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Sustainable Agriculture in India Why Does It Not Scale Up?



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Sustainable Agriculture in India *Why Does It Not Scale Up?*

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Studies in Development Process

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Table of Contents

Acknowledgements	4
Executive summary	5
1. Introduction	11
2. Framework	13
3. Methodology	16
4. Sample profile	17
5. Preamble to findings	20
6. Odisha	22
7. Jharkhand	24
8. Maharashtra	26
9. Himachal Pradesh	28
10. Tamil Nadu	30
11. Punjab	32
12. Andhra Pradesh	34
13. Gujarat	36
14. Sikkim	38
15. Assam	40
16. Across all the 10 States	42
17. Farm/farmer characteristics and challenges	44
18. Conclusion	46
References	49
Appendix 1	51
Appendix 2	52
Abbreviations	54

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Executive Summary

There has been increasing attention towards agro-ecological and sustainable farming practices in various agricultural schemes and programs of both Central and State government. Despite decades of work by various non-governmental organizations, most of these initiatives have either stagnated or sometimes fallen out. While a niche of farmers is able to reap the benefits of agro-ecological farming, there is a need to understand the barriers that stop the neighbouring farmers from adopting the agro-ecological practices. This study was initiated with the objective to understand the challenges faced by farmers on adopting agro-ecological practices and to identify the barriers in scaling up of sustainable farming practices. Though the scope of the term sustainable farming practices could be much larger, this study focuses on agro-ecological and organic farming practices.

The process of adoption and scaling up of sustainable farming practices is conceptualised as a result of interaction between three components, namely technology, intervention and farmers' reception, operated within an environment called socio-economic context. As a prelude to the field studies in villages, a survey was conducted among bureaucrats, CSO professionals, academicians, lead farmers, and other agri-professionals, to capture their perceptions on challenges in scaling up of organic farming practices. Among the three components, farmer component was perceived to hold the highest constraint. However, the individual factors in intervention component were the most emphasised barriers with factors like lack of subsidy for organic input, access to premium markets, government schemes and capacity building among the top.

The major objective of this study is to characterise the farmers' reception with respect to the package of practices that promotes organic input practices. A questionnaire was designed to capture various socio-economic and agro-ecological aspects of the farmers and farms respectively. Data was collected through personal interviews with farmers, and several focus group discussions (FGDs) were also conducted to understand the collective reflection of the farmers. Four aspects of the adoption of the package of practices by farmers are covered in the study. It includes motivation for adopting organic farming practices, the adoption rate of various organic practices, their experience and challenges in adoption, and various characteristics of the farm and farmer affecting the challenges reported.

While a niche of farmers is able to reap the benefits of agro-ecological farming, there is a need to understand the barriers that stop the neighbouring farmers from adopting it.

A total of 620 farmers across 11 states were surveyed to understand the experience and perspectives of the farmers in adopting organic farming practices.

Liquid manures are more widely adopted, and practices like crop diversification and green manuring are least adopted.

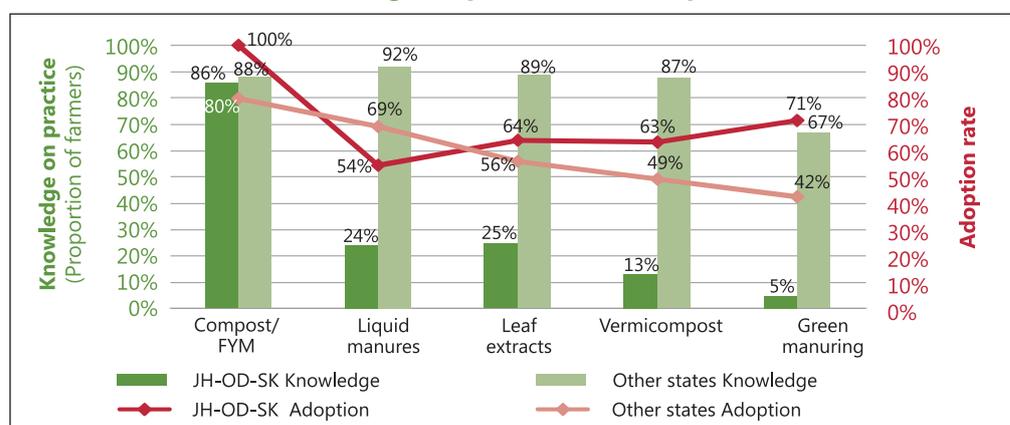
The critical advantage of proper composting in weed control is not familiar among farmers and needs special attention.

A total of 620 farmers across 11 states were surveyed to understand the experience and perspectives of the farmers in adopting organic input practices. Motivation factors to adopt the practices are found to be similar across the states. Concerns on human health, including producer and consumer health, conservation of soil health and agro-ecology, and self-reliance are the top factors cited by farmers as motivation to adopt organic farming practices.

In three eastern states (Jharkhand, Odisha and Sikkim), less than 40% of the surveyed farmers reported to have knowledge on various organic farming practices. In case of other states (Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Maharashtra, Punjab and Tamil Nadu), over 60% of the surveyed farmers have knowledge and exposure to various organic farming practices. Adoption rate draws a comparable pattern across all the states with higher proportion of farmers adopting liquid manures compared to that of other practices like leaf extracts, vermicompost, insect traps and green manuring (See ES. 1). The cost of cultivation was reported to have decreased on the adoption of organic farming practices in most of the states, and other parameters like labour requirement, drudgery, crop yield, net income and price realisation were majorly reported to have increased or remained unchanged. However, a very limited proportion of farmers reported an increase in the number of crops cultivated in their farm. Crop diversification being a critical component of agro-ecological practices to build socio-economic resilience and farm sustainability, the focus on diversification of crops needs to be increased. Similarly, green manuring was among the least adopted practices which needs to be encouraged for building soil organic content and improving the soil health.

The challenges in each state vary significantly and the field interactions gave multiple region-specific insights that are highlighted in this report. There is a clear distinction between four eastern states (two eastern and two north-eastern) and the remaining six states on the challenges to adopt organic-input practices. Lack of knowledge, access to organic inputs and irrigation constraints are found to be the top challenges in all the four eastern states (Assam, Jharkhand, Odisha and Sikkim). Market linkage, price realisation and drudgery are among the top challenges in all other states (Andhra Pradesh, Gujarat, Himachal Pradesh, Maharashtra, Punjab and Tamil Nadu) (See ES. 2). However, the survey indicated that knowledge support was among the lowest in the limited support received by farmers in eastern states and market linkage was lowest among the benefits received by the farmers in others states through various agencies.

ES1: Knowledge on practice and adoption rate



(JH-OD-SK – Jharkhand, Odisha and Sikkim; Other States – Andhra Pradesh, Assam, Himachal Pradesh, Gujarat, Maharashtra, Punjab and Tamil Nadu)

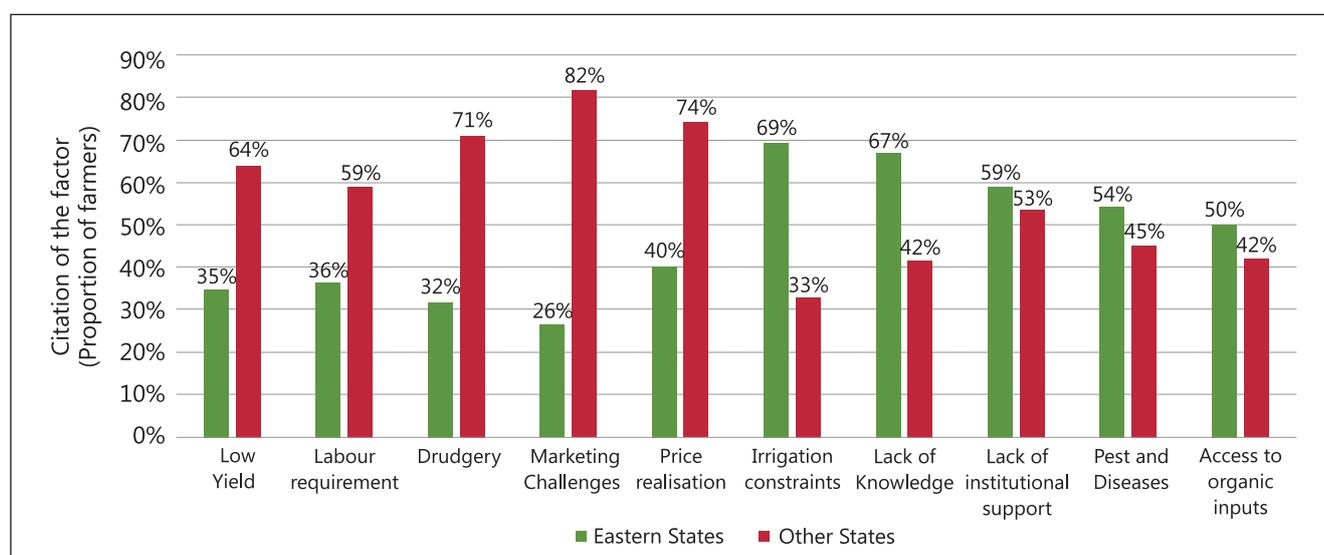
The two distinct set of challenges found from the study indicates the need for a two-pronged and region-specific approach to scale up organic farming practices. A holistic ecosystem with both input-end capacity building and output-end market linkage are required for a viable scaling up by the farmers. Programs in eastern states need to focus on capacity building for the farmers, improving access to organic inputs through the promotion of livestock, and improving irrigation infrastructure. Programs in the other states need to focus on strengthening the market linkages for better price realisation, and invest in technological solutions to reduce drudgery and labour requirement.

Weed management is also among the top challenges cited in most of the states. The process of composting has been proven to kill weed seeds and reduce weeding problem if carried out properly. But the composting process and compost are often valued only as nutrient and organic matter supplement to the soil. While over two-thirds of the farmers in the study are using compost or FYM (Farmyard manure), the perceived difference between the compost and FYM is mostly blurred. It is essential to emphasize the critical advantage of proper composting in weed management, and the farmers need to be skilled for effective adoption of composting as against the direct use of FYM.

The proportion of conventional farmers citing the challenges in adopting organic practices is found to be higher than the proportion of farmers who cultivate at least a small portion of their land under organic farming methods. Interestingly, more farmers who are trained and who are part of farmer collectives cited marketing and price realisation as challenges. Though limited in the scope, the study indicates that farmer collectives and Farmer Producer Organizations (FPOs) are found to focus more on input supplies and facilitating access to government schemes and programs. The sample indicated that market linkage was the least attended aspect by farmer collectives and FPOs, followed by community mobilization and capacity building of the farmers (See ES. 3). While input support might be needed to incentivize community mobilization in the short term, capacity building and market linkage are found to be the critical needs.

Critical challenges in scaling up of organic farming practices vary across the states, but it has been either at input-side (knowledge) or output-side (market linkage) than the operational challenges.

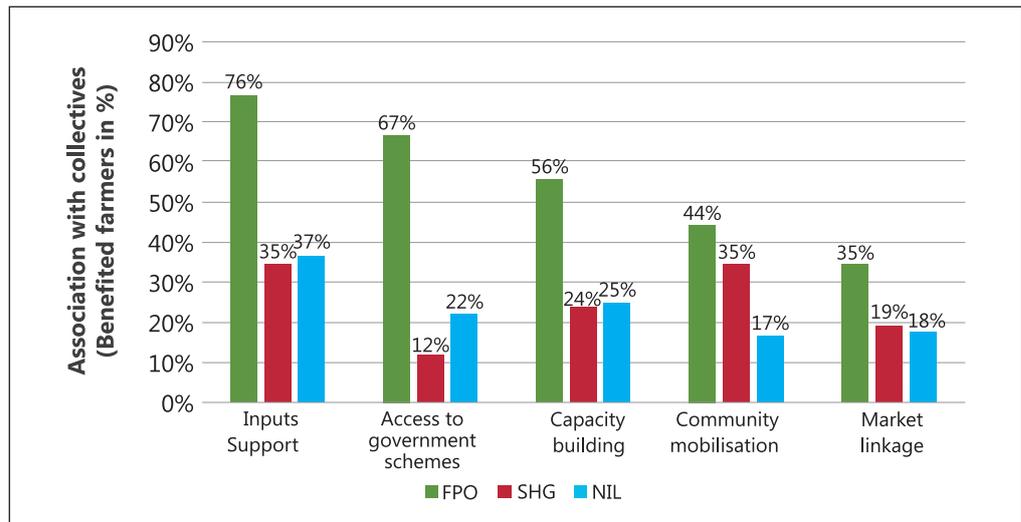
ES2: Challenges in adopting organic farming practices



(Eastern states— Assam, Jharkhand, Odisha and Sikkim;

Other States— Andhra Pradesh, Himachal Pradesh, Gujarat, Maharashtra, Punjab and Tamil Nadu)

ES3: Association with collectives and benefits received by the farmers

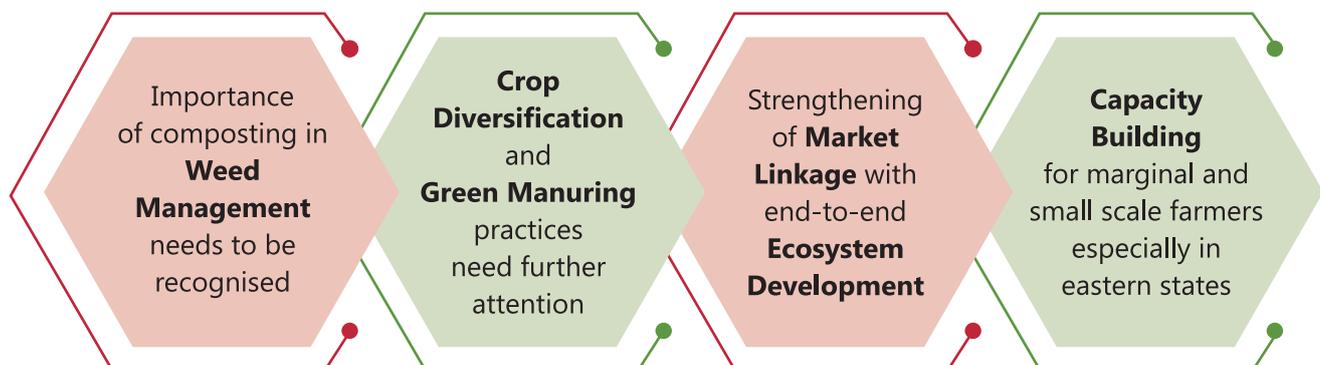


Presence of knowledge support along with assured market to sell the farm produce is the missing piece in scaling up of sustainable farming practices.

Though the critical challenges in scaling up of organic farming practices vary across the states, it has been either at input-side (knowledge) or output-side (market linkage) than the operational challenges that can be attributed solely to farmers' recipient component. Both input-side and output-side challenges indicate the need for strengthening of support system and policies (intervention component) that would help farmers to overcome these critical challenges.

Though the attention towards promotion of FPOs and farmer enterprises for better market linkage is on the rise, the focus on capacity building in organic input practices has been very limited. With the rate of organic input application falling to alarming level across the country, there is an imminent need to reinvigorate the capacity and practice of organic inputs for long term sustainability and resilience of Indian farms. In the presence of strong market linkage, FPOs promoting organic farming practices have shown to improve the price realised for the farm produce by the farmers. Better price realisation acts as a driving force for the farmers to adopt sustainable farming practices and be a part of the FPO. Thus, the presence of knowledge support along with assured market is the missing piece in scaling up of sustainable farming practices.

Action Points



Voice from farmers

Punjab: We need to overcome huge social pressure from family as well as neighbouring farmers for shifting to organic practices as it involves arduous work.



Himachal Pradesh: We are blessed with natural resources for agro-ecological farming, but lack of appropriate markets for organic produce is a continuous challenge.



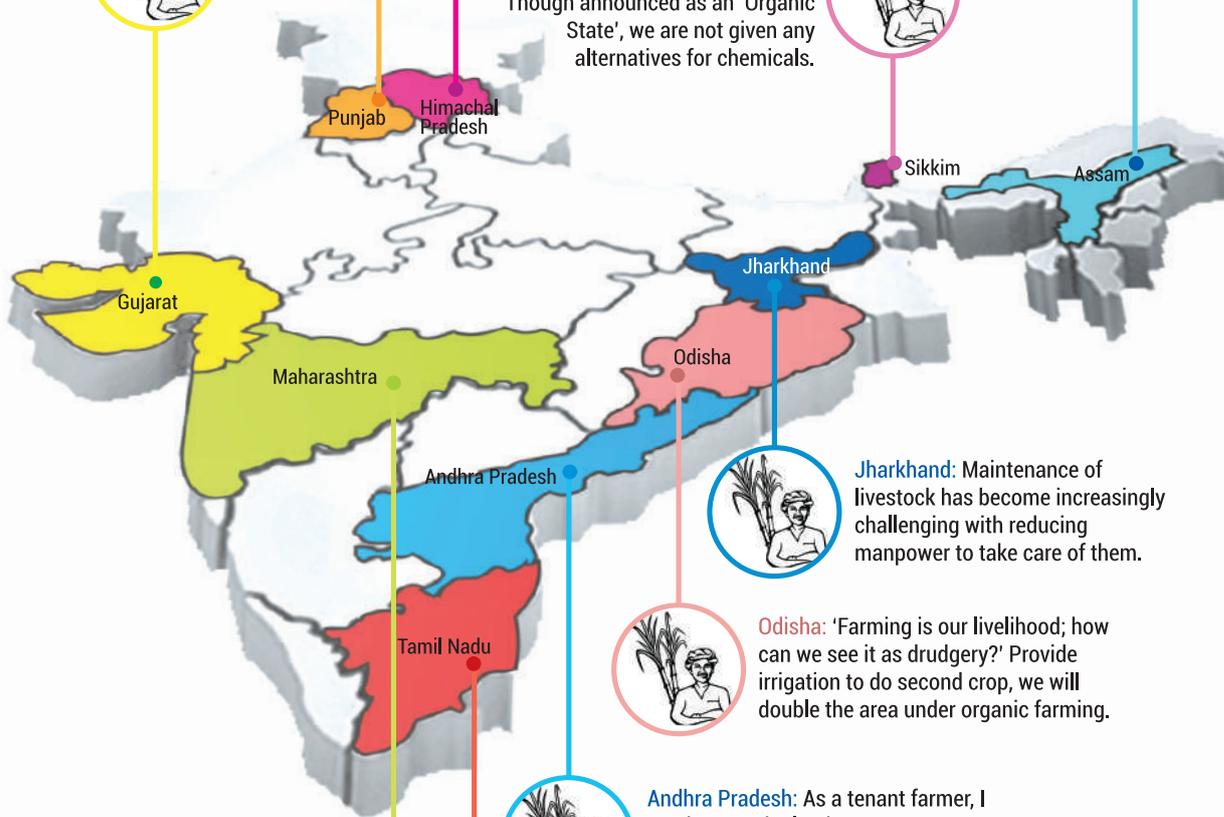
Gujarat: We do not get the premium price for organic produce that would compensate for any yield reduction.



Assam: We have been traditionally cultivating only using organic methods. There is a good demand for our products. Lack of irrigation is the major constraint.



Sikkim: We are scared of talking about chemicals for agriculture as it is banned by the government. Though announced as an 'Organic State', we are not given any alternatives for chemicals.



Sikkim

Assam

Jharkhand

Odisha

Jharkhand: Maintenance of livestock has become increasingly challenging with reducing manpower to take care of them.



Odisha: 'Farming is our livelihood; how can we see it as drudgery?' Provide irrigation to do second crop, we will double the area under organic farming.



Andhra Pradesh: As a tenant farmer, I need to pay the land owner every year. Annual rent leaves no room for any income loss during the transition period.



Tamil Nadu: Organic farming needs constant attention to the field. We do not get labour who is ready to do all the strenuous work involved in preparation of organic inputs.



Maharashtra: Organic inputs require proper planning. Usually it involves preventive measures against pest and diseases. Once infested, we would end up using pesticides.



Perspectives from grassroots workers

Punjab: Some farmers sell a small amount of their organic produce at double the price of conventional produce through personal contacts in Delhi. This creates an exorbitant price perception among other farmers leading to mistrust on FPO.

Gujarat: Progressive farmers sell their organic produce through individual connections in cities. However, they need to aggregate for better price realisation.

Himachal Pradesh: Appropriate technologies specially curated for hilly regions need to be designed to reduce the drudgery in organic farming practices.

Assam: Open grazing of animals during lean period restricts farmers from cultivating their land. Irrigation for all is what we need to improve their earnings.

Sikkim: Despite being an 'Organic State', capacity building is dismal and lack of knowledge about pests and diseases management is a major hurdle in increasing the crop productivity.

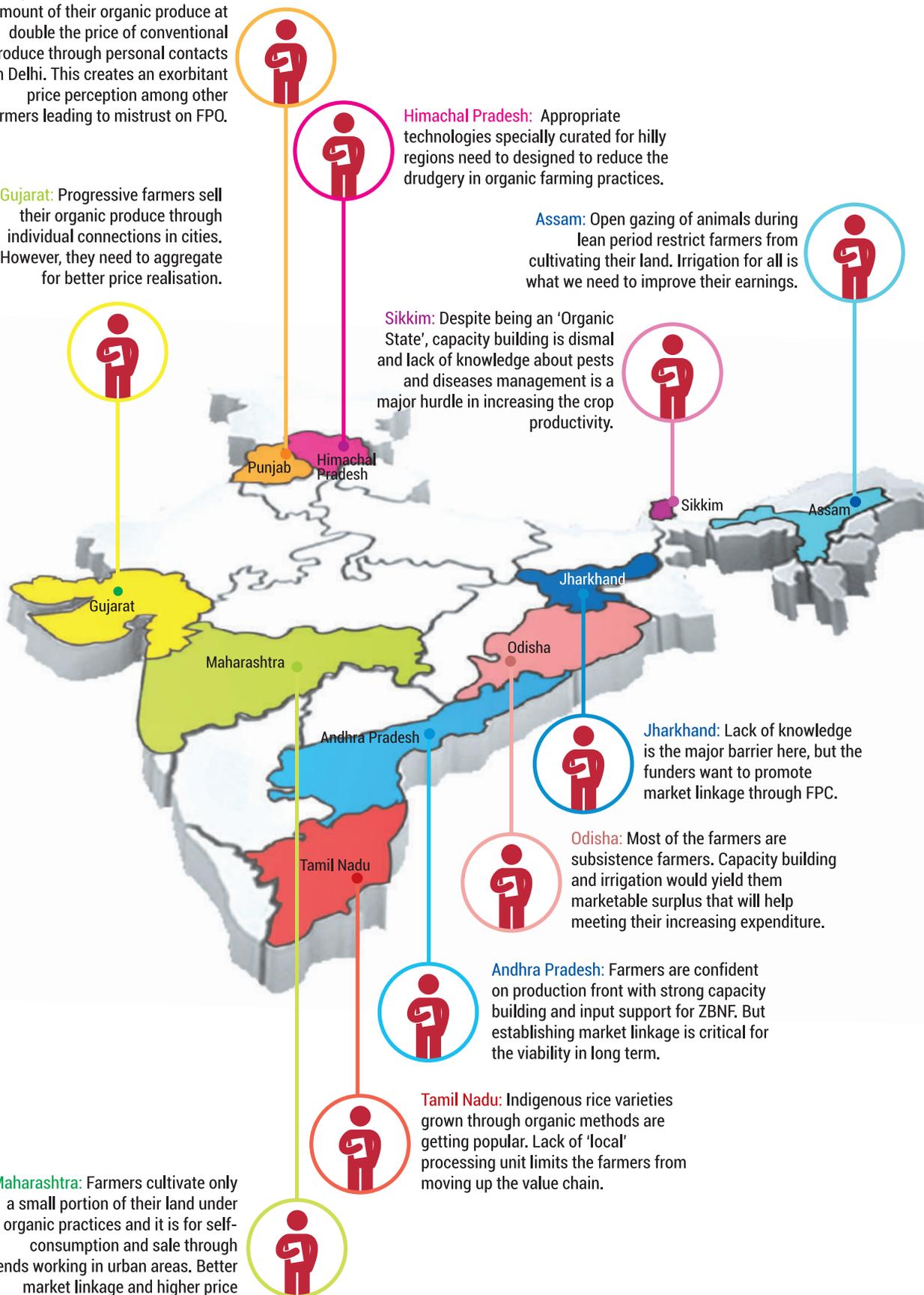
Jharkhand: Lack of knowledge is the major barrier here, but the funders want to promote market linkage through FPC.

Odisha: Most of the farmers are subsistence farmers. Capacity building and irrigation would yield them marketable surplus that will help meet their increasing expenditure.

Andhra Pradesh: Farmers are confident on production front with strong capacity building and input support for ZBNF. But establishing market linkage is critical for the viability in long term.

Tamil Nadu: Indigenous rice varieties grown through organic methods are getting popular. Lack of 'local' processing unit limits the farmers from moving up the value chain.

