o No

7. What kind of support have you received from the centre?
o Field demonstrations
o Lab testing
o Technical guidance
o Others: _____

8. Are you taking/ getting seeds from the centre?
o Yes
o No

9. What other benefits have you received from the centre/lab? Regular field staff visit at farm / support in farming

10. On behalf of farmers which area need to improve / change/ additional requirement by centre for organic farming?
no need

11. Do you own cattle (cow /gauvansh/any other cattle) for organic farming?
o Yes (No. of cows/ cattle: ___)
o No

13. how many cattle/ cow/ gauvansh do you(farmers) have?

14. Income from cattle/animal husbandry?

15. Do you satisfy with organic farming or center training and field support?

- Yes
- No.