Maharashtra: Farmers cultivate only a small portion of their land under organic practices and it is for self-consumption and sale through friends working in urban areas. Better market linkage and higher price realisation are needed for scaling up.



1. Introduction

The volatile commodity prices and the increasing cost of cultivation has put the livelihood of farmers under a threat. At the same time, the health impacts of chemical use in agriculture have been increasingly recognised by both consumers and producers. The interest in alternate methods, especially those which are low on chemical use, is rising. The growing concerns on farm sustainability have increased the focus on soil health and natural resource management. Additionally, climate change impacts have brought back the attention towards the agro-ecology, its stability and resilience. More and more state governments are initiating agricultural schemes and programs focusing on agro-ecological and sustainable farming practices. Despite decades of work by various non-governmental organizations, most of these initiatives have either stagnated or sometimes fallen out. For instance, we often meet farmers practising agroecological farming techniques who celebrate the benefits of their farm practices in various aspects. Yet, almost none of their neighbours would have followed their path. While a niche of farmers is able to reap the benefits of agro-ecological farming, there is a need to understand the barriers that stop the neighbouring farmers from adopting these practices. Thus, VikasAnvesh Foundation initiated a study with the objective to understand the challenges faced by the farmers in adopting agro-ecological practices, and to identify the barriers in scaling up of sustainable farming practices.

Despite decades of work by various non-governmental organizations, most of these initiatives have either stagnated or sometimes fallen out.

1.1 Sustainable Farming Practices

A spectrum of farming methods and practices is available for the farmers with each practice having its own merits and demerits. Farmers adopt these farming practices with different principles and ideas. Based on the farming practices, a range of farming systems like natural farming, organic farming, biodynamic farming, agroecological farming, non-pesticidal management, and chemical farming, are defined. Though these systems of farming have several overlapping principles and practices, often they are broadly categorized as organic farming and chemical farming and seen as two polar ends. The proponents of chemical farming consider higher food production as the panacea for food security and advocate intensive synthetic input farming as the non-substitutable. However, the proponents of organic farming consider synthetic inputs as a threat to agro-ecology and livelihood of the farmers, and cite several lead farmers (innovative farmers who often act as resource person and train other farmers) and/or clusters of success as models for sustainable agriculture. For the purpose of this study, we consider organic input practices as a subset of agro-ecological practices, and agro-ecological practices as a subset of sustainable farming practices. We define "sustainable farming practice" as the farming system that would involve any of the following aspects

For the purpose of this study, we consider organic input practices as a subset of agro-ecological practices, and agro-ecological practices as a subset of sustainable farming practices.

1. Increase in organic inputs to the farm and/or decrease in fossil fuel-based inputs
2. Increase in water/nutrient use efficiency
3. Increase in farm/agro-ecological stability and resilience
4. Decrease in various risks involved in farming for the farmers
5. Decrease in the health risk for consumers

1.2 Organic input practices

While the scope of sustainable agriculture for the study has been kept broad, field studies in this work have majorly been on the package of practices that focused on organic farming and agro-ecological practices. Several long-term studies across the country in various cropping system have proved that productivity and soil health is better when organic inputs are applied to the farm. All-India agricultural input surveys show that the application of farmyard manure (FYM), which is a widely used and a key organic input, has declined drastically by over 55% from 1.6 tonne per Ha to 0.7 tonne per Ha (See Figure 1.1). But the application of synthetic nutrients and area treated by pesticide has been on a steady rise. In general, soil organic carbon in Indian soil is relatively low, and its further decline in the recent past presents a worrying trend. Soil organic carbon being a key factor determining various parameters of soil health, there is an imminent need to increase the organic inputs for long-term sustainability of farming.

Application of farmyard manure (FYM), a key organic input to farm has declined drastically by over 55% from 1.6 tonne per Ha to 0.7 tonne per Ha.

1.3 Scaling up of sustainable farming practices

The Government of India and various state governments have recognised this need, and have been promoting the use of organic inputs through various schemes (See Appendix 2). While it may be difficult to find National level studies, there are several studies on the perception towards the agro-ecological practices, its adoption and impacts, and challenges in scaling it up. While the perception and impact of its adoption are positive in most cases (Desai and Sumangala 2013; Ramanjaneyulu et al. 2013; Fayet and Vermeulen 2014; Eyhorn et al. 2018), several challenges like lack of capacity, access to inputs, and marketing barriers are reported across studies (Panneerselvam et al. 2012; Singh and George 2012; Nandi et al. 2015; Jouzi et al. 2017; Patel 2017; Jayanthi and Vaideke 2015; Balachandran 2004; Korde 2017). Large-scale conversion to organic farming practices has shown positive impact on the net income of the farmers, and several studies have looked into the determinants of adoption and scaling up of these practices (Panneerselvam et al. 2014; Edwardson and Santacoloma 2013; Badodiya et al. 2011). A range of policy reforms both in production and marketing, revamping of agri-food systems, building and strengthening farmer networks, overcoming political barriers, and inclusion of women are seen as imminent needs to build the eco-system supporting the scaling up of agro-ecological practices (Oxfam 2014; MoAFW 2018; FAO 2018). In this report, we focus on the adoption of the package of practices that are promoted by the local agencies with a focus on organic input practices.

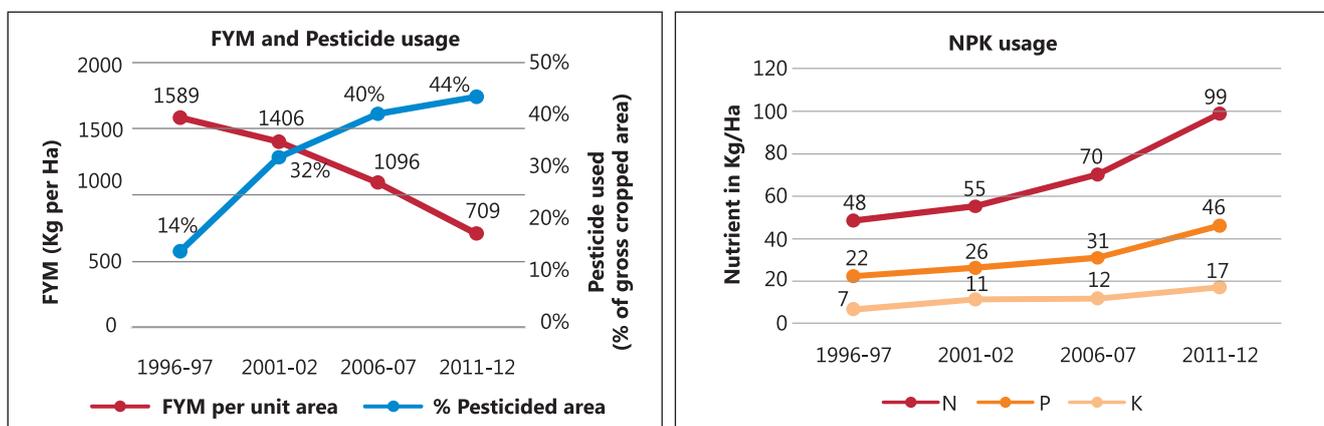


Figure 1.1: Nutrient, FYM and pesticide usage in India (Data source: Agriculture Census, 2012)

2. Framework

Rogers' diffusion of innovation (DOI) theory is widely used as a theoretical framework in various studies on scaling up of innovations. Based on the time taken to adopt new technology in the innovation life cycle, the population is categorised as innovators, early adopters, early majority, late majority and laggards (Beal and Rogers 1960). The distribution of the group is represented using a bell curve, as shown in Figure 2.1. Large scale data on structural characteristics (farm size, market position, solvency, age of the farmer) has been used to explain the difference in adoption behaviour between innovators, early adopters and laggards. Initially, in this work, a questionnaire was designed to capture various aspects of the diffusion of innovation framework from the perspective of technology like advantage, compatibility and trial ability of organic farming practices. A pilot survey using this questionnaire proved it to be challenging for the researchers to communicate and capture the response from farmers.

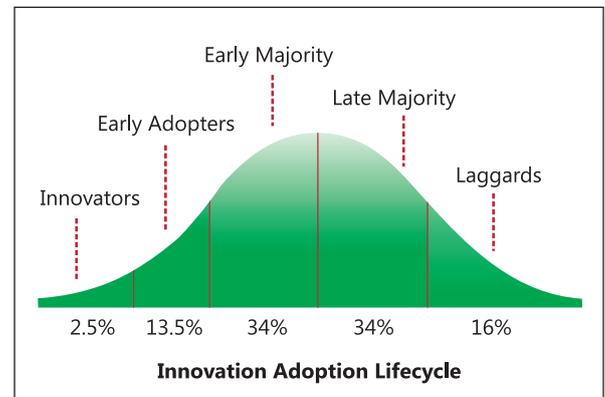


Figure 2.1: Diffusion of innovation

While this framework helps in understanding the diffusion process in a demography, it doesn't directly help in capturing the factors influencing the behaviour like social constructs, institutional regimes, and characteristics of key stakeholders (Lyytinen and Damsgaard 2001). Often a large sample is studied for their structural and behavioural characteristics, and a regression modelling is constructed to identify the variable that would have influenced the adoption of farming practices (Gillian, Hugh, and Ross 2016; Ward et al. 2018). However, this approach may not be feasible with a smaller sample and would not capture the actual barrier as experienced or perceived by the farmers.

Alternatively, in principle, the rate and extent of adoption of technology are dependent on the characteristics of the technology and that of farmers. In several studies, intrinsic motivation factors or barriers to adopt a new technology have been surveyed to capture the experience and perceptions of the farmers (Panneerselvam et al. 2012; Greiner and Gregg 2011). Similarly, with the learnings and field response to the first questionnaire, an alternative questionnaire was designed based on a simpler framework as given in Figure 2.2. This framework conceptualises adoption and scaling up as a result of interaction between three components, namely technology, intervention and farmers' reception, operated within the environment of socio-economic context. The technology component represents all the technical characteristics of farming practices like input resources, operations and production. Intervention component represents the initiatives of the government and other agencies like schemes and programs to promote and support the adoption of the farming practices. The farmers (farmers' reception) component represents the reception of new practices by the farmers with respect to their behavioural and socio-economic considerations.

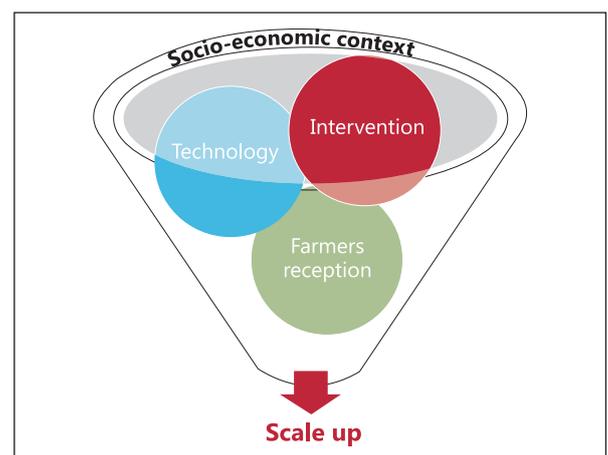


Figure 2.2: Framework for the Study

Preliminary Survey

As a prelude to the field studies in villages, a survey was conducted during the Kisan Swaraj Sammelan-organised by ASHA (Alliance for Sustainable and Holistic Agriculture) in November 2018 at Gujarat Vidyapith, Ahmedabad. A total of 35 stakeholders, including lead farmers, bureaucrats, representatives from civil society organisations (CSO), academicians and professionals from agri-companies, were interviewed to capture their perceptions on challenges in scaling up of organic farming practices. Based on literature and experts' opinion, a set of 24 factors were identified, and the respondents were asked to rate each of these factors from 0 to 10 with '0' being the least important and '10' being the most critical challenges to scaling up of organic farming practices. These factors or challenges were categorised under three components viz. technology, intervention and farmer related constraints. The factors inherent to the farming practices were grouped under technology, factors related to promotion and support were grouped under intervention, and the factors related to the farmer characteristics were groups under farmers. The respondents were also asked to rank these components to indicate the critical barrier to scaling up of organic practices.

A set of 35 stakeholders were interviewed to capture their perceptions on challenges in scaling up of organic farming practices.

The results from the survey are given in Figure 2.3 and 2.4. Both the ranking of components and rating of individual challenges are transformed into a linear scale from 0 to 1. The ratings on challenges are normalised within individual respondents, and the simple mean of normalised scores are estimated. A higher score indicates a higher emphasis on the factor or component as a challenge in scaling up of organic farming practices. Among the three components, farmer component is perceived to be the biggest constraint. However, the individual factors in the intervention component are the most emphasised barriers with factors like lack of subsidy for organic input, premium markets, government schemes, and capacity building, among the most critical. High labour requirement and low income are indicated to be the top most challenging factors in technology and farmer component respectively. A curious observation in this preliminary survey is, that compared to other stakeholders, the lead farmers and many CSO representatives indicated the 'Lack of motivation' within the farmer community as a key challenge in scaling up of organic farming practices.

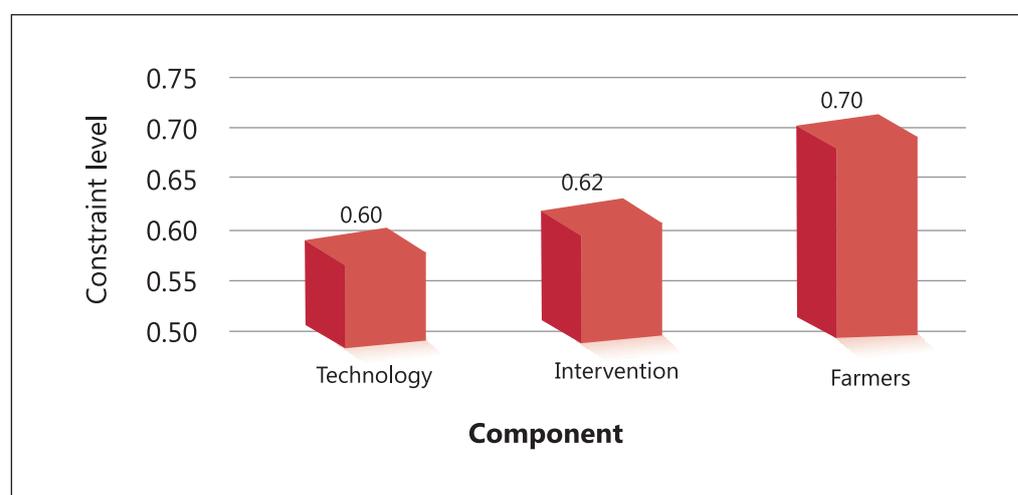
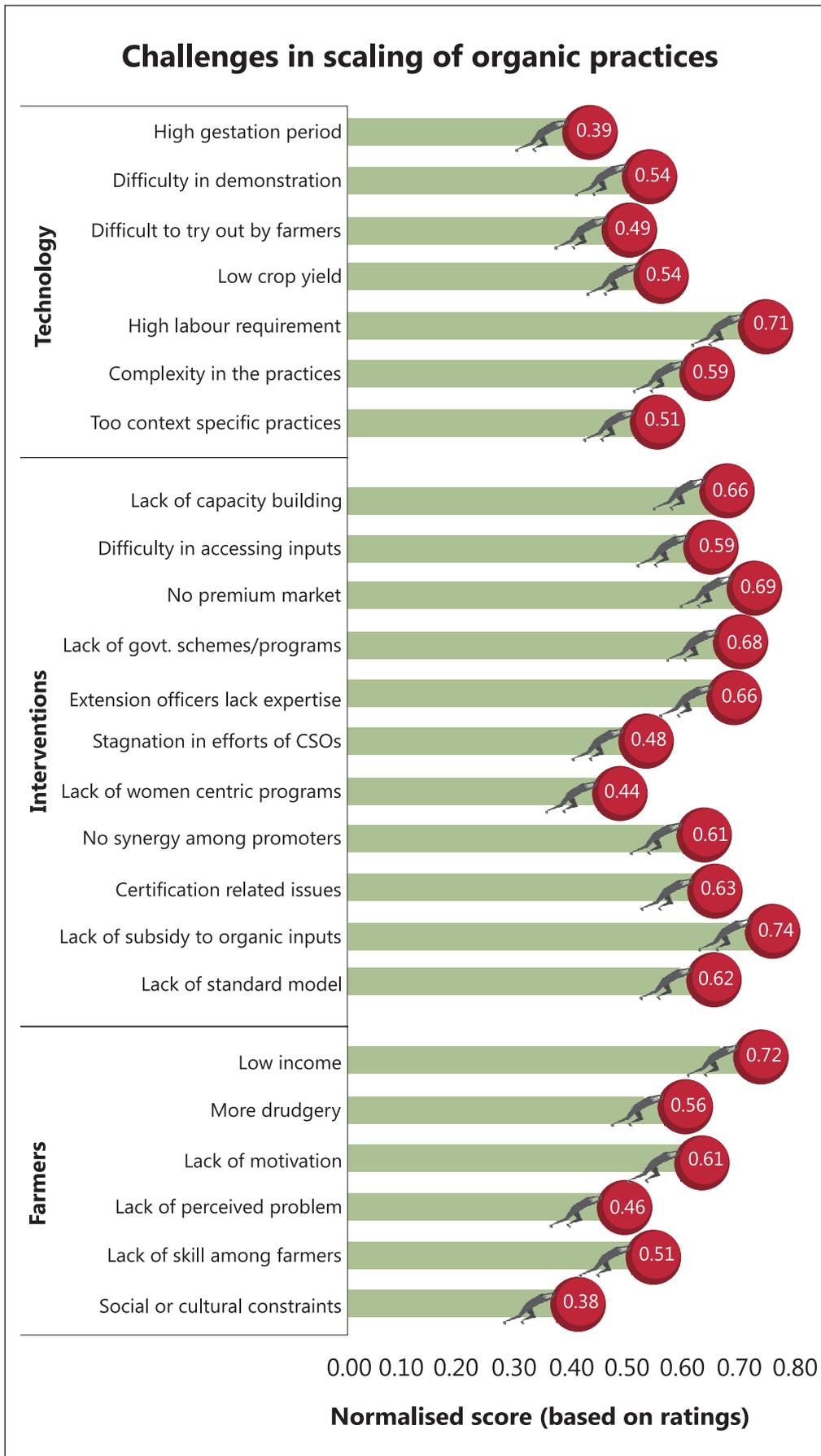


Figure 2.3: Perceived constraint component



Farmer component was perceived to hold the highest constraint. However, the individual factors intervention component are emphasised as the major barriers in scaling up of organic farming practices.

Figure 2.4: Challenges in scaling up of organic practices

3. Methodology

The major objective of the study is to characterise the farmers' reception component with respect to the package of practices that promote organic input practices. Either a research collaborator and/or a host agency was identified in each state to conduct the study. Data was collected through personal interviews with farmers, and several focus group discussions (FGDs) were also conducted to understand the collective reflection of the farmers. A questionnaire was designed on the basis of the framework (discussed in chapter 2) to capture various socio-economic and agro-ecological aspects of farmers and farms respectively. The questionnaire was improvised to suit the local context in each State without modifying the overall structure.

Though the package of practices promoted across the study locations varied, the set of most commonly promoted organic input practices include compost, *jivamrut* or *panchagavya*, *dashparani* or *ilaikaraisal*, vermicompost, insect traps, and green manuring. At field level, the terms compost, *jivamrut*, *panchagavya*, *dashparani*, *handikat*, *ilaikaraisal*, *panchpatta*, etc. are often varyingly used, and their composition varies across locations. In this report, any organic manure input with a base of cow urine, dung, dairy products, flour and jaggery are captured under liquid manure. Similarly, pest repellents and disease control agents like *dashparani*, *handikat*, *ilaikaraisal*, *panchpatta*, etc., that are prepared with plant extracts as their base are captured under leaf extracts.

Four aspects of the adoption of the package of practices by farmers are covered in the study. It includes motivation for adopting organic farming practices, the adoption rate of various organic practices, farmers' experience and challenges faced in adoption, and farmer characteristics affecting the challenges.

Motivation to adopt the package of practice is assessed among nine factors including conservation of soil health, human health (producer and consumer health), conservation of agro-ecology, self-reliance, reduction of cultivation cost/risk, higher yield, higher market price/income, conservation of water, and others, using a nominal scale (yes/no).

Knowledge and adoption rate of the package of practices by the farmers is captured using an ordinal scale with four categories (practising, tried but discontinued, never tried and not applicable). While the first three of these categories implicitly indicate that the farmer has the knowledge on the practice, the last category ('not applicable') indicates that the farmer does not possess the knowledge on the practice.

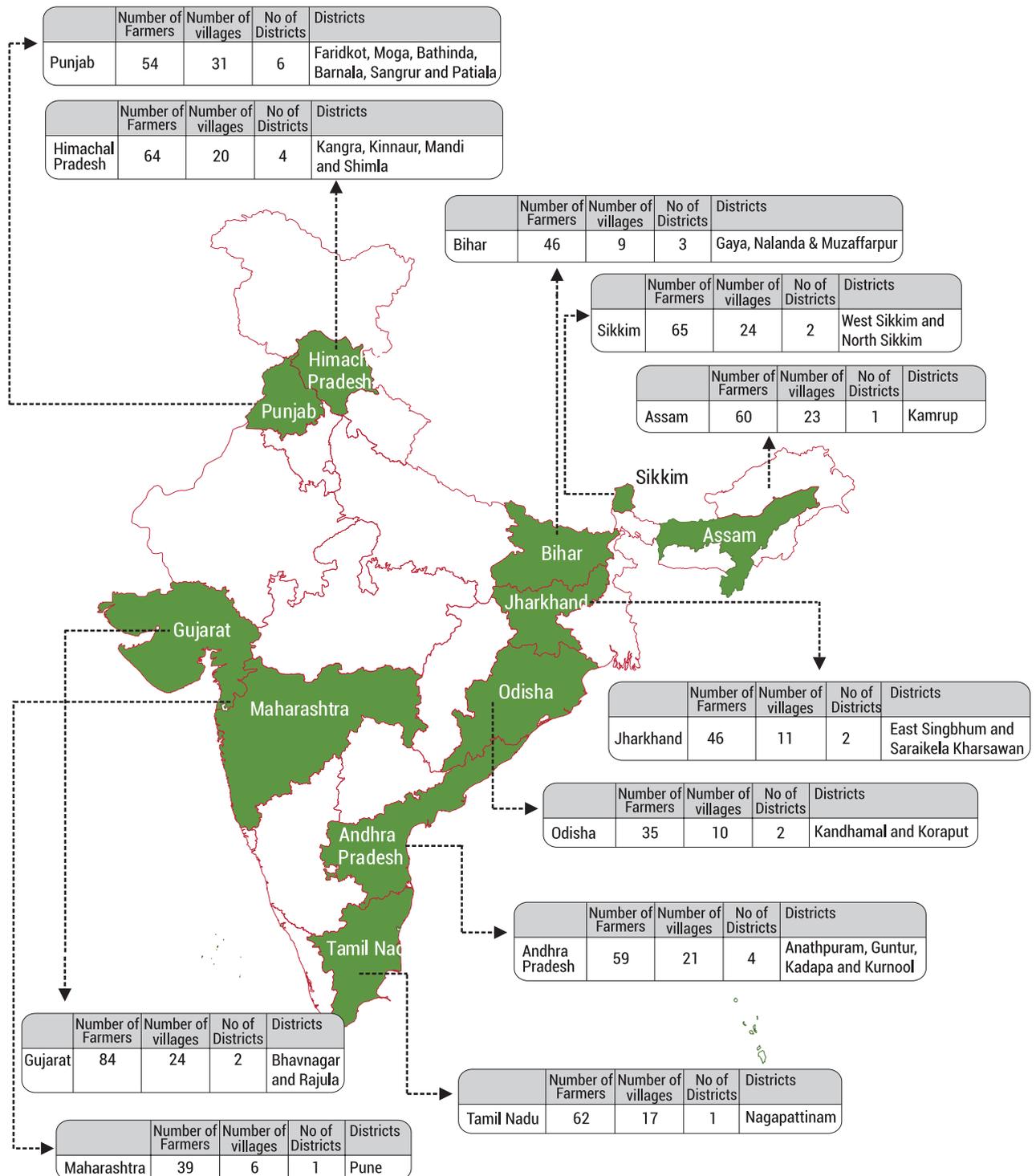
Farmers experience on various parameters are captured using an ordinal scale (significant decrease, marginal decrease, no change, marginal increase, and significant increase) with respect to the package of practices. Seven parameters of interest including cost of cultivation, labour requirement, drudgery, crop yield, price realisation, net farm income and number of crops cultivated, are studied.

Challenges faced by the farmers on adopting the package of practices or the barriers to adopt the package of practices, are captured through fourteen factors using a nominal scale (yes, no, and not applicable). The factors are identified and selected on the basis of literature review and preliminary field visits. It includes low yield, pest and disease, weed management, access to organic inputs, lack of knowledge, high labour requirement, drudgery, marketing challenges, price realisation, net income, credit requirements, difficulty in livestock management, lack of institutional support, irrigation constraints, rented land, and others. A category called 'stressed' is added to capture the critical factors emphasised by the farmer.

Data was collected through personal interviews with farmers, and several focus group discussions (FGDs) were also conducted to understand the collective reflection of the farmers.

4. Sample profile

A total of 620 farmers was interviewed across 196 villages from 28 districts in 11 states based on purposive sampling method. Farmers associated with the host agency as well as randomly selected farmers in the study villages were covered under the survey. An attempt was made to identify and survey the farmers who were trained by the host agency, and yet had not adopted the organic input practices, to capture the challenges faced by such farmers.

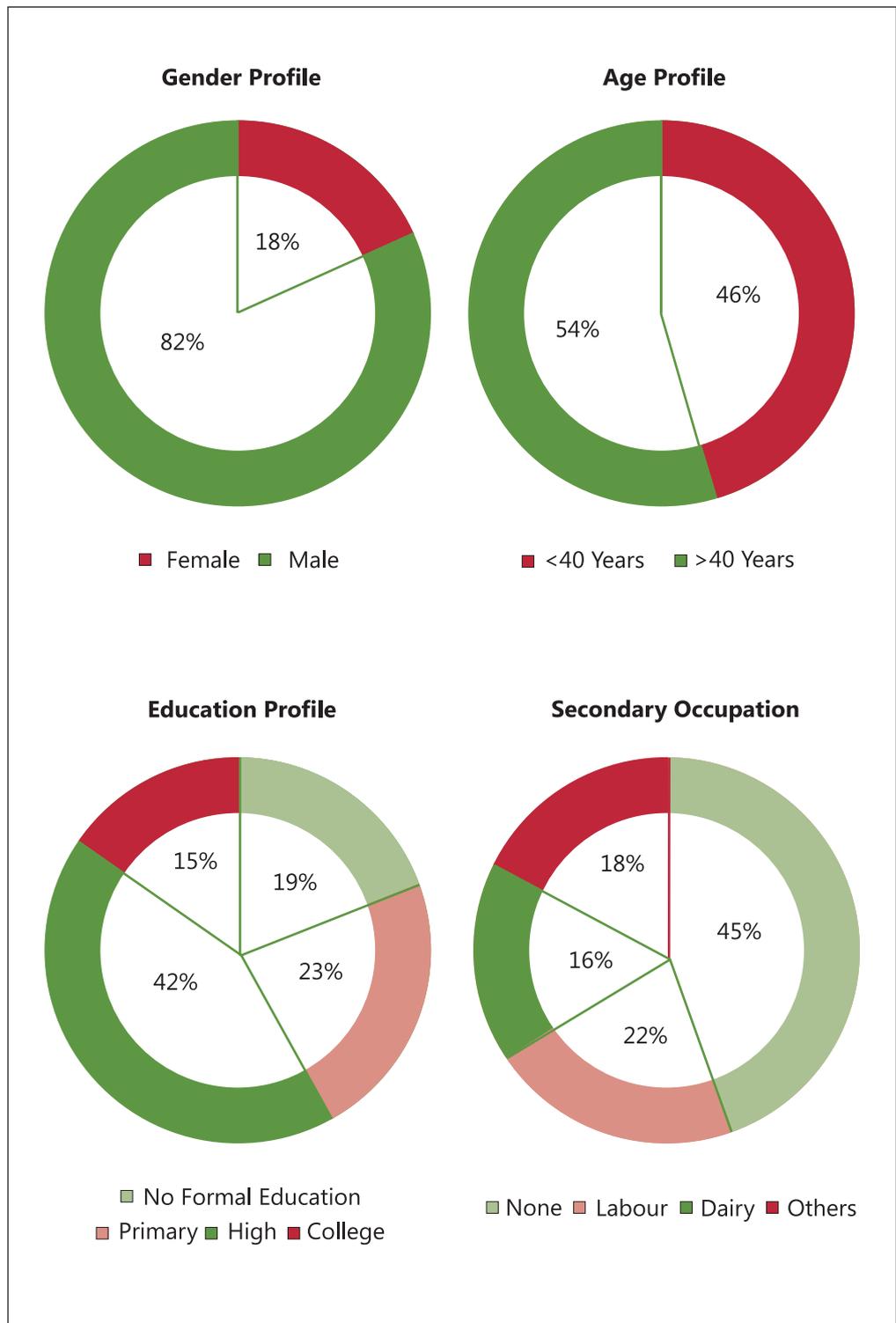


Overall Sample Coverage

Number of Farmers	Number of villages	No of Districts
620	196	28

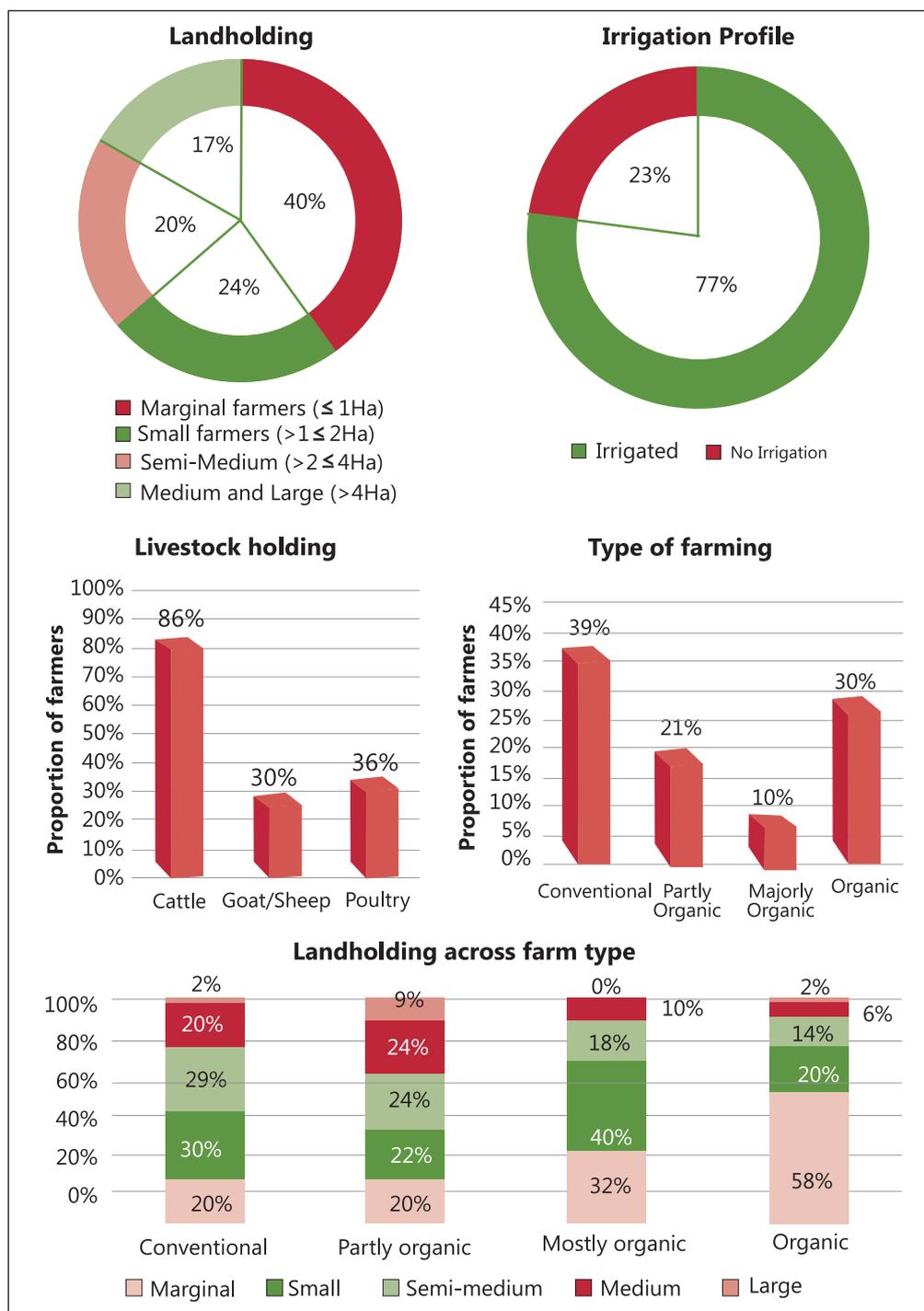
4.1 Farmer Profile

The overall sample has 18% women farmers, and 46% of the total farmers are aged 40 or less. 19% of the farmers have no formal education, and 23% have education upto primary. Two-third of the farmers are solely dependent on agriculture or work as daily wage labour for an alternate source of income. The remaining one-third have other sources of income like dairy farming, business, private job or government job.



4.2 Farm Profile

The farmer sample has 64% marginal and small-scale farmers with landholding of ≤ 2 Ha. 77% of the farmers have access to irrigation, and 90% of farmers owned some form of livestock. Based on the farming methods, farmers are categorised under four groups viz. organic (all cultivated land under organic practices), majorly organic ($>50\%$ but $<100\%$ of cultivated land under organic practices), partly organic ($\geq 1\%$ but $\leq 50\%$ of cultivated land under organic practices) and conventional (no cultivated land under organic practices) farmers. The sample has 39% conventional, 21% partly organic, 10% majorly organic and 30% organic farmers. Higher proportion of small and marginal farmers are predominantly practising organic methods and have all or majority of their landholding under organic farming.



5. Preamble to findings

As discussed in the methodology section, four aspects of adoption of the package of practices by farmers are detailed in this report. First, the findings from each state are discussed individually, followed by the overall findings across the states. This section gives an overview on presentation of findings from the study that would help in interpreting the following chapters. Due to a common pattern across the states, motivation factors for adopting organic farming practices are discussed below in this section itself. Adoption rate, experience and challenges vary significantly across the states and are presented state-wise in the following sections.

Motivation factors to adopt organic farming practices are found to be similar across the states, and the results across the states are given in Figure 5.1. Concerns on human health including producer and consumer health, is the most important factor with 83% of the farmers citing it as motivation to adopt organic practices. Conservation of soil health, agro-ecology, and self-reliance are cited by 76%, 50% and 36% of the farmers respectively as their motivation factors.

This section gives an overview on presentation of findings from the study that would help in interpreting the following chapters.

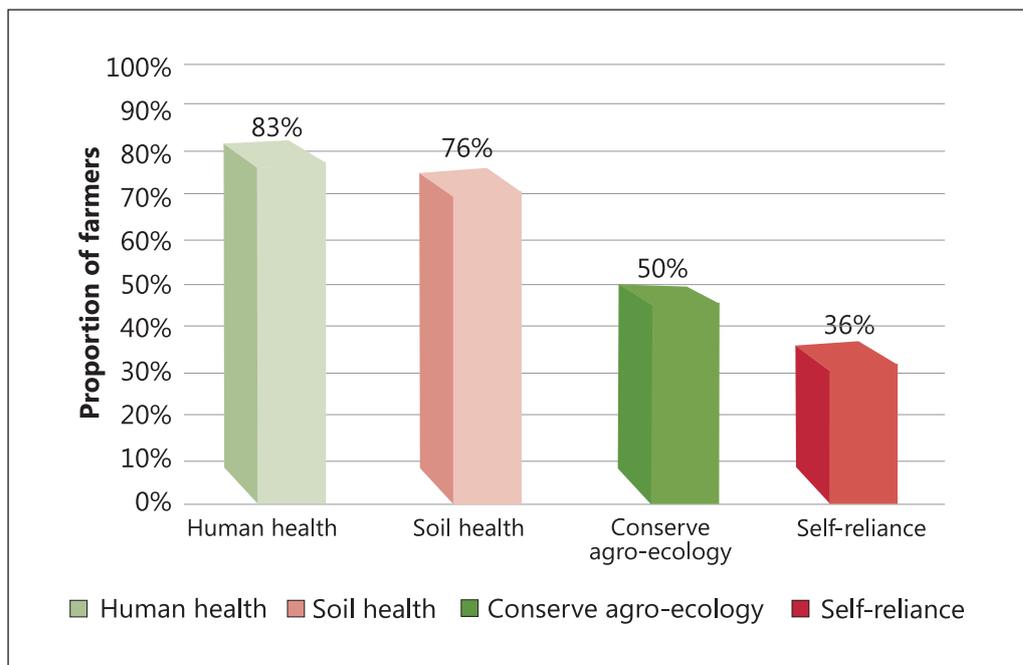


Figure 5.1: Motivation to adopt organic farming practices

Knowledge and adoption rate are presented in a triangular chart in terms of the proportion of farmers surveyed with the detail on the current state of adoption. It shows the proportion of farmers having knowledge about specific methods, farmers currently practising it, farmers who tried but discontinued it, and farmers who have never tried the method. The sum of practising, never tried and tried but discontinued adds up to the proportion of farmers with knowledge. The adoption rate which is the ratio of proportion of farmer practising to that of farmers having knowledge is given below the horizontal axis.

Farmers experience and perception are represented using a three-dimensional bar chart with the proportion of responded farmers, different response categories (increase, no change and decrease), and different parameters of interest as three axes. In order to make it reader-friendly, five-categories of responses are merged into three categories. Two categories 'Significant increase' and 'Marginal increase' are merged into a single category 'Increase', and another two categories 'Significant decrease' and 'Marginal decrease' are merged to form a single category 'Decrease'.

Challenges are reported in terms of the proportion of responded farmers citing the factor as a challenge and are presented using simple bar charts. Top five challenges reported in each state are given in the following sections, and the complete result is given in Appendix 1.

Chi-square statistic is used to test the independence of various farm and farmer characteristics over the challenges cited. This will help identify the relationship between the farm and farmer characteristics with respect to each of the challenge reported. Chi-square test is conducted across various groups of farmers categorised based on land size, type of farm, ownership of livestock, presence of secondary occupation, irrigation status, participation in training and age group. In order to avoid the complexity, we focus on results of the groups where the chi-square statistics indicated the presence of a relationship between the group characteristics with respect to each challenge factor at 95% confidence level. In simpler terms, if the P-value of chi-square statistics is <0.05 , it indicates a statistical relation between the group category and the challenge factor.

In the following sections, we discuss the general trend in major organic input to the farm and livestock population in each state, sample profile and package of practices promoted in the study location, and the highlights from the findings at each state level. The discussion on individual state is in the order of our field work. Followed by the sections on individual states, we discuss the trends across the entire sample surveyed by simple aggregation and comparison across the states.

This report covers only the key findings and highlights from data analysis and field studies. Since the landholding and education profile have a high degree of overlap, groups based on education profile is not detailed in this report. A separate report highlighting the gender aspects will be subsequently published. Contact the corresponding author for complete data analysis component.

6 Odisha

6.1 Background

The gross cropped area in Odisha has decreased by about 11% from 6 Million Ha in 1991-92 to 5.4 Million Ha in 2011-12. The livestock population has decreased by about 27% from 15.3 to 11.2 Million adult cattle. The quantity of FYM or compost applied to the field has decreased by over 36% from 11.1 MT to 7 MT with the proportion of cropped area treated with FYM or compost decreasing from 68% to 41%.

A set of 35 farmers was interviewed from 10 villages in the districts of Kandhamal and Koraput. 23% of the respondents were women farmers, and 59% of the respondents were small and marginal farmers. 94% of the farmers owned livestock, and only 31% of the farmers had access to irrigation. Most of the farmers are subsistence farmers with least or no link with market neither for inputs nor for selling their farm produce. The package of practice promoted by the local agencies include composting, *jivamrut* (liquid manures), *handikath* (leaf extracts), vermicomposting and line transplantation for paddy and millets.

Sample Profile

23%
Women farmers



59%
Small and marginal farmers



94%
Holds livestock



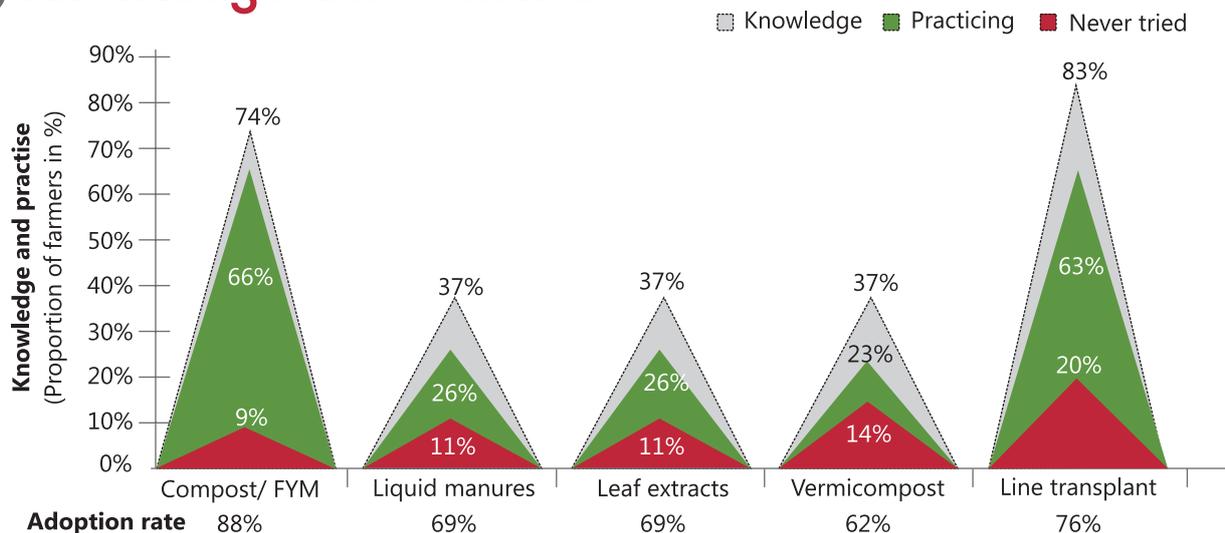
31%
Irrigated



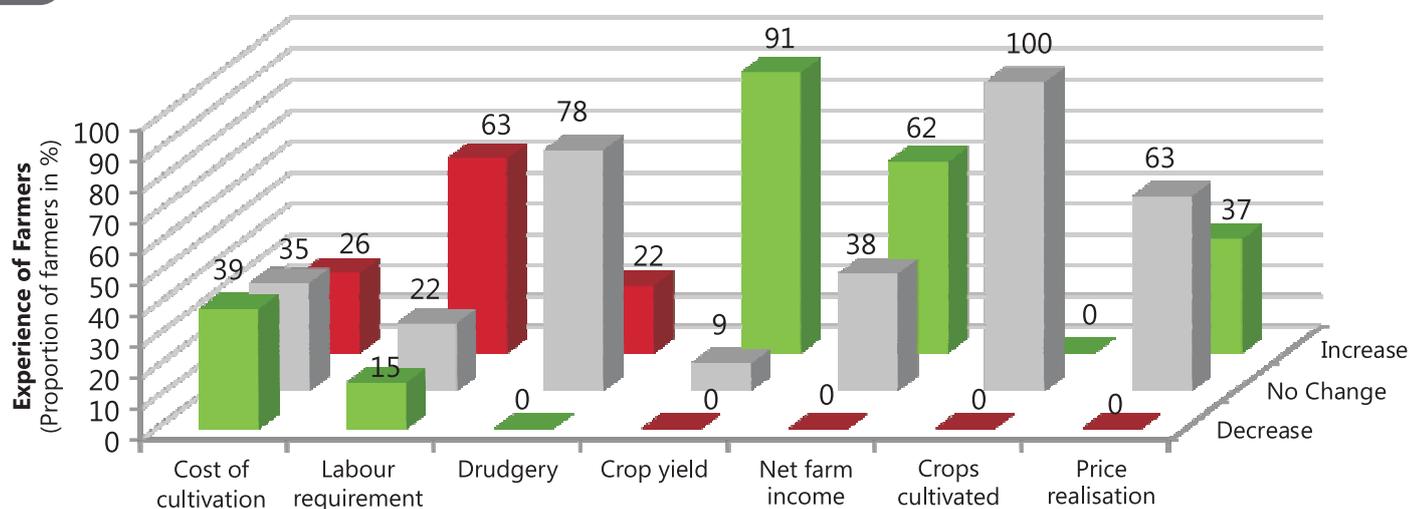
6.2 Highlights

1. Less than 40% of farmers have any exposure or knowledge about various organic farming practices like liquid manures and leaf extracts, and about 70% of those having any exposure have adopted it (See 6.3).
2. In contrast to several other states under the study, 91% of farmers reported that their yield per acre has increased due to the adoption of organic farming practices. This can be attributed to the no-input farming practised by the farmers before the adoption of organic practices (See 6.4).
3. Challenges in accessing organic inputs, fragmented land, irrigation constraints and lack of knowledge in organic farming practices are the most cited challenges in adopting organic farming practices. Labour requirement and drudgery are among the least reported challenges. Though over 90% of farmers have livestock, open grazing practice makes it very difficult for the farmers to collect the dung and store them for farm manure.
4. The sample size is too small for Chi-square test. However, the trends indicate that a significantly higher proportion of conventional farmers cited fragmented land and irrigation constraints as barriers. Similarly, a higher proportion of farmers with irrigation cited livestock management to be a challenge in adopting organic input practice (See 6.6). One possible explanation for this is that the availability of water for the second crop restricts farmers from allowing their livestock to open grazing.

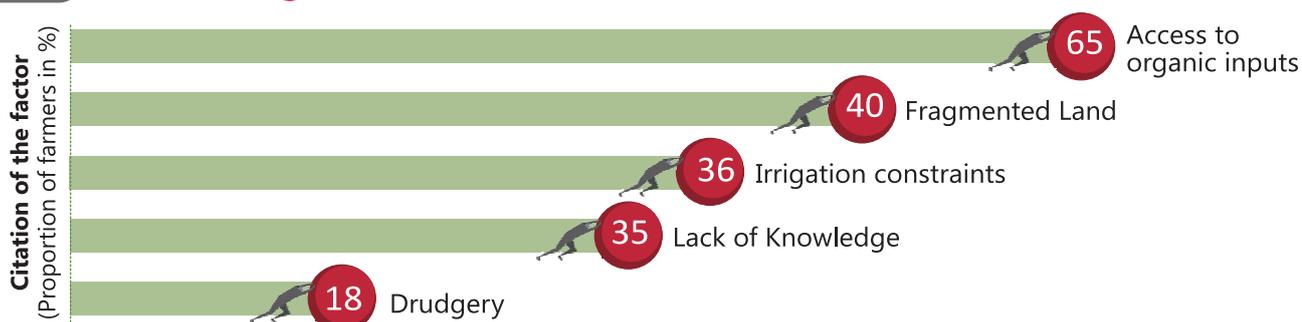
6.3 Knowledge and Practise



6.4 Experience



6.5 Challenges*



* See Appendix 1 for the complete data

6.6 Farm/farmer characteristics and challenges

Group (Proportion)	Fragmented land	Irrigation Constraints
Conventional farmers (58%)	62%	57%
Organic farmers (42%)	10%	0%

Group (Proportion)	Livestock Management
Irrigated (31%)	67%
Non-irrigated (69%)	6%

Refer to Chapter 5 for guidance on the interpretation of charts and tables.

7 Jharkhand

7.1 Background

The gross cropped area in Jharkhand is about 1.2 Million Ha in 2011-12, and it has a livestock population of about 9.5 Million adult cattle making the state to be the highest (8.1 adult cattle) in term of cattle per unit cropped land. However, only 26% of the gross cropped area is treated with FYM or compost, and the application rate is among the lowest with just about 2.3 tonnes per Ha.

A sample of 46 farmers was interviewed from 11 villages in the districts of East Singhbhum and Saraikela Kharsawan. 35% of them were women farmers, and about 85% of the respondents were small and marginal farmers. 83% of the farmers owned livestock like cattle and poultry, and 67% of the farmers had access to irrigation. The package of practice promoted by the local agencies includes composting, *jivamrut* (liquid manures), *dashparani* (leaf extracts), and vermicomposting.

Sample Profile

35%
Women farmers



85%
Small and marginal farmers



83%
Holds livestock



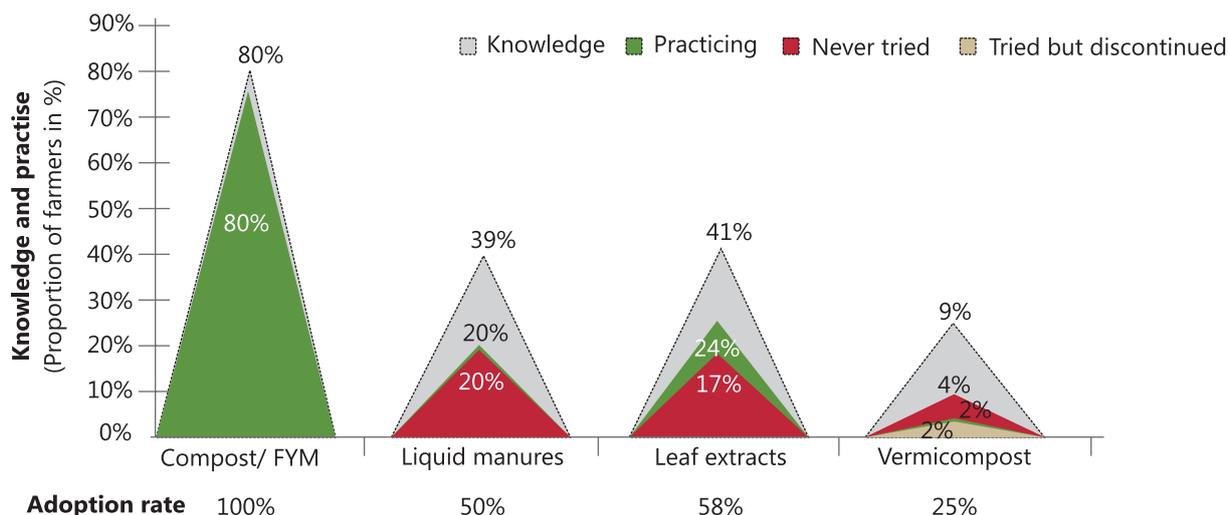
33%
Irrigated



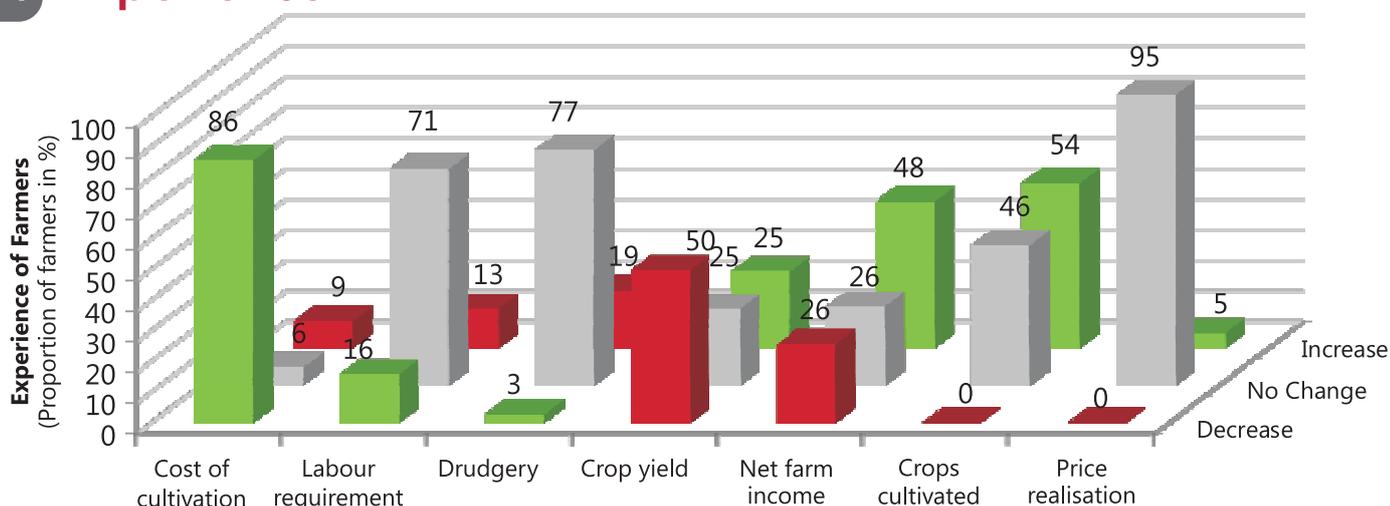
7.2 Highlights

1. Capacity on organic farming methods has been very limited with just about 40% of farmers having knowledge on organic farming practices like liquid manures (See 7.3). Further, in contrast to many other states, the adoption rate has also been very low. Often, farmers cited that a brief exposure program on organic farming by a corporate about twenty years back that was abruptly halted has created aversion among the farmers.
2. While 86% of farmers feel the cost of cultivation decreases with the adoption of organic farming practices, over 70% feel that drudgery and labour requirement for farming doesn't change much (See 7.4).
3. Similar to farmers in Odisha, the yield of farm produce has not been a major barrier to adopt organic farming. Lack of knowledge, access to organic inputs, difficulty in livestock maintenance and irrigation constraints are reported to be the major challenges in adopting organic methods (See 7.5).
4. Though the sample size is too small for Chi-square test, the trends indicate that the proportion of organic farmers reporting yield, or pest and diseases as a challenge is significantly less than that of conventional farmers. Similarly, a significantly higher proportion of farmers with a non-agriculture source of income has reported the maintenance of livestock as a challenge. Many farmers reported that their stall-feeding practice allows a household to manage only up to two livestock and they lack manpower to maintain more livestock (See 7.6).

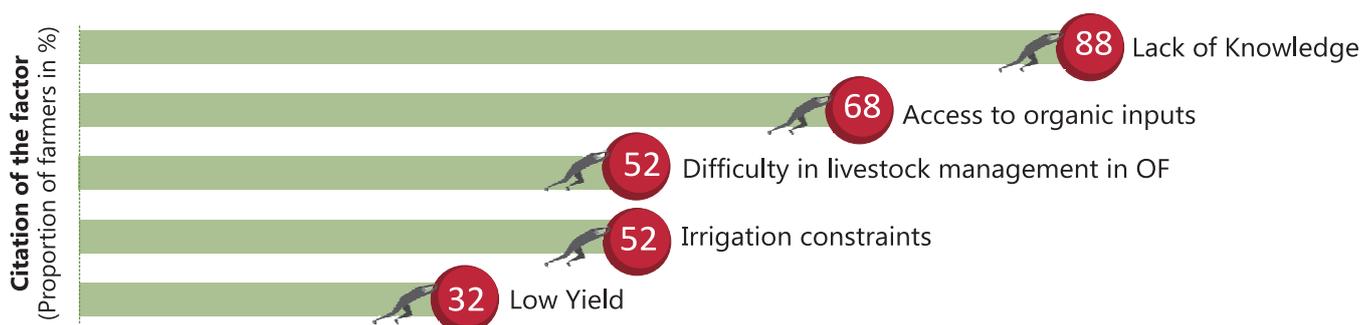
7.3 Knowledge and Practise



7.4 Experience



7.5 Challenges*



* See Appendix 1 for the complete data

7.6 Farm/farmer characteristics and challenges

Group (Proportion)	Low yield	Pest and diseases
Conventional (28%)	90%	67%
Organic (72%)	11%	0%

Group (Proportion)	Livestock Management
No Secondary occupation (83%)	42%
Has secondary occupation (17%)	86%

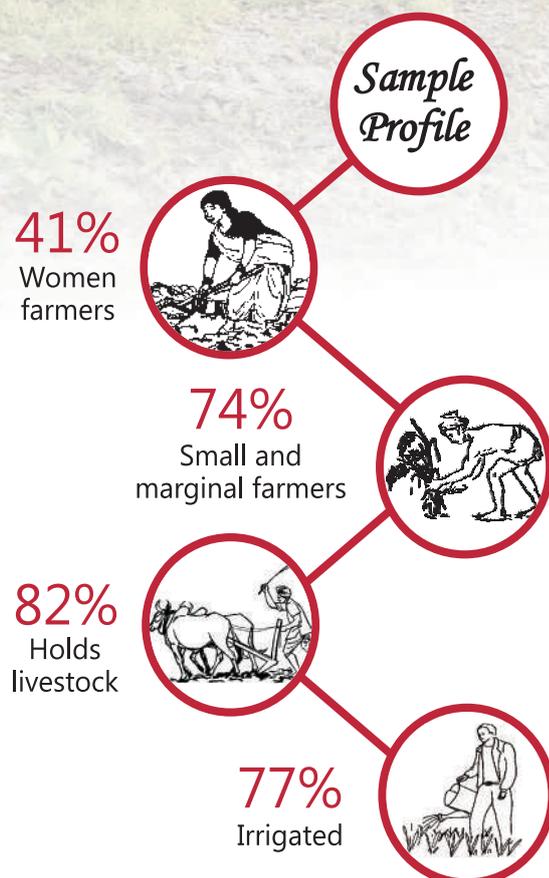
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

8 Maharashtra

8.1 Background

The gross cropped area in Maharashtra has increased by about 35% from 17.1 Million Ha in 1991-92 to 23 Million Ha in 2011-12. But the livestock population has drastically decreased by about 23% from 31.3 Million adult cattle to 24.1 Million adult cattle. During the period 2001-02 to 2011-12, the quantity of FYM or compost applied to the field has decreased by about 15% from 19.6 MT to 16.7 MT with the proportion of cropped area treated with FYM or compost decreasing from 53.2% to 28.4%.

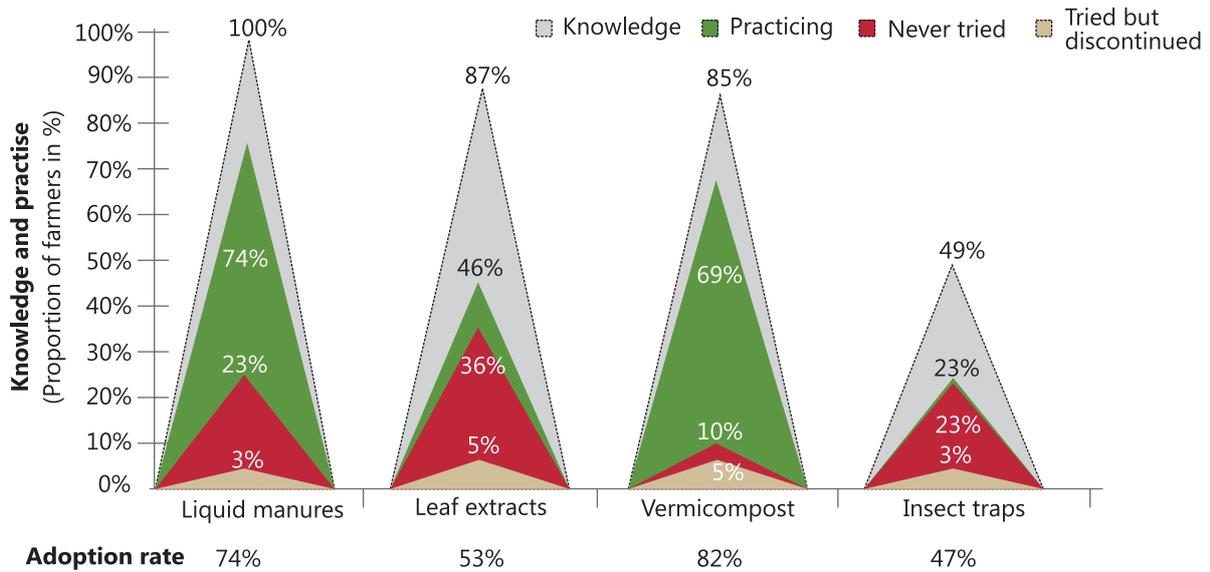
The study was conducted in 6 villages in Mulshi block of Pune district covering 39 farmers. 74% of the respondents were small and marginal farmers, and 41% of them were women farmers. 82% of the farmers owned livestock, and only 77% of the farmers had access to irrigation. The package of practice promoted by the local agencies includes *jivamrut* (liquid manures), *handikath* (leaf extracts), vermicomposting and insect traps. All the villages covered in the study are located within 25 KM from the Pune city.



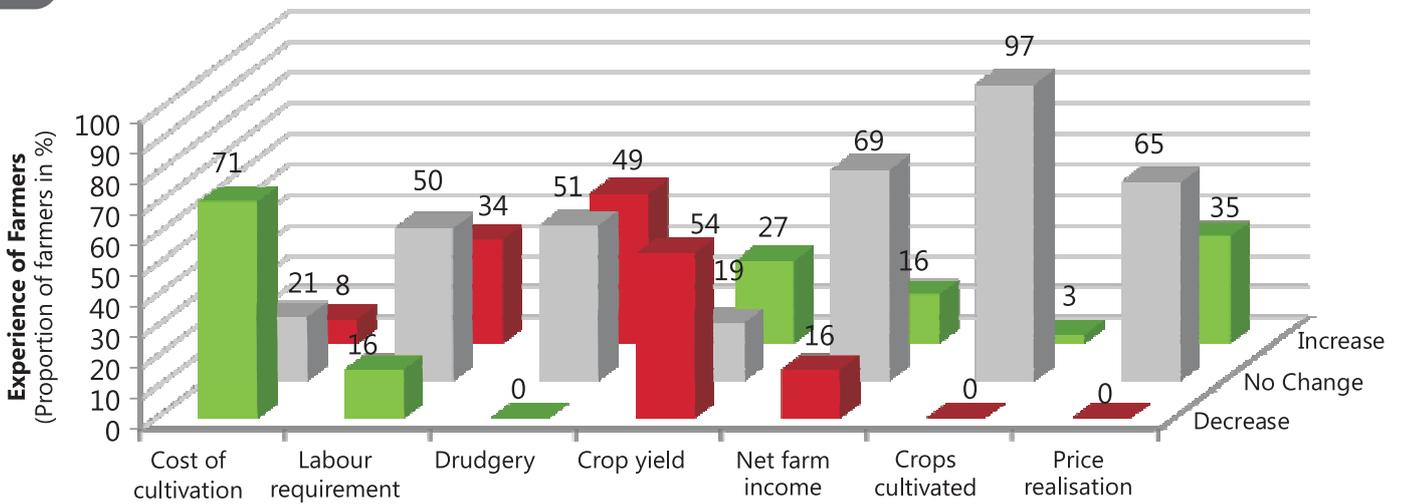
8.2 Highlights

1. All the farmers are trained or have exposure in organic farming practices. Adoption rate varied among different practices where nutrient management practices like *jivamrut* (liquid manures) and vermicompost have a higher adoption rate than pest control practices like *dhasparani* (leaf extracts) and insect traps (See 8.3). More than half of the interviewed farmers (58%) are practising organic methods only for self-consumption.
2. Over 70% of the farmers reported that the adoption of organic farming practices decreased the cost of cultivation, and over 50% reported that it has decreased their crop yield (See 8.4).
3. The top challenges cited by the farmers in adopting organic farming practices are yield (53%), price realization (52%), access to organic inputs (36%) and irrigation constraints (33%). Though farmers have reported an increase in the price realised for their organic produce, price realization has been reported to be a major challenge (See 8.5). This is often due to the fact that the farmers are able to sell only a part of their produce at a premium price and the remaining has to be sold at the market price.
4. Though Chi-square test showed no statistically significant relation, a higher proportion of farmers without secondary occupation has cited low yield and marketing as their challenges. Farmers with secondary occupation have a better market and price realisation due to their ability to sell the produce through the contacts made during their job (See 8.6). Almost half the sample farmers have a secondary occupation (in peri-urban areas).

8.3 Knowledge and Practise



8.4 Experience



8.5 Challenges*



* See Appendix 1 for the complete data

8.6 Farm/farmer characteristics and challenges

Group (Proportion)	Low Yield	Marketing constraint
No-Secondary occupation (54%)	67%	44%
With Secondary occupation (46%)	35%	11%
P-Value	0.054	0.091

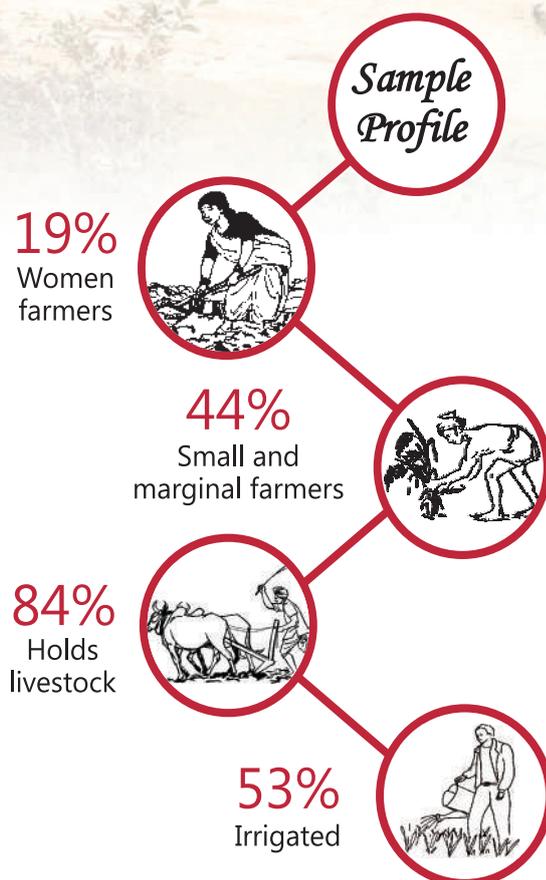
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

9 Himachal Pradesh

9.1 Background

The gross cropped area in the state has slightly increased by about 6% from 0.9 Million Ha in 1991-92 to 0.96 Million Ha in 2011-12. Himachal Pradesh is among the very few states, where the livestock population has increased during this period. The adult cattle population increased by about 15% from 3 Million adult cattle to 3.5 Million adult cattle. However, the quantity of FYM or compost applied to the field has decreased by about 5% from 3.8 MT to 3.6 MT with the proportion of cropped area treated with FYM or compost decreasing from 79% to 60%.

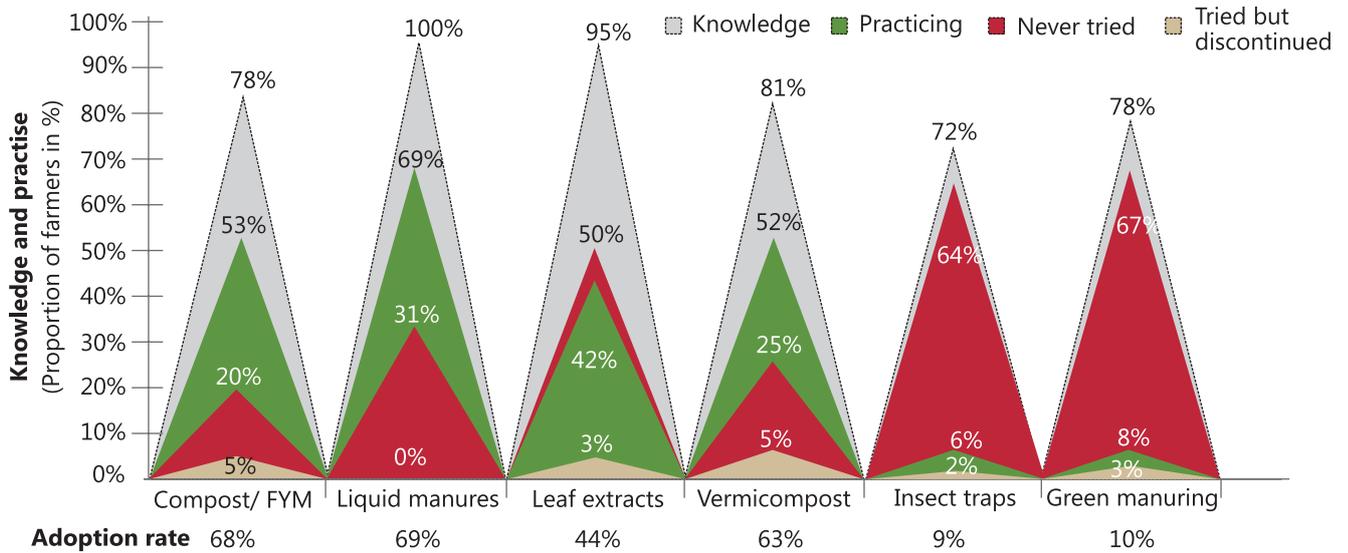
The study was conducted across 20 villages in the districts of Kangra, Kinnaur, Mandi and Shimla covering 64 farmers. 44% of them were small and marginal farmers, and 19% of the respondents were women farmers. 84% of the farmers owned livestock, and only 53% of the farmers had access to irrigation. The package of practice promoted by the local agencies includes *jivamrut* (liquid manures), *dashparani* (leaf extracts), vermicomposting, insect traps and green manuring.



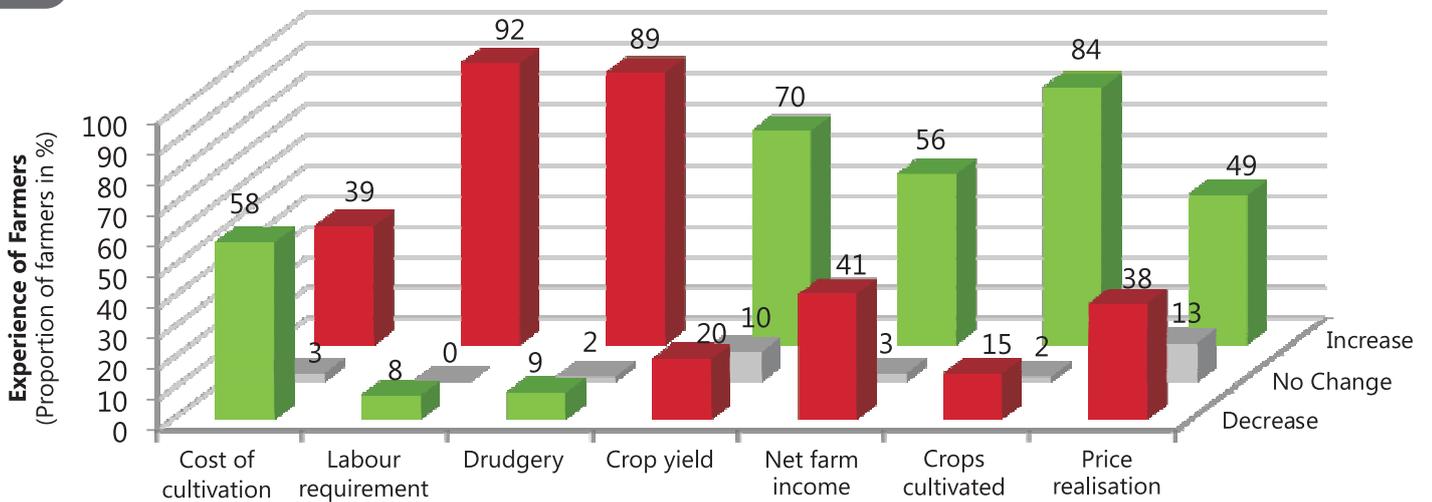
9.2 Highlights

1. Though the knowledge on organic farming practices is very high ranging from 72% to 100%, the adoption rate has been very low ranging from 69% to 9% of farmers (See 9.3).
2. A majority of farmers reported an increase in labour requirement, drudgery and number of crops cultivated. Price realisation, net income and cost of cultivation have mixed response with a significant proportion of farmers reporting increase and decrease (See 9.4).
3. Compared to other states, a large number of factors have been reported as challenges by the farmers in Himachal Pradesh. Among these factors, drudgery, high labour requirement, marketing and lack of knowledge have been found to be the biggest four challenges (See 9.5).
4. Chi-square test showed that a significantly high proportion of farmers practising organic farming has reported low yield, lack of access to organic inputs and lack of institutional support as challenges compared to those not practising organic methods. A higher proportion of conventional farmers has cited difficulty in livestock management as a challenge. While higher proportion of farmers with irrigation cited low yield and pest and diseases as challenges, higher proportion of non-irrigated farmers have cited weed management and lack of institutional support as challenges (See 9.6). In the case of crop categories, higher proportion of farmers cultivating pulses and fruits cited lack of knowledge as challenges. Similarly, higher proportion of non-pulses and non-fruits farmers have cited price realisation and lack of institutional support as challenges respectively.

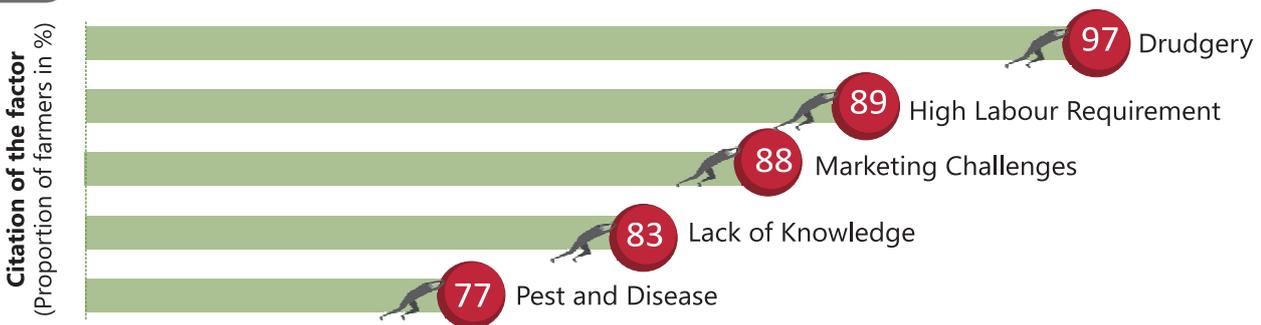
9.3 Knowledge and Practise



9.4 Experience



9.5 Challenges*



* See Appendix 1 for the complete data

9.6 Farm/farmer characteristics and challenges

Group (Proportion)	Low Yield	Access to organic input	Livestock Management	Lack of institutional support	Group (Proportion)	Low Yield	Pest and diseases	Weed Management	Lack of institutional support
Conventional (23%)	33%	13%	100%	20%	Irrigated (53%)	75%	88%	44%	35%
Organic (77%)	67%	80%	54%	57%	Non-irrigated (47%)	43%	63%	77%	63%
P-Value	0.020	0.00	0.021	0.011	P-Value	0.014	0.019	0.008	0.025

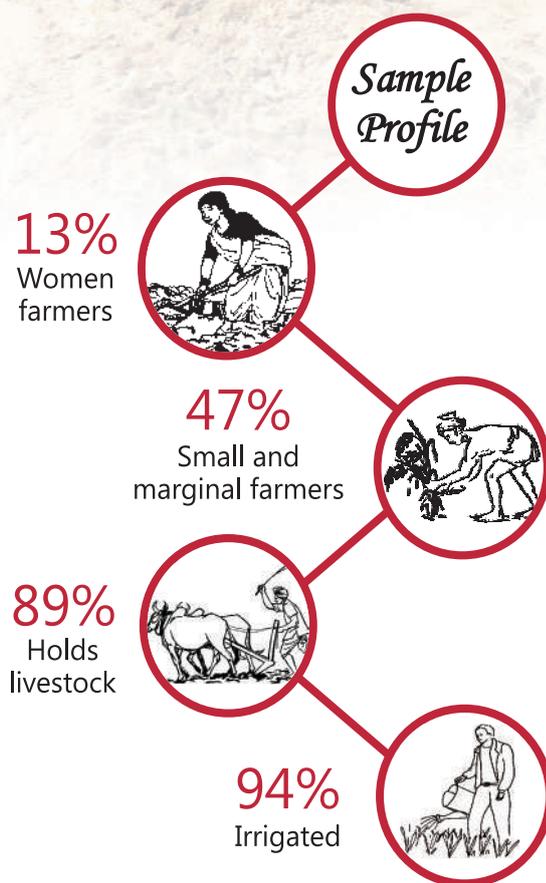
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

10 Tamil Nadu

10.1 Background

The gross cropped area in the state has increased by about 7% from 5.2 Million Ha in 1991-92 to 5.6 Million Ha in 2011-12. But the livestock population has decreased by about 15% from 13 Million adult cattle to 11.1 Million adult cattle. Though the proportion of cropped area treated with FYM or compost has increased from 32% to 49%, the total quantity of FYM or compost applied has drastically decreased from 51 MT to 8.4 MT.

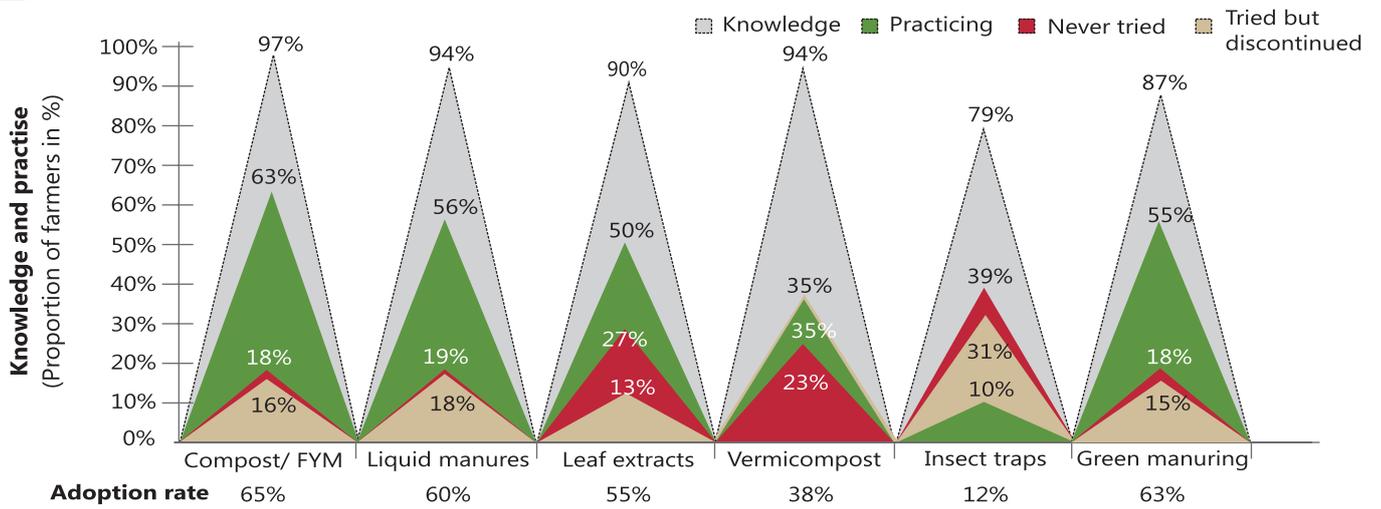
A total of 62 farmers were interviewed from 17 villages in the district of Nagapattinam. 47% of them were small and marginal farmers, and only 13% of the respondents were women farmers. 89% of the farmers owned livestock, and 94% of the farmers had access to irrigation. The package of practice promoted by the host agency includes *panchagavyam* (liquid manures), *ilaikaraisal* (leaf extracts), vermicomposting, insect traps and green manuring.



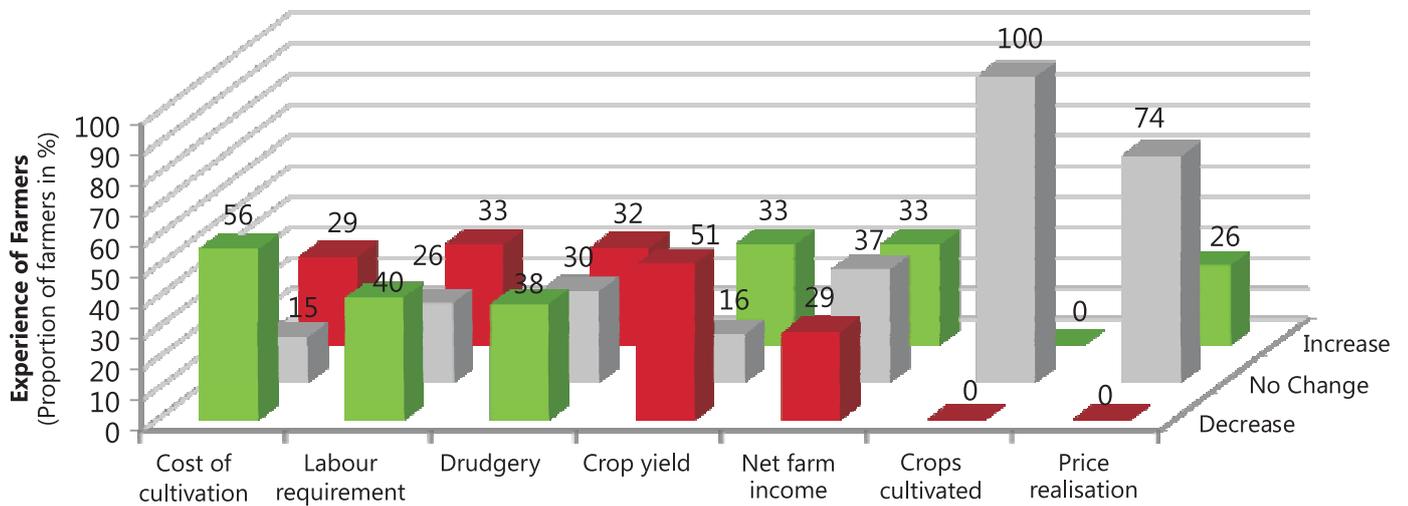
10.2 Highlights

1. While almost all the farmers surveyed are trained in most of the organic management practices, the adoption rate has been low, especially on the pest management practices (See 10.3).
2. Most of the factors like crop yield, net income, labour requirement and drudgery has got mixed response with a similar proportion of farmers reporting an increase or decrease. While 56% of farmers reported a decrease in the cost of cultivation, only 26% of farmers reported better price realisation for their organic produce (See 10.4).
3. Drudgery, weed management, low yield and price realization are the biggest challenges in adopting organic farming practices with 95%, 85%, 75% and 73% of the farmers citing them respectively (See 10.5).
4. Chi-square test showed that a significantly higher proportion of conventional farmers reported the threat of pest and diseases and higher labour requirement as barriers. A larger proportion of farmers with farming as their only source of income has cited labour requirement and price realisation as a challenge in adopting organic farming practices (See 10.6).

10.3 Knowledge and Practise



10.4 Experience



10.5 Challenges*



* See Appendix 1 for the complete data

10.6 Farm/farmer characteristics and challenges

Group (Proportion)	Pest and Diseases	Labour Requirement	Group (Proportion)	Labour requirement	Price realisation
Conventional (48%)	80%	69%	No Secondary occupation (84%)	48%	79%
Organic (52%)	16%	19%	Has Secondary occupation (16%)	10%	50%
P-Value	0.000	0.001	P-Value	0.027	0.062

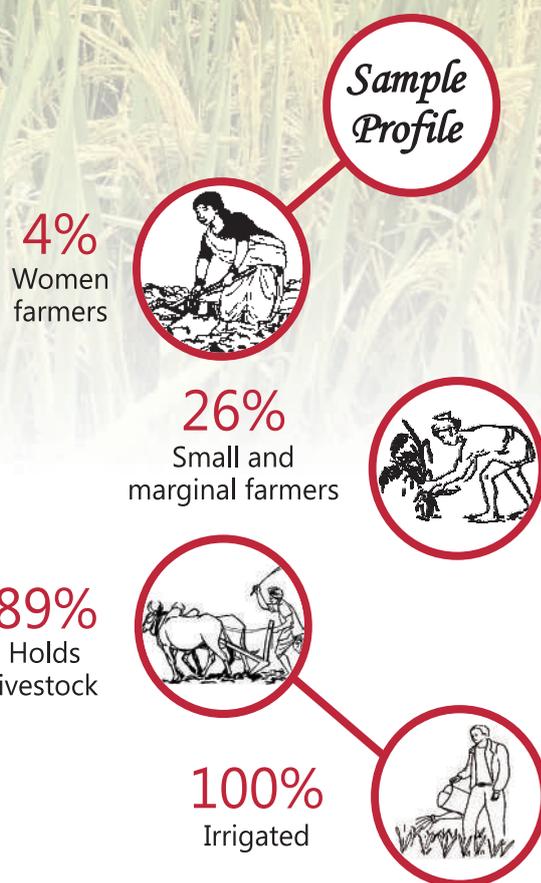
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

11 Punjab

11.1 Background

The gross cropped area in the state was 7.8 Million Ha during 2011-12 and has not changed significantly from 1991-92. But the livestock population has decreased by about 18% from 7.2 Million adult cattle to 5.9 Million adult cattle. The proportion of cropped area treated with FYM or compost has significantly decreased from 30% to 11%, and the total quantity of FYM or compost applied has decreased from 27.8 MT to 7.2 MT.

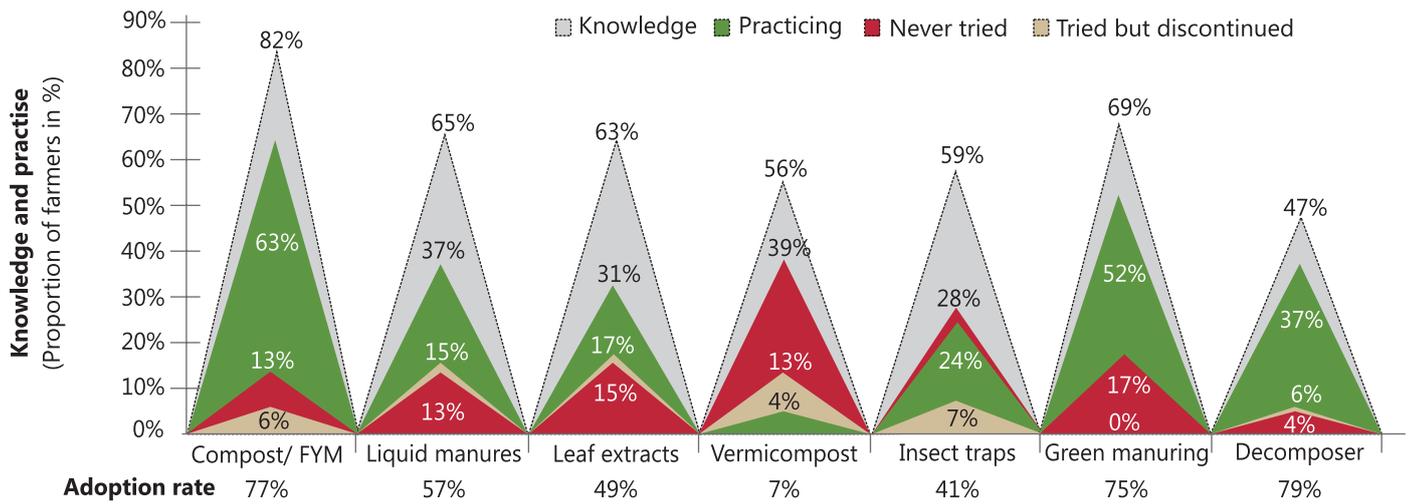
A total of 54 farmers were interviewed from 31 villages across six districts - Faridkot, Moga, Bathinda, Barnala, Sangrur and Patiala. Only 26% of them were small and marginal farmers, and 4% of the respondents were women farmers. 89% of the farmers owned livestock, and all the farmers had access to irrigation. The package of practice promoted by the host agency includes *jivamrut* (liquid manures), *dashparani* (leaf extracts), vermicomposting, insect traps, green manuring and decomposer.



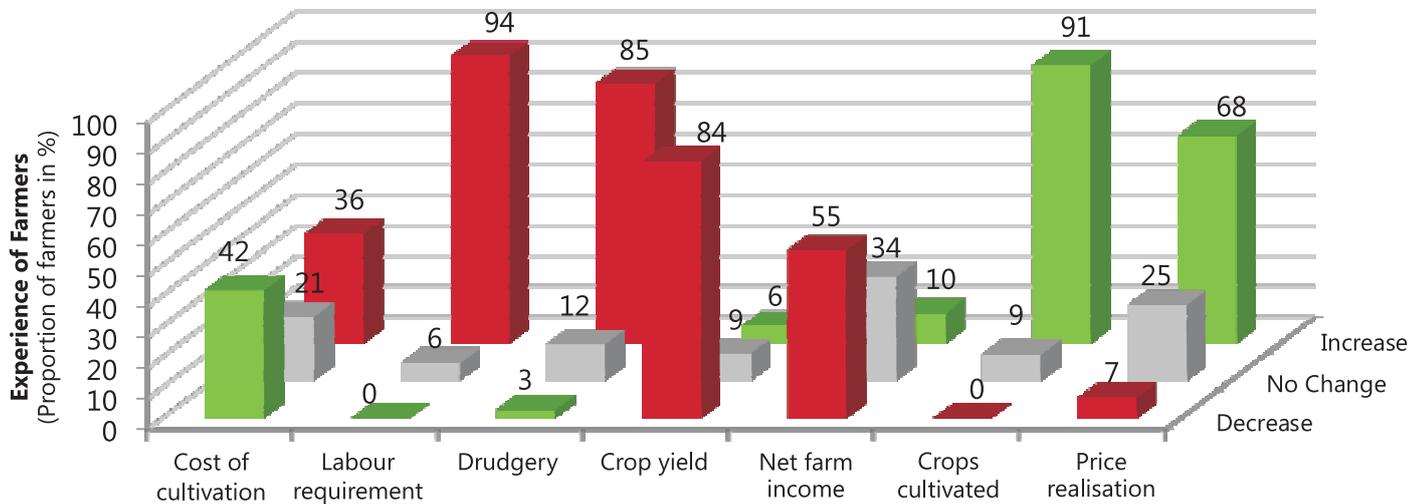
11.2 Highlights

1. About 60% of farmers had knowledge of organic farming methods (See 11.3). While the majority of them have tried organic farming practices, many of them have discontinued practices like vermicompost, due to various reasons ranging from lack of labour to "not required anymore".
2. Over 85% of farmers have reported an increase in labour requirement and drudgery involved on the adoption of organic farming practices (See 11.4). Though a majority of farmers reported a decrease in crop yield and net income, they have also reported an increase in the number of crops cultivated and the price realised for their farm produce.
3. While knowledge or availability of organic inputs is among the least cited challenges, labour requirement (88%), marketing challenges (85%) and low yield (81%) are the most reported challenges by the farmers in adopting organic farming methods (See 11.5).
4. Chi-square test showed that a significantly lesser proportion of farmers practicing organic farming cited price realisation and income as a challenge. Similar to the cases in a few other states, a higher proportion of farmers with secondary occupation has cited the management of livestock as a challenge in adopting organic farming practices (See 11.6).
5. Many farmers who were practising organic farming methods report to face social pressure from family as well as from neighbouring farmers. While the family is concerned about losing the potential financial gains using intensive chemical farming, neighbours often mock at the idea of laborious work in adopting organic farming practices. Further, in contrast to organic farmers in most of the states who aspire for a 30-50% premium for organic produce, farmers in Punjab expect a 100-150% premium for their organic produce.

11.3 Knowledge and Practise



11.4 Experience



11.5 Challenges*



* See Appendix 1 for the complete data

11.6 Farm/farmer characteristics and challenges

Group (proportion)	Price realisation	Net income
Conventional (37%)	93%	85%
Organic (63%)	50%	39%
P-Value	0.004	0.005

Group (Proportion)	Livestock Management
No secondary occupation (57%)	41%
With secondary occupation (43%)	75%
P-Value	0.02

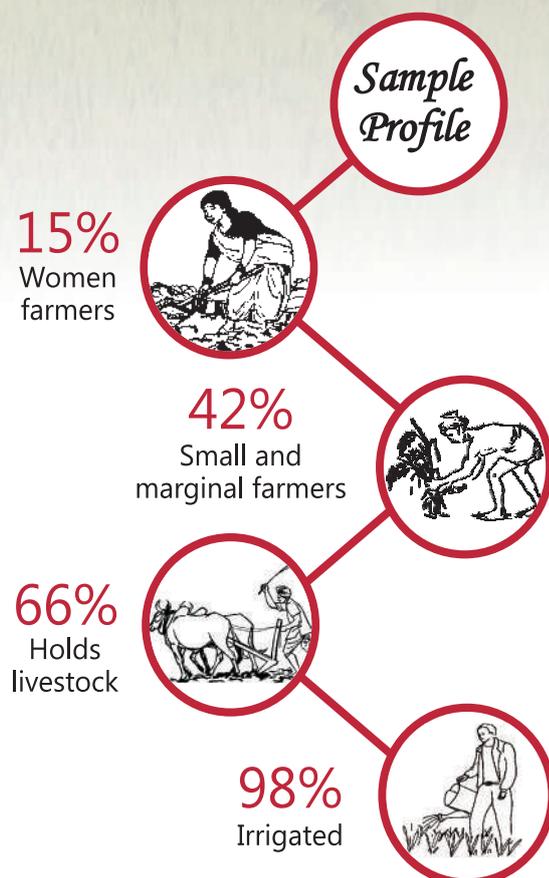
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

12 Andhra Pradesh

12.1 Background

The gross cropped area in the state has marginally decreased from 14.3 Million Ha in 1991-92 to 14.2 Million Ha in 2011-12. But the livestock population has decreased by about 32% from 31.2 Million adult cattle to 21.1 Million adult cattle. While the proportion of cropped area treated with FYM or compost has decreased from 39% to 30%, the total quantity of FYM or compost applied has drastically decreased by about 44%, from 28 MT to 15.8 MT.

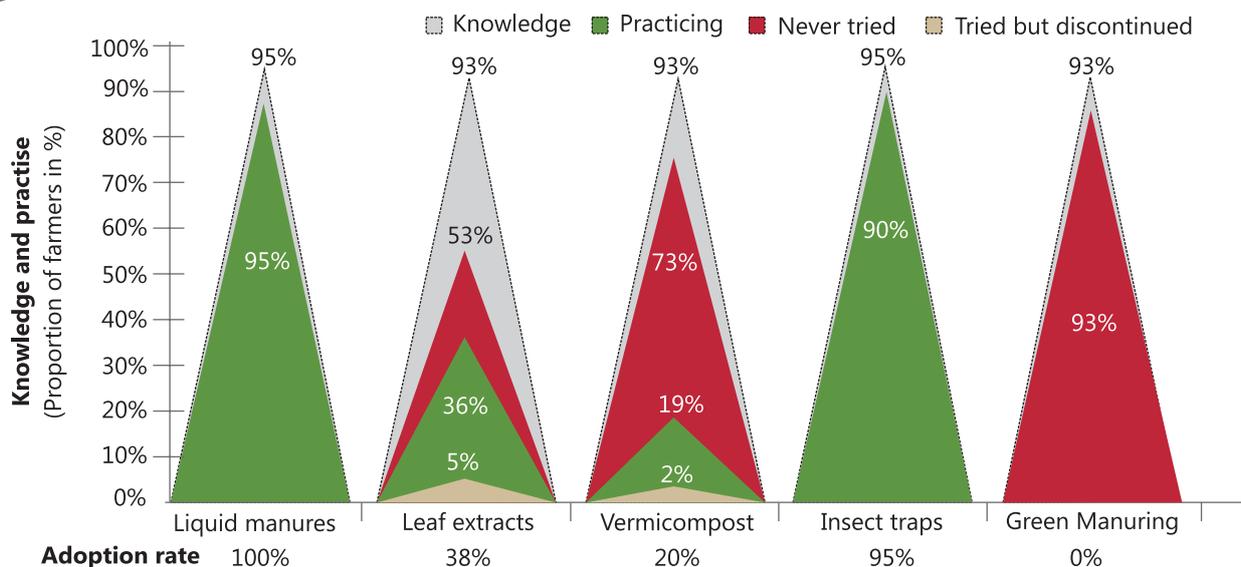
A total of 59 farmers were interviewed from 21 villages across the districts of Anathpuram, Guntur, Kadapa and Kurnool. 42% of them were small and marginal farmers, and only 15% of the respondents were women farmers. 66% of the farmers owned livestock, and 98% of the farmers had access to irrigation. The package of practice promoted includes jivamrut (liquid manures), dashparani (leaf extracts), vermicomposting, insect traps and green manuring.



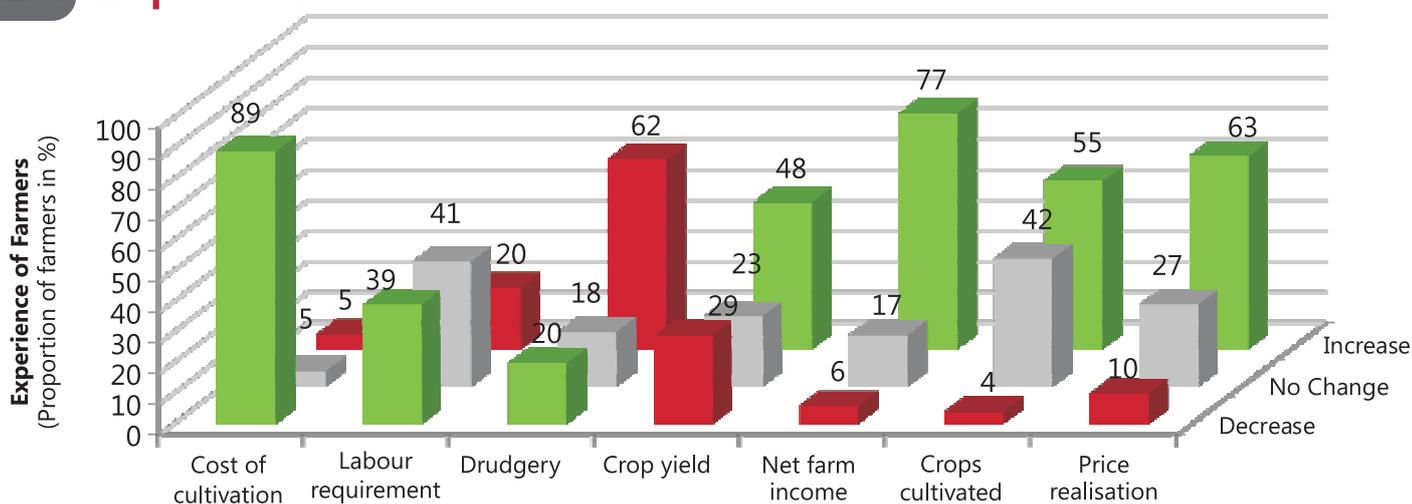
12.2 Highlights

1. Adoption rate has been very good for a few practices like liquid manures and insect traps with over 90% of farmers having the knowledge and practising the same (See 12.3). However, practices like green manuring, vermicompost and biopesticides are not being practised by most of the farmers.
2. Though 62% of farmers reported an increase in drudgery on adopting organic farming practices, 89% reported a decrease in the cost of cultivation, and 77% reported an increase in their net income (See 12.4).
3. Market linkage, price realization, low yield and weed management are the top challenges with 79%, 78%, 76% and 70% of farmers citing them as challenges in adoption of organic farming practices respectively (See 12.5).
4. Chi-square test shows that a significantly higher proportion of farmers without livestock are found to cite pest and disease and livestock management as a challenge in adopting organic farming practices. Further, a significantly higher proportion of farmers cultivating vegetables (See 12.6), fruits and pulses have cited various challenges, compared to those not cultivating these crops.
5. Interestingly, though only 29% of farmers have reported a decrease in yield on shifting to organic farming, low yield was cited to be a challenge by 70% of farmers (See 12.4 & 12.5). This is often attributed to the decrease in yield during the transition period.
6. Many farmers cultivating on leased land cited the yearly rent payment obliged to landowner act as a barrier for shifting into organic farms. The shortfall in yield during the initial years of conversion and a corresponding decrease in income would make it impossible to pay their annual dues.

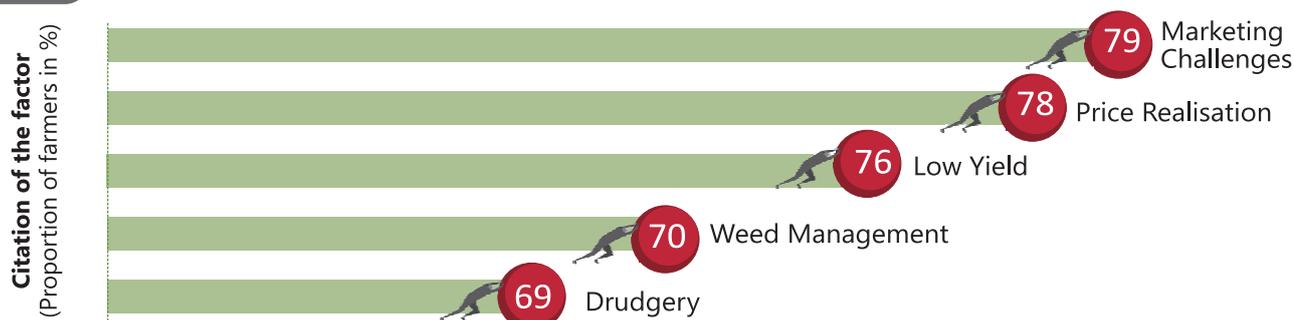
12.3 Knowledge and Practise



12.4 Experience



12.5 Challenges*



* See Appendix 1 for the complete data

12.6 Farm/farmer characteristics and challenges

Group (Proportion)	Pest and diseases	Livestock Management	Group (Proportion)	Pest and diseases	Weed Mang.	Access to organic input	Lack of Knowledge	Lack of institutional support
Livestock (66%)	32%	38%	Vegetables (42%)	64%	88%	52%	44%	80%
No-livestock (34%)	60%	83%	Non-vegetables (58%)	24%	58%	26%	15%	44%
P-Value	0.037	0.006	P-Value	0.002	0.015	0.044	0.015	0.006

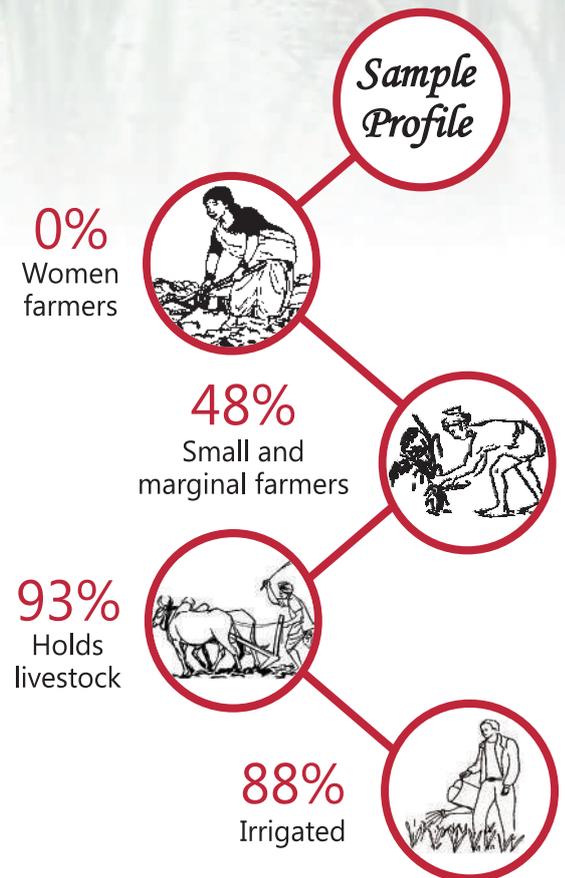
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

13 Gujarat

13.1 Background

The gross cropped area in the state has marginally increased from 10.3 Million Ha in 1991-92 to 10.5 Million Ha in 2011-12. The livestock population has increased by about 25% from 15 Million adult cattle to 18.8 Million adult cattle. Though the cattle population has increased significantly, the proportion of cropped area treated with FYM or compost has decreased drastically from 40% to 7% and the total quantity of FYM or compost applied has dropped from 19 MT to 2.5 MT.

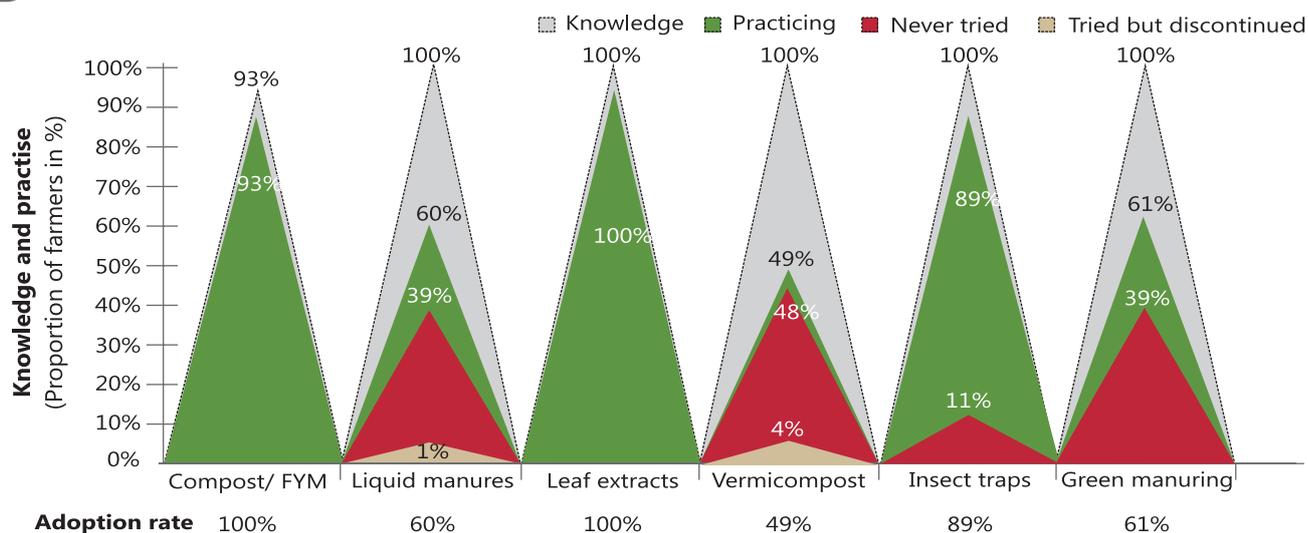
A total of 84 farmers were interviewed from 24 villages of Bhavnagar and Rajula districts. All the respondents were male farmers, and about 48% of the farmers were small and marginal farmers. 93% of the farmers owned livestock, and 88% of the farmers had access to irrigation. The package of practice promoted by the host agency includes jivamrut (liquid manures), dashparani (leaf extracts), vermicompost, insect traps and green manuring.



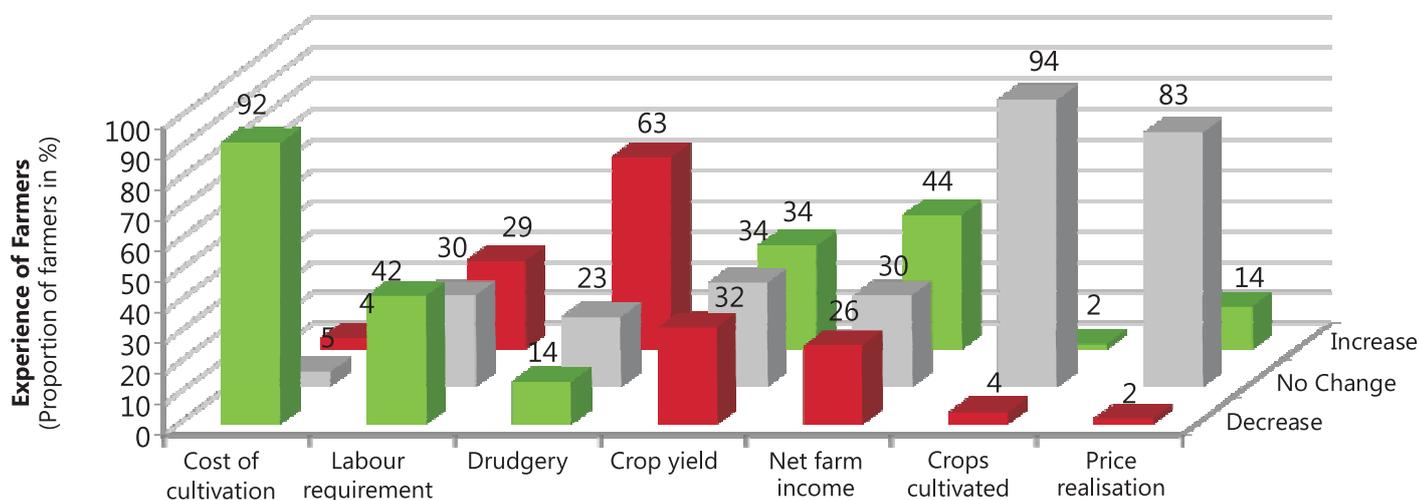
13.2 Highlights

1. All the farmers covered in the sample are trained farmers. While the adoption rate was high in case of pest management-related practices like leaf extracts and insect traps, adoption of green manuring and liquid manures has been very low (See 13.3).
2. 92% of the farmers perceived a decrease in the cost of cultivation, and 63% of the farmers perceived an increase in drudgery on adopting organic farming practices (See 13.4). Most of the other factors like labour requirement, crop yield and net income has got mixed response.
3. Marketing, price realization, weed management and lack of institutions are the most cited challenges with 88%, 84%, 79% and 76% of farmers reporting them to be the barriers in adopting organic farming practices respectively (See 13.5).
4. While chi-square tests did not show relation across most groups, compared to older farmers, a higher proportion of younger farmers cited several factors like pest and diseases, labour requirement, drudgery, marketing and price realisation as challenges (See 13.6).

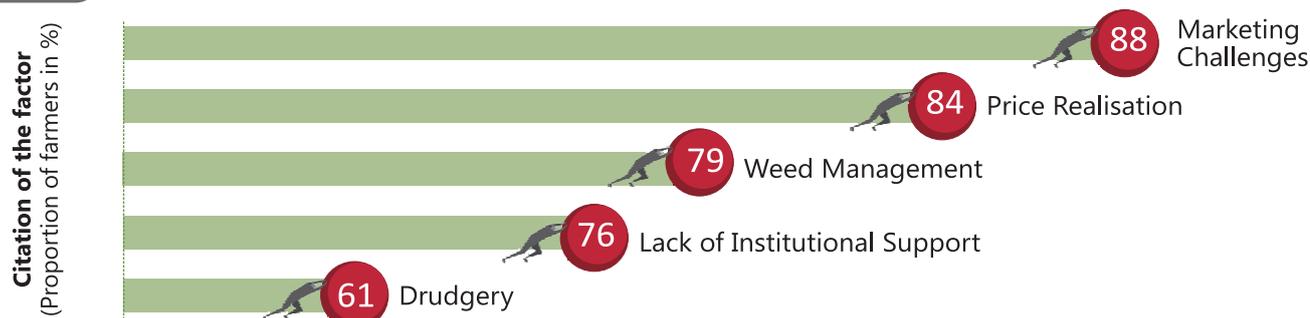
13.3 Knowledge and Practise



13.4 Experience



13.5 Challenges*



* See Appendix 1 for the complete data

13.6 Farm/farmer characteristics and challenges

Group (Proportion)	Pest and diseases	Labour Requirement	Drudgery	Marketing constraint	Price Realisation
Young (50%)	71%	63%	76%	95%	95%
Old (50%)	43%	38%	48%	81%	74%
P-Value	0.010	0.027	0.088	0.052	0.076

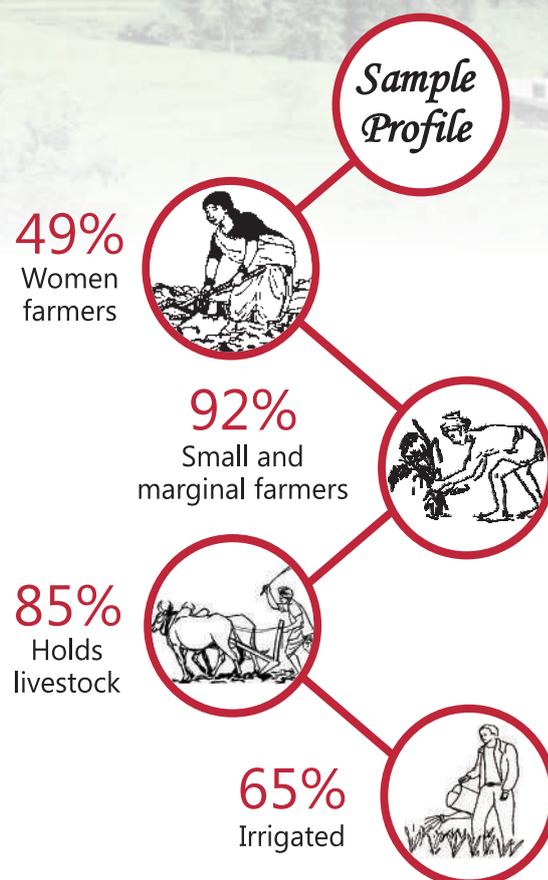
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

14 Sikkim

14.1 Background

The gross cropped area in the state has decreased from 93,000 Ha in 1991-92 to 91,000 Ha in 2011-12. The livestock population has also decreased by about 13% from 1.5 lakh adult cattle in 1996-97 to 1.3 lakh adult cattle in 2011-12. However, Sikkim is one of the very few states where the proportion of cropped area treated with FYM or compost has increased drastically from 14% to 75%. The total quantity of FYM or compost applied has also increased multifold from about 1 MT to 3.4 MT.

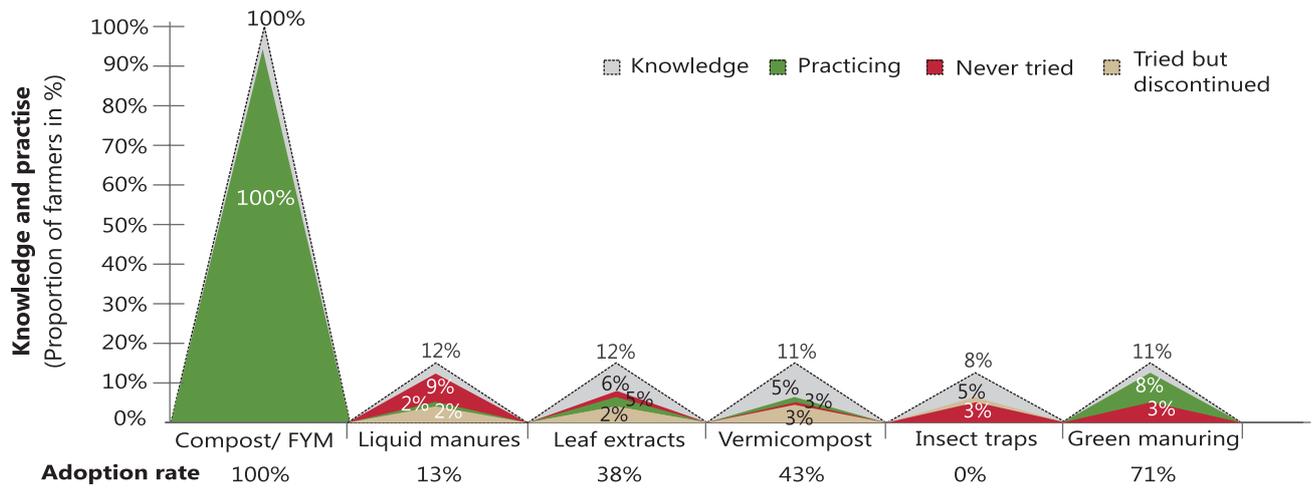
A total of 65 farmers were interviewed from 24 villages in the districts of West Sikkim and North Sikkim. 92% of them were small and marginal farmers, and 49% of the respondents were women farmers. 85% of the farmers owned livestock, and 65% of the farmers had access to irrigation.



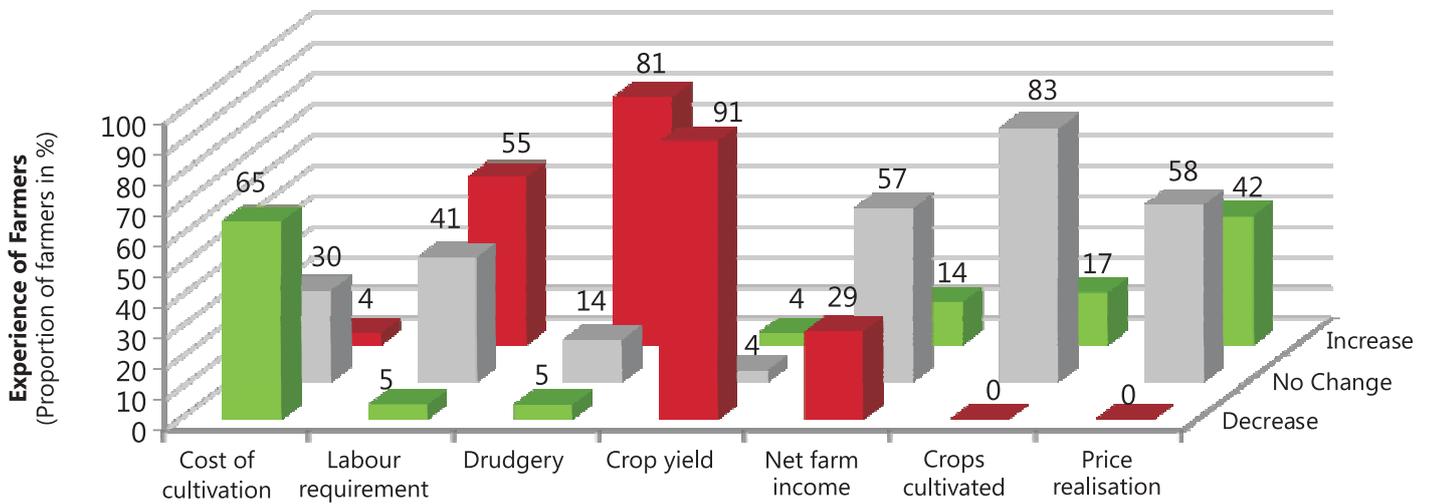
14.2 Highlights

1. In spite of being declared as an Organic State, less than 12% of farmers reported to have knowledge on organic farming methods, and not more than 8% of them were practising them (See 14.3).
2. While 62% of farmers reported a decrease in the cost of cultivation, 91% of farmers reported a decrease in the yield and 81% of farmers reported an increase in drudgery on adopting organic farming practices (See 14.4).
3. Pest and diseases, lack of irrigation, lack of institutional support and lack of knowledge are the top challenges cited by 80%, 76%, 69% and 67% of the farmers respectively (See 14.5).
4. Chi-square test shows that a significantly higher proportion of younger farmers have cited the lack of knowledge as a challenge in adopting organic practices (See 14.6).
5. Though a large proportion of farmers have reported that drudgery has increased on the adoption of organic farming practices, only about 15% of them have cited drudgery to be a challenge in adopting organic farming methods.

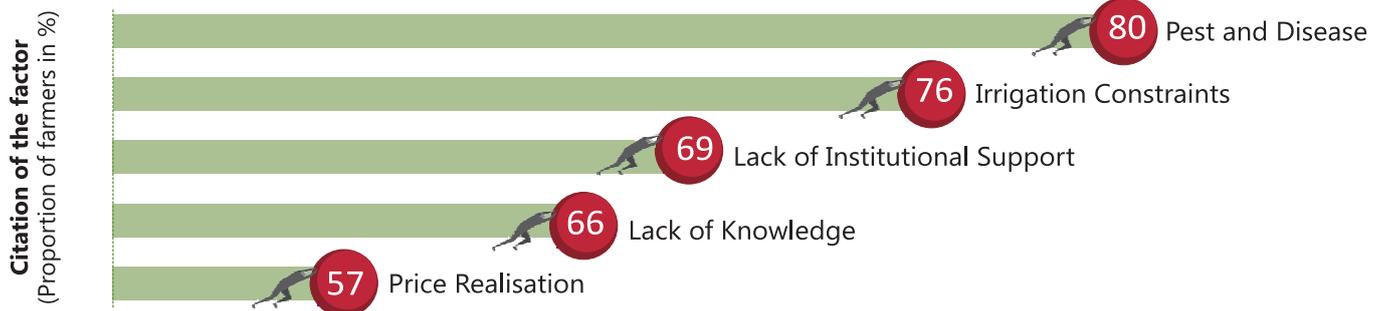
14.3 Knowledge and Practise



14.4 Experience



14.5 Challenges*



* See Appendix 1 for the complete data

14.6 Farm/farmer characteristics and challenges

Group (Proportion)	Lack of knowledge
Young (48%)	81%
Old (52%)	53%
P-Value	0.018

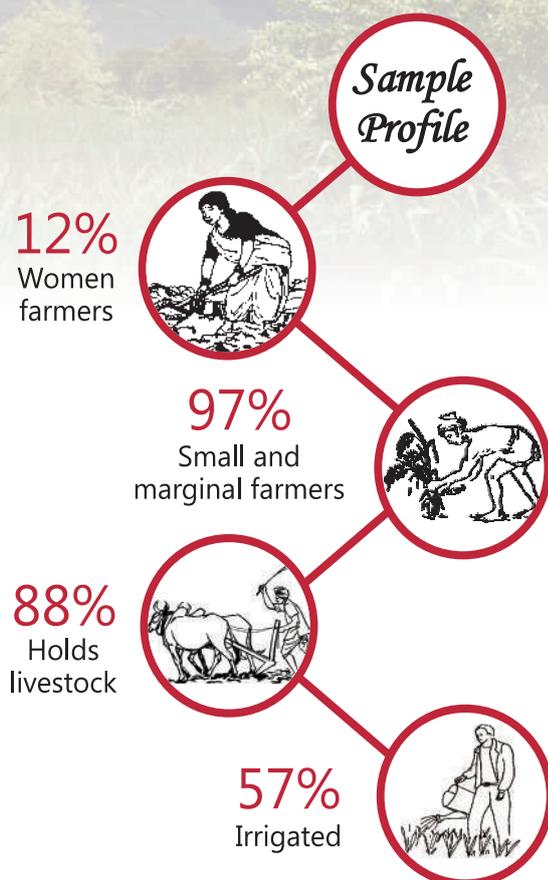
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

15 Assam

15.1 Background

The gross cropped area in the state has decreased by about 25% from 4 Million Ha in 1991-92 to 3 Million Ha in 2011-12. The livestock population has decreased by about 20% from 8.1 Million adult cattle to 6.5 Million adult cattle. While the proportion of cropped area treated with FYM or compost decreased from 17% to 11%, the total quantity of FYM or compost applied has decreased by about 46% from 12.6 MT to 6.8 MT.

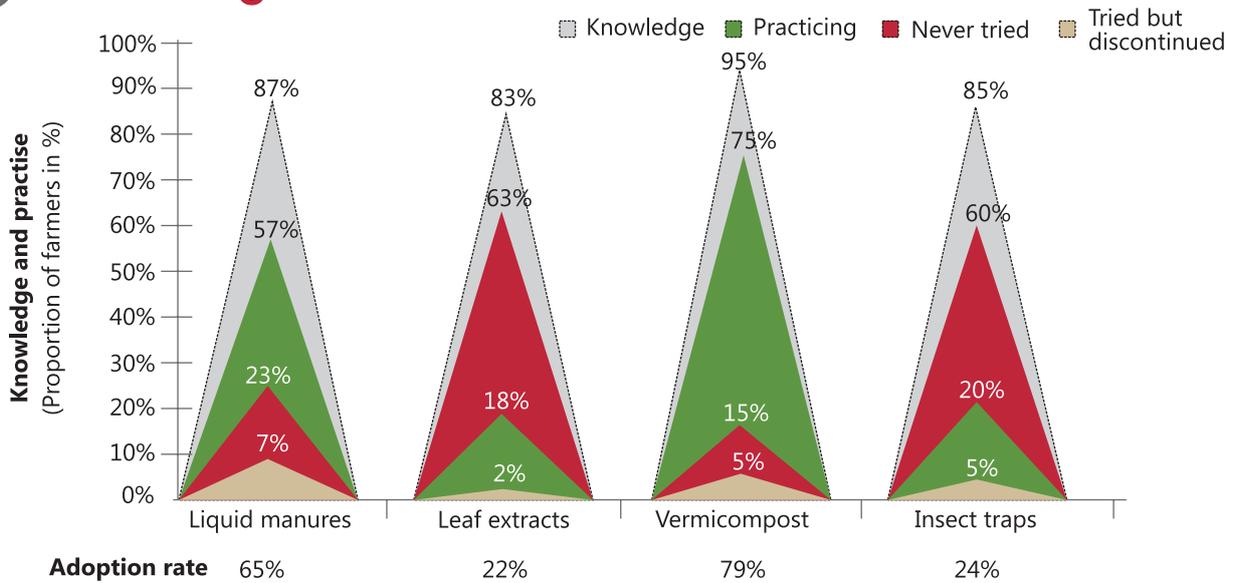
A total of 60 farmers were interviewed from 23 villages in the Kamrup district. 97% of them were small and marginal farmers, and only 12% of the respondents were women farmers. 88% of the farmers owned livestock, and 57% of the farmers had access to irrigation. The package of practice promoted by the host agency includes *jivamrut* (liquid manures), *dashparani* (leaf extracts), vermicomposting and insect traps.



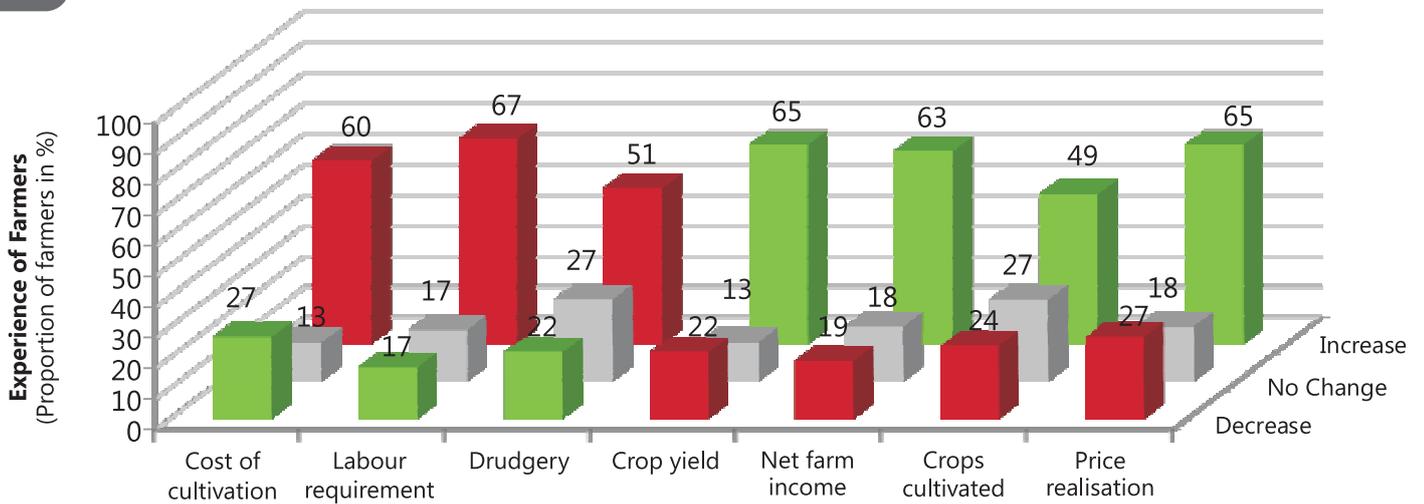
15.2 Highlights

1. Though the proportion of knowledge on organic farming practices is over 80%, the proportion of farmers adopting pest management practices like leaf extracts and insect traps is just about 20% (See 15.3).
2. Large proportion of the farmers has reported an increase in almost all the parameters like labour requirement, crop yield, net farm income and even cost of cultivation on adopting organic farming practices (See 15.4).
3. High labour requirement, irrigation constraints, lack of knowledge and drudgery are found to be the most critical challenges with 88%, 85%, 69% and 67% of farmers citing them respectively (See 15.5).
4. Chi-square test shows that a significantly higher proportion of younger farmers reported access to organic inputs and net income as a challenge in adopting organic practices. Also, a significantly higher proportion of farmers with out any secondary occupation cited more challenges than those with a secondary occupation (See 15.6).

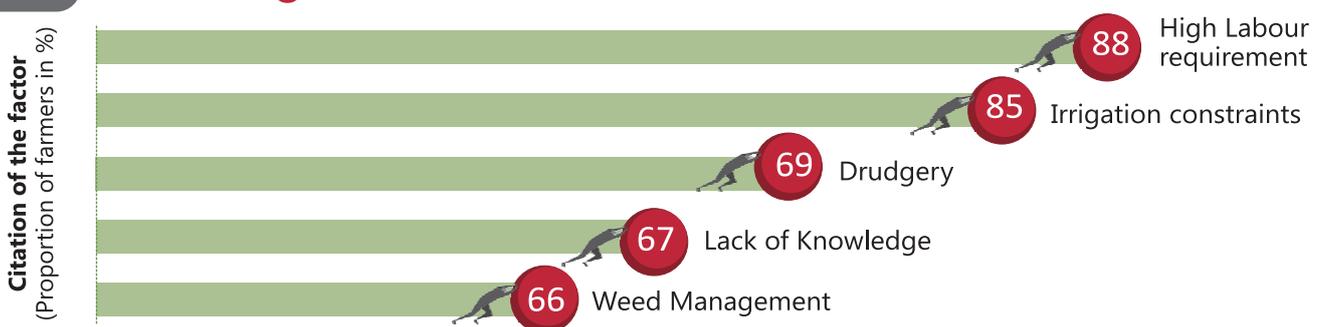
15.3 Knowledge and Practise



15.4 Experience



15.5 Challenges*



* See Appendix 1 for the complete data

15.6 Farm/farmer characteristics and challenges

Group (Proportion)	Low yield	Lack of knowledge	Marketing constraint	Price realisation	Lack of institutional support	Group (Proportion)	Access to organic input	Net income
No secondary occupation (72%)	58%	76%	76%	76%	78%	Young (37%)	73%	50%
With secondary occupation (28%)	29%	40%	40%	40%	35%	Old (63%)	43%	21%
P-Value	0.045	0.011	0.011	0.011	0.002	P-Value	0.027	0.021

Refer to Chapter 5 for guidance on the interpretation of charts and tables.

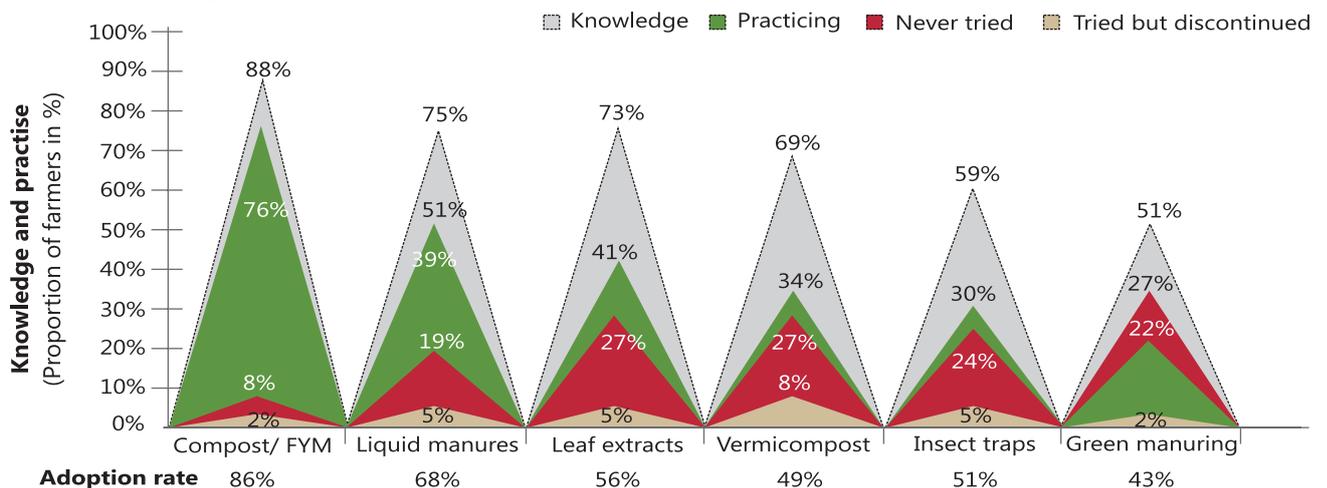
16 Across all the 10 States

In this section, we discuss the trends across the entire sample surveyed by simple aggregation and comparison across the states. Similar to individual states, knowledge and adoption, experience and challenges in adoption of organic farming practices are discussed. While a total of 620 farmers were interviewed across 11 states, data of 52 farmers from Bihar was dropped due to issues in data collection and entry methods.

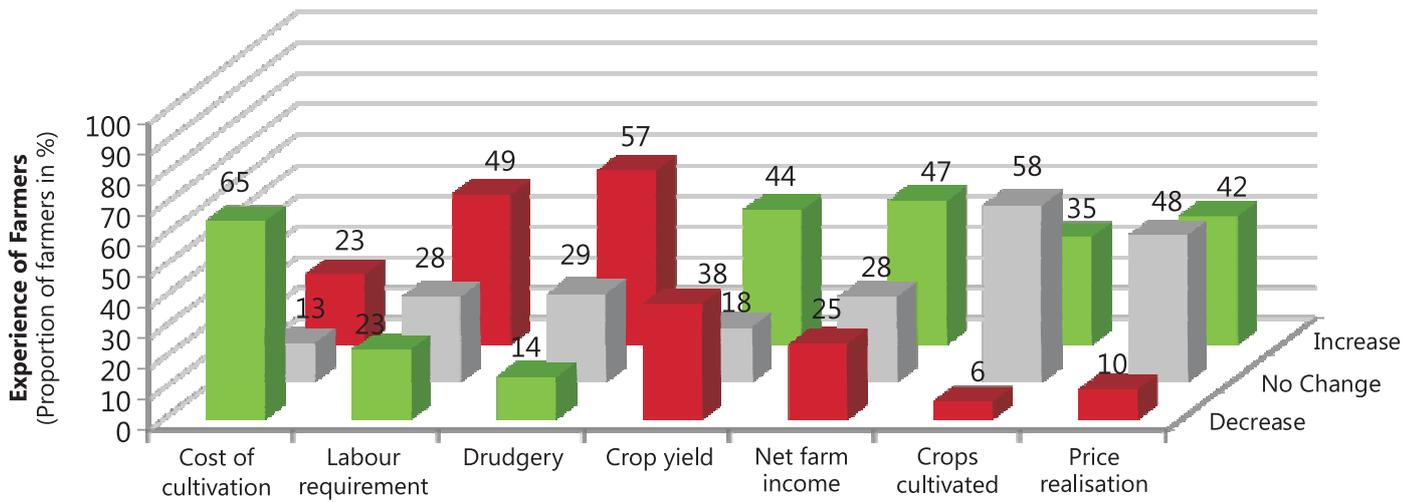
16.1 Highlights

1. Proportion of farmers with knowledge on composting, liquid manure, leaf extract and vermicompost, are relatively higher than those with knowledge on insect traps and green manuring. However, the net proportion of farmers practising any of them (other than compost/FYM) is about 50% or lesser. Further, green manuring is among the least in terms of capacity (51%) and practice (22%) (See 16.2).
2. Majority of farmers reported a decrease in the cost of cultivation, and either an increase or no change in factors like drudgery, labour requirement, net farm income, price realization and number of cultivated on adopting organic methods of practices. An almost equal proportion of farmers reported to have their crop yield increased and decreased respectively on adopting organic farming practices (See 16.4).
3. Variation in the challenges cited in different states has made every challenge to be almost equally important. The top three factors cited are marketing constraints, price realisation and weed management.
4. On comparing across the states, two eastern states including Odisha and Jharkhand, and Sikkim, has less than 40% of farmers with knowledge on various practices. Other states had over 60% of farmers with knowledge on various organic farming practices. However, the adoption rate has a comparable pattern across the states with liquid manure being adopted by a higher proportion of farmers compared to leaf extracts, vermicompost, insect traps and green manuring (See 16.5).

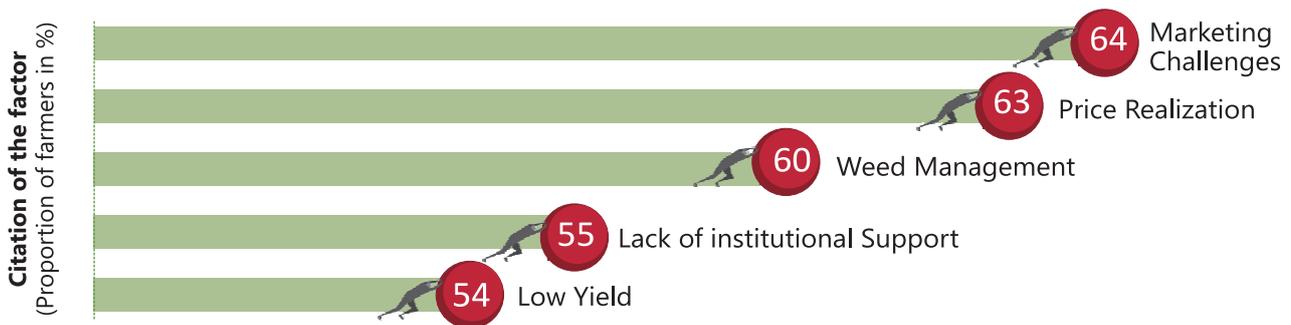
16.2 Knowledge and Practice



16.3 Experience

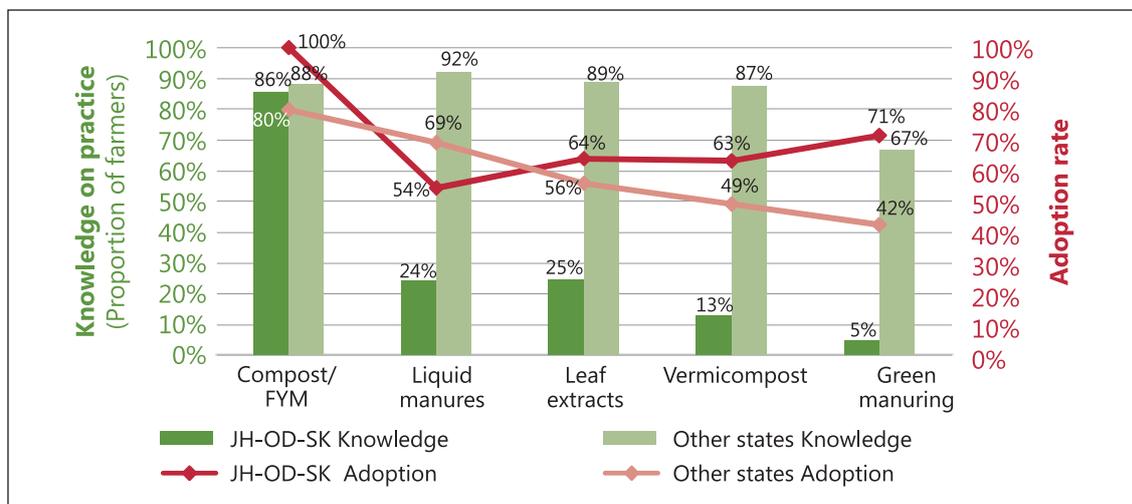


16.4 Challenges*



* See Appendix 1 for the complete data

16.5 Comparing across the states



(JH-OD-SK – Jharkhand, Odisha and Sikkim; Other States – Andhra Pradesh, Assam, Himachal Pradesh, Gujarat, Maharashtra, Punjab and Tamil Nadu)

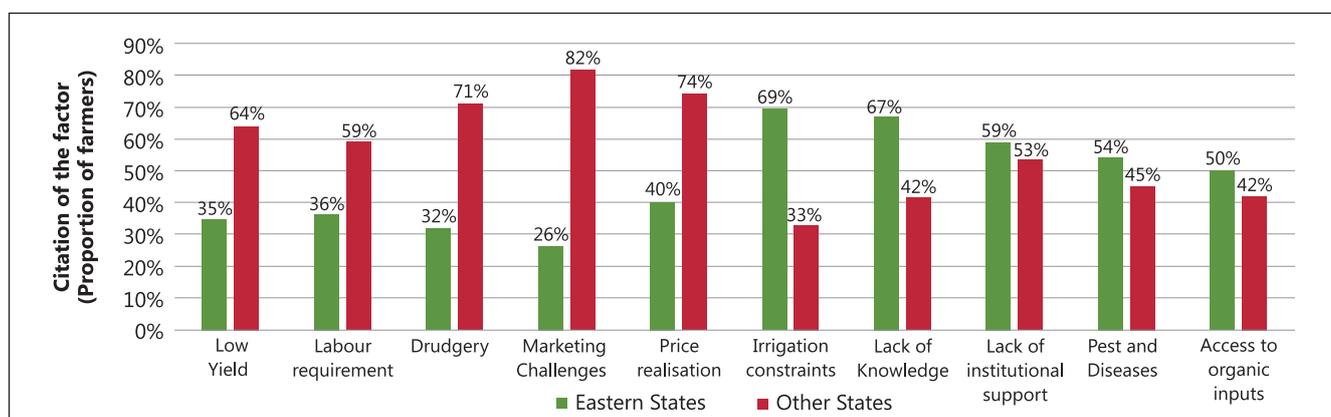
Refer to Chapter 5 for guidance on the interpretation of charts and tables.

17. Farm/farmer characteristics and challenges

Chi-square test has been used to understand the relationship between challenges faced by the farmers with respect to various characteristics like landholdings, type of farming, irrigation, crop cultivated, association with producer organization and participation in training activities.

1. Chi-square statistic shows that, there is a clear distinction between four eastern states (2 eastern and 2 north-eastern) and the remaining six states (See 17.1). Lack of knowledge, access to organic inputs and irrigation constraints are the top challenges in all the four eastern states (Assam, Jharkhand, Odisha and Sikkim). Marketing challenges, price realisation and drudgery are among the top challenges in all the other states (Andhra Pradesh, Gujarat, Himachal Pradesh, Maharashtra, Punjab and Tamil Nadu).
2. For most of the challenges, proportion of conventional farmers citing them is significantly higher than that of the farmers practising organic farming. At the same time, a significantly higher proportion of farmers with more than half their land under organic farming practices have cited drudgery, labour requirement, irrigation constraints, and lack of institutional support as their challenges (See 17.2).
3. A significantly lesser proportion of farmers, who have attended a demonstration of organic farming practices, has cited pest and disease management, access to organic inputs, lack of knowledge, and livestock management as challenges in adopting organic farming practices. However, a higher proportion of such farmers has cited low yield, drudgery, marketing challenges, and net income as a challenge in adopting organic farming practices (See 17.3).
4. Interestingly, more farmers who are part of farmer producer groups have cited marketing and price realisation as challenges (See 17.4). While over 76% of farmers associated with farmer producer groups have received input support, less than 35% of the farmers has received any market linkage related support. Capacity building is also significantly lesser (56%) when compared to benefits like access to government schemes and programs (68%). Respondents associated with SHGs are predominantly women farmers. While most of the challenges are least cited by them, irrigation constraints and lack of knowledge are reported to be their major challenges. It was also observed that over 62% of semi-medium to large farmers are part of a farmer collective, and less than 48% of small and marginal farmers are part of any collective.
5. Most of the farmer categories based on crops (cereals, millets, cotton and fruits) perceive similar challenges in adopting organic farming practices. However, a significantly higher proportion of farmers cultivating pulses cited various challenges like drudgery, weed management and marketing compared to that of farmers not cultivating pulses.
6. Higher proportion of farmers without irrigation and livestock have cited irrigation constraints and difficulty in livestock management respectively as a challenge.

17.1 Challenges in adopting organic farming practices



(Eastern states– Assam, Jharkhand, Odisha and Sikkim;

Other States– Andhra Pradesh, Himachal Pradesh, Gujarat, Maharashtra, Punjab and Tamil Nadu)

17.2 Type of farming and challenges

Group (proportion)	Low yield	Pest and diseases	Weed management	Access to organic input	Marketing constraint	Price realisation	Net income	Lack of knowledge	Labour requirement	Drudgery	Livestock management	Lack of institutional support	Irrigation constraint
Conventional (34%)	56%	57%	75%	52%	83%	75%	56%	53%	57%	67%	24%	61%	27%
Partly organic (23%)	68%	42%	56%	42%	62%	57%	42%	36%	65%	63%	44%	45%	43%
Majorly organic (11%)	53%	39%	75%	46%	63%	62%	27%	52%	73%	74%	33%	64%	66%
Organic (32%)	43%	49%	45%	40%	45%	59%	24%	56%	28%	39%	32%	54%	57%
P-Value	0.000	0.033	0.000	0.106	0.000	0.006	0.000	0.004	0.000	0.000	0.005	0.030	0.000

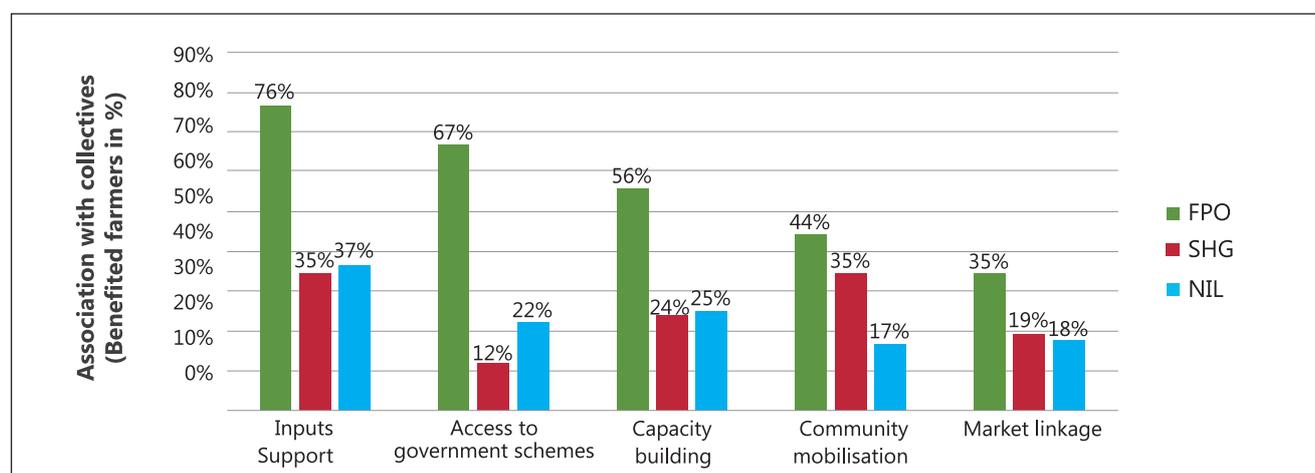
17.3 Capacity building and challenges

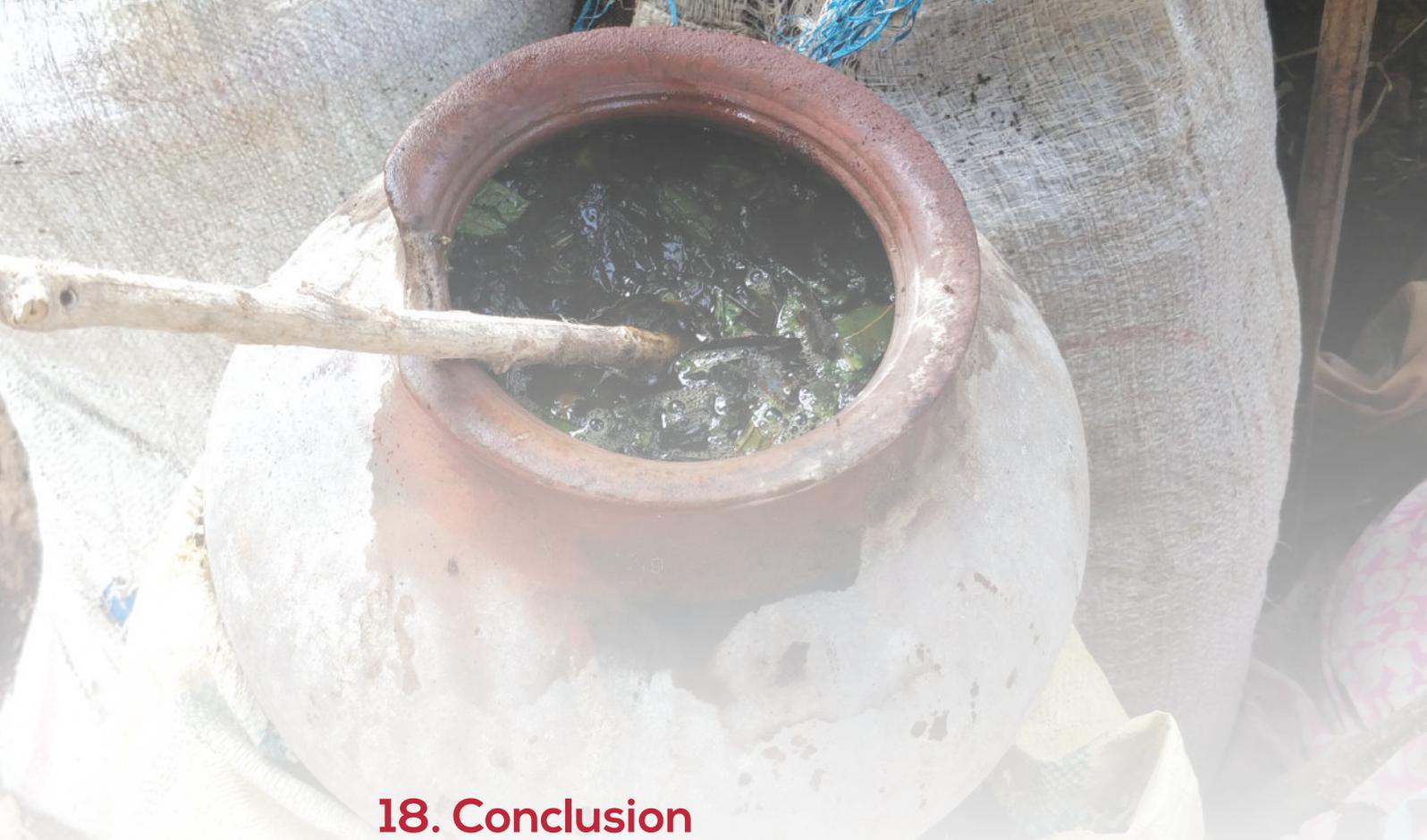
Group (proportion)	Low yield	Pest and diseases	Weed management	Access to organic input	Lack of knowledge	Labour requirement	Drudgery	Marketing constraint	Price realisation	Net income	Livestock management	Lack of institutional support	Irrigation constraint
Demonstration (41%)	62%	38%	64%	39%	31%	47%	61%	76%	67%	53%	28%	52%	28%
Trained (29%)	49%	55%	61%	47%	64%	59%	63%	69%	65%	34%	28%	58%	49%
Nil (30%)	46%	56%	54%	50%	63%	50%	48%	44%	55%	26%	43%	56%	65%
P-Value	0.003	0.001	0.170	0.084	0.000	0.076	0.013	0.000	0.070	0.000	0.005	0.453	0.000

17.4 Collectives and challenges

Group (proportion)	Low yield	Pest and diseases	Weed management	Access to organic input	Lack of knowledge	Labour requirement	Drudgery	Marketing	Price realisation	Net income	Livestock management	Lack of institutional support	Irrigation constraints
FPO (43%)	57%	45%	67%	45%	49%	46%	64%	74%	72%	44%	14%	60%	32%
SHG (14%)	49%	42%	46%	39%	57%	36%	42%	48%	57%	40%	45%	55%	60%
Nil (42%)	52%	54%	58%	46%	50%	64%	56%	59%	56%	34%	48%	49%	54%
P-Value	0.341	0.121	0.007	0.570	0.442	0.000	0.002	0.000	0.001	0.159	0.000	0.096	0.000

17.5 Collectives and benefits received





18. Conclusion

A total of 620 farmers across 11 states were surveyed to understand the experience and perspectives of the farmers in adopting organic input practices. Motivation factors to adopt these practices were found to be similar across the states. Concerns on human health, including producer and consumer health, conservation of soil health, agro-ecology, and self-reliance are the most crucial factors cited by farmers as motivation to adopt organic farming practices.

Though adoption rate exhibited a comparable pattern across the states, knowledge on various organic practices was significantly less (<40% farmers) in eastern states (Odisha, Jharkhand and Sikkim) compared to other states (>60% farmers).

While three eastern states Odisha, Jharkhand and Sikkim had less than 40% of farmers with knowledge on various practices, other states had over 60% of farmers with knowledge on various organic farming practices. Adoption rate exhibited a comparable pattern across the states with liquid manure being adopted by a higher proportion of farmers compared to leaf extracts, vermicompost, insect traps and green manuring. While the majority of farmers reported a decrease in cost of cultivation on adopting organic farming practices, other parameters like labour requirement, drudgery, net income, and price realisation were reported to have increased or remain unchanged. However, only a small proportion of farmers reported an increase in the number of crops cultivated in their farm. Crop diversification being a critical component of agro-ecological practices to build socio-economic resilience and farm sustainability (Lin 2011; Ponisio et al. 2014), the focus on diversification of crops needs to be increased. Similarly, green manuring was among the least adopted practices which needs to be encouraged for building soil organic content and improving the overall soil health (Fageria 2007).

There was a clear distinction between the four eastern states (two eastern and two north-eastern) and the remaining six states on the challenges faced in adoption of organic farming practices. Lack of knowledge, access to organic inputs, and irrigation constraints were the major challenges in all the four eastern states (Assam, Jharkhand, Odisha and Sikkim). Marketing challenges, price realisation and drudgery were among the top challenges in all other the states (Andhra Pradesh, Gujarat, Himachal Pradesh, Maharashtra, Punjab and Tamil Nadu).

The two distinct set of challenges found from the study indicates the need for a two-pronged and region-specific approach to scale up organic farming practices. The initiatives should be designed to build a holistic ecosystem with both input-end capacity building and output-end market linkage for viable adoption by the farmers. Programs in eastern states need to focus on capacity building for the farmers, improving access to organic inputs through the improvement in livestock holdings, and the irrigation infrastructure. Programs in other states need to focus on strengthening the market linkages for better price realisation and invest in technological solutions to reduce drudgery and labour requirement.

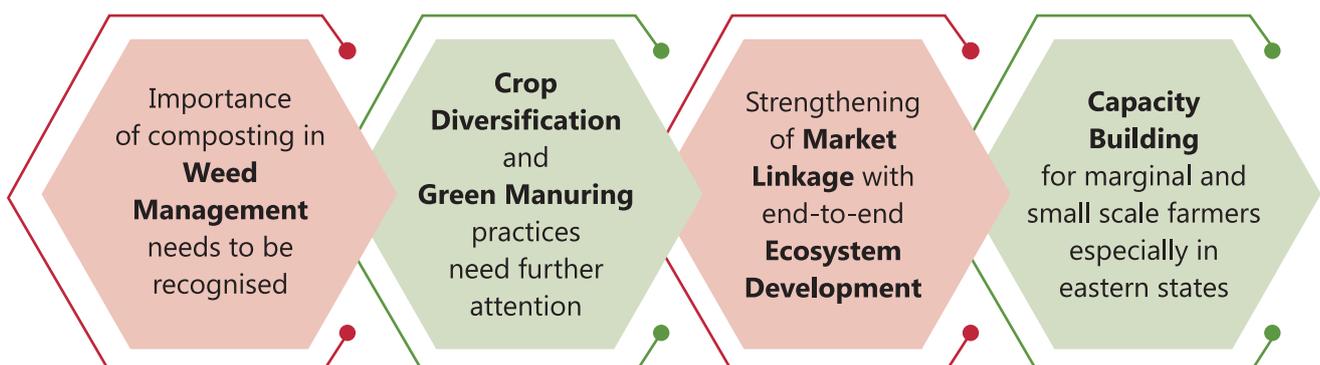
Weed management is also one of the critical challenges cited by farmers in most of the states. It is well established that the process of composting, if done properly, kills weed seeds and reduces weeding problem (Joseph and Stephen 2012; Neher, Weicht, and Dunseith 2015). However, often the composting process and the compost produced are valued only as nutrient and organic matter supplement to the soil. Although over two-thirds of the farmers under the study were using either compost or FYM, most farmers considered FYM and compost as the same and did not consider compost as any better. It is essential to emphasize upon the critical advantage of proper composting in weed management, and the farmers need to be skilled to effectively adopt composting rather than using FYM directly. Further, in many states, a significantly higher proportion of farmers with secondary occupation other than farming perceive the maintenance of livestock as a major challenge. Since alternative sources of income it is essential to design alternate strategies for livestock management that would ensure availability of manure outside the farm household. Further, viable collectives or enterprise model to maintain livestock and strengthen the availability of organic inputs would be helpful in long-run.

Almost all the challenges were cited by a higher proportion of conventional farmers when compared to the farmers who had atleast some portion of their land under organic farming methods. Interestingly, more farmers who were trained and farmers who were part of farmer collectives cited marketing and price realisation as challenges. Though limited in the scope of this study, farmer collectives and Farmer Producer Organizations (FPOs) were found to focus more on input supplies and facilitating access to government schemes and programs. The sample indicated that market linkage was the least attended aspect followed by community mobilization and capacity building of the farmers. While input support might be needed to incentivize community mobilization in the short term, capacity building and market linkage are needed for strengthening and sustainability of the FPOs (Bijman, Muradian, and Schuurman 2016).

Liquid manures are more widely adopted, and practices like crop diversification and green manuring are least adopted.

A two-pronged and region-specific approach is needed with input-end capacity building and output-end market linkage for viable scaling up of the sustainable farming practices.

Action Points



Critical challenges in scaling up of organic farming practices vary across the states, but it has been either at input-side (knowledge) or output-side (market linkage) than the operational challenges.

To conclude, the major challenges in scaling up of organic farming practices are found to be starkly different for eastern states compared to other states. The commonly perceived challenges like low yield, high labour requirement and drudgery are outweighed by knowledge and capacity related constraints in eastern states. Similarly, in other states, challenges related to market linkage and price realisation have outweighed challenges like low yield and access to organic input. Though the critical challenges vary across the states, it has been either at input-side (knowledge) or output-side (market linkage) than the operational challenges that can be attributed solely to farmers' recipient component. Both input-side and output-side challenges indicate the need for strengthening of support system and policies (intervention component) that would help farmers to overcome these critical challenges.

Though the attention towards promotion of farmer enterprises for better market linkage is on the rise, the focus on capacity building in organic input practices has been very limited. With the rate of organic input application falling to alarming level across the country, there is an imminent need to reinvigorate the capacity and practise of organic inputs for long term sustainability and resilience of Indian farms. In the presence of strong market linkage, FPOs promoting organic farming practices have shown to improve the price realised for the farm produce by the farmers. Better price realisation acts as a driving force for the farmers to adopt sustainable farming practices and be a part of the FPO. Thus, the presence of knowledge support along with assured market to sell the farm produce, is the missing piece in scaling up of sustainable farming practices.

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Appendix 1

Challenges cited by the farmers in adopting agro-ecological practices

	Low yield	Pest and diseases	Weed mang.	Access to organic input	Lack of knowledge	Labour requirement	Drudgery	Marketing	Price realisation	Net income	Livestock management	Lack of instn.	Irrigation constraints	Rented land
Odisha	12%	20%	17%	65%	35%	5%	18%	N/A	7%	N/A	23%	8%	36%	40%
Jharkhand	32%	7%	10%	68%	88%	13%	13%	6%	13%	21%	52%	14%	52%	3%
Maharashtra	53%	3%	28%	36%	10%	26%	29%	32%	52%	24%	19%	3%	33%	0%
Himachal Pradesh	59%	77%	59%	64%	83%	89%	97%	88%	75%	16%	65%	48%	81%	2%
TamilNadu	75%	47%	85%	11%	15%	41%	95%	N/A	73%	N/A	8%	47%	28%	2%
Punjab	81%	18%	68%	22%	22%	88%	60%	85%	64%	52%	55%	62%	6%	4%
Andhra Pradesh	76%	41%	70%	38%	28%	53%	69%	79%	78%	74%	49%	60%	41%	33%
Gujarat	46%	57%	79%	65%	67%	50%	61%	88%	84%	58%	0%	76%	10%	10%
Sikkim	31%	80%	48%	29%	66%	13%	12%	19%	57%	7%	22%	69%	76%	N/A
Assam	50%	64%	66%	54%	67%	88%	69%	45%	48%	32%	49%	65%	85%	29%

N/A – Not inquired

Appendix 2

State and Central Government initiatives focusing on promotion of organic farming practices

Government	Initiatives	Year	Reference
Andhra Pradesh	Andhra Pradesh 'Zero-Budget' Natural Farming (APZBNF) Programme: 6 Million ZBNF farmers 2024-25	2015	http://apzbnf.in/
Arunachal Pradesh	State Organic Mission Chief Minister's Mission Organic for production of Organic inputs in the Govt. Farms	2014	http://www.agri.arunachal.gov.in/filesdoc/945qdhkc73.pdf
Assam	Government would set up 100 organic markets for selling organic product	2019	https://www.time8.in/100-organic-markets-to-be-set-up-in-assam/
Bihar	Bikar Vikas Mission: Establishment of Organic Corridor in 13 districts and develop ideal organic villages	2020	https://www.outlookindia.com/newsscroll/bihar-govt-to-develop-organic-corridor-in-13-districts/1751201
Chhattisgarh	Organic Farming Mission Scheme: Develop 4 districts as 'complete organic farming districts' and one development block from each of the other districts.	2016	https://www.dailypioneer.com/2016/state-editions/4-complete-organic-farming-districts-planned-in-state.html
Gujarat	Scheme for direct cash transfer for the farmers shifting to Cow Based Natural Farming. Organic farming university to be established	2020	Gujarat State Budget 2020-21
Haryana	Natural farming training centre built at Gurukul and 500 farmers from each district to be trained on natural farming.	2020	https://timesofindia.indiatimes.com/city/gurgaon/1-lakh-acres-will-be-cultivated-under-natural-farming-methods-in-hry-khattar/articleshow/74602853.cms
Himachal Pradesh	Prakritik Kheti Khushhal Kissan Yojana: 50000 organic farmers in one year	2018	https://spnfhp.nic.in/en-IN/spnf.html
Jammu and Kashmir			
Jharkhand	State Organic mission through Organic farming authority of Jharkhand: Develop 300 clusters for organic farming	2013	http://www.organicjharkhand.in/
Karnataka	Savayava Bhagya Yojane (SBY): Adopting 100 hectares of area in each Hobli for organic farming Karnataka Zero Budget Natural Farming (ZBNF)	2013 2017	https://organics-millets.in/index.php/Welcome/aboutdepartment
Kerala	Organic Farming and Good Agricultural Practices and promotion of Zero Budget Natural Farming	2019	https://keralaagriculture.gov.in/2018/12/22/organic-farming-and-good-agricultural-practices/
Madhya Pradesh	MP Organics: Promotion of organic farming, and providing organic seeds & food grains to the farmers and people at large.		http://www.mporganic.com/about-us/

Government	Initiatives	Year	Reference
Maharashtra	Dr. Panjabrao Deshmukh Organic Farming Mission: Promote organic agriculture and create a value chain for distributing organic farm products.	2018	http://www.krishi.maharashtra.gov.in/Site/Upload/Images/tor_rc_sp.pdf
Manipur	Manipur Organic Mission Agency: Implement MOVCDNER and facilitate branding for branding the organic produce.		https://momamanipur.com/about-moma/
Meghalaya	Organic Manures: Providing hands on training at the village level for organic production		https://megagriculture.gov.in/PUBLIC/schemes_ShowSchemesA.aspx?sclid=75
Mizoram	Organic Farming Act: Towards an organic state	2004	http://agriculturemizoram.nic.in/organicfarming.html
Nagaland	Organic certification as a part of MOVCD-NER		https://agriculture.nagaland.gov.in/movcd/
Orissa	Odisha Organic Farming Policy: To make farming climate- resilient, reduce the risk of farmers and enhance farm income.	2018	https://odxpress.com/wp-content/uploads/Odisha-Organic-Farming-Policy-2018.pdf
Punjab	Organic programme: A holistic support from organic inputs till the sale of produce		http://www.punjabagro.gov.in/pagrexco-Organic.html
Rajasthan	Rajasthan Organic Farming Policy: Implementation PKVY A program on Zero budget natural farming initiated.	2017 2019	https://cuts-cart.org/pdf/Rajasthan_Organic_farming_Policy-2017.pdf
Sikkim	Sikkim Organic Mission: Making of organic state.	2015	https://www.sikkimorganicmission.gov.in/
Tamil Nadu	Organic agriculture scheme in Department of Agriculture: Implementation of PKVY		http://agritech.tnau.ac.in/org_farm/orgfarm_schems.html
Telangana			
Tripura			
Uttarakhand	Organic Agriculture Act: Towards an Organic state	2019	https://uttarakhandnewsnetwork.com/2020/01/organic-agriculture-bill-becomes-act-in-uttarakhand/
Uttar Pradesh	Development of Organic Farming: Develop a model organic farming district	2016	http://upagriparadarshi.gov.in/staticpages/UttarPradesh4.aspx
West Bengal			
Central Government	Paramparagat Krishi Vikas Yojana (PKVY): Promote organic farming clusters across the country. Mission Organic Value Chain Development in North Eastern Region (MOVCD-NER): Develop crop commodity specific organic value chain.	2015	https://vikaspedia.in/agriculture/policies-and-schemes/crops-related/krishi-unnati-yojana/paramparagat-krishi-vikas-yojana http://agricoop.nic.in/sites/default/files/movcdner_revised.pdf

The above table intends to give an outlook of state-level initiatives only and may not be comprehensive.

Abbreviations

CSO	:	Civil Society Organisations
DOI	:	Diffusion of innovation
FYM	:	Farmyard Manure
FGDs	:	Focus Group Discussions
FPOs	:	Farmer Producer Organizations
Ha	:	Hectare
JH	:	Jharkhand
KM	:	Kilometer
NAAS	:	National Academy of Agricultural Sciences
NMSA	:	National Mission on Sustainable Agriculture
MT	:	Million Tonne
OD	:	Odisha
PKVY	:	Paramparagat Krishi Vikas Yojana
SK	:	Sikkim
ZBNF	:	Zero Budget Natural Farming

Field Partners and Collaborators



Diya Foundation,
Loharghat, Guwahati, Assam



Gram Disha Trust,
New Delhi



SarvaSeva Samity Santha,
Ranchi, Jharkhand



Nabakrushna Choudhury Centre for Development
Studies, Bhubaneswar, Odisha



MS Swaminathan Research Foundation,
Koraput, Odisha



Western District NGO Federation,
Gangtok, Sikkim



Alliance for Holistic and Sustainable Agriculture
(ASHA)



Coastal Salinity Prevention Cell,
Ahmedabad, Gujarat



Centre for World Solidarity,
Jamshedpur, Jharkhand



INORA,
Pune, Maharashtra



NIRMAN,
Bhubaneswar, Odisha



KhetiVirasat Mission,
Jaitu, Punjab



Sirkazhi Organic Farmers Association,
Sirkazhi, Tamil Nadu

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VAF is an initiative of the Tata Trusts established as a not-for profit Company under Section 8 of Indian Companies Act. VAF aims to conduct research in two main streams. The first is in the nature of identifying and researching unattended issues of importance to the poor and the marginalised people with a view to evolve actionable programmes on them. Such programmes then could be developed and supported or implemented by civil society organisations, donors or Governments. The second stream is to explore and improve understanding about issues which are encountered in processes of implementing programmes in several domains. Such common issues pertain to the social development process rather than the domain themselves. VAF works in an inter-disciplinary and collaborative manner.

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Voice of the farmers on organic farming practices

Punjab: We need to overcome huge social pressure from family as well as neighbouring farmers for shifting to organic practices as it involves arduous work.



Himachal Pradesh: We are blessed with natural resources for agro-ecological farming, but lack of appropriate markets for organic produce is a continuous challenge.



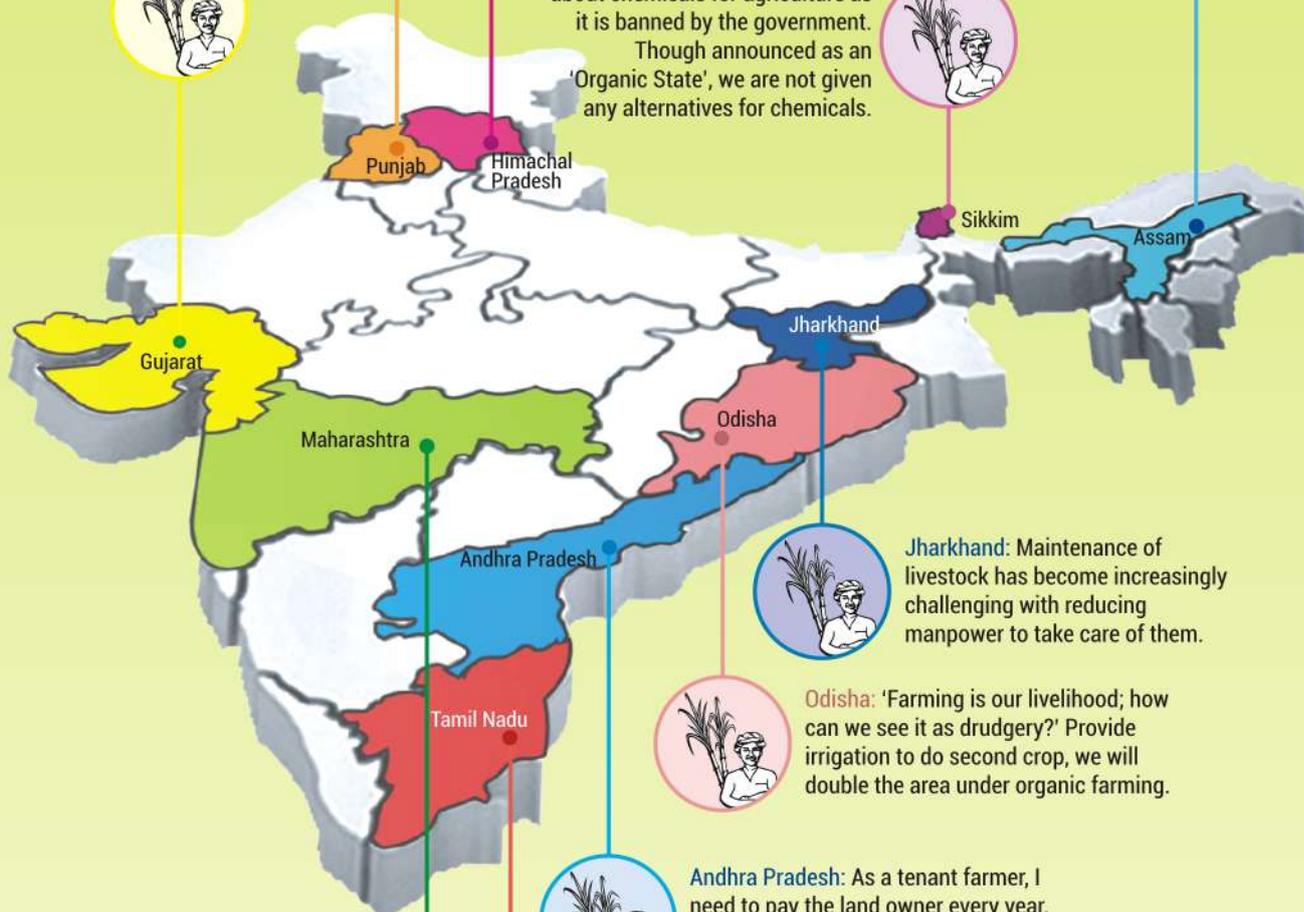
Gujarat: We do not get the premium price for organic produce that would compensate for any yield reduction.



Assam: We have been traditionally cultivating only using organic methods. There is a good demand for our products. Lack of irrigation is the major constraint.



Sikkim: We are scared of talking about chemicals for agriculture as it is banned by the government. Though announced as an 'Organic State', we are not given any alternatives for chemicals.



Sikkim

Assam

Gujarat

Punjab

Himachal Pradesh

Jharkhand

Maharashtra

Odisha

Andhra Pradesh

Tamil Nadu

Jharkhand: Maintenance of livestock has become increasingly challenging with reducing manpower to take care of them.



Odisha: 'Farming is our livelihood; how can we see it as drudgery?' Provide irrigation to do second crop, we will double the area under organic farming.



Andhra Pradesh: As a tenant farmer, I need to pay the land owner every year. Annual rent leaves no room for any income loss during the transition period.



Maharashtra: Organic inputs require proper planning. Usually it involves preventive measures against pest and diseases. Once infested, we would end up using pesticides.



Tamil Nadu: Organic farming needs constant attention to the field. We do not get labour who is ready to do all the strenuous work involved in preparation of organic inputs.



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