



PARIVARTAN
A step towards sustainable progress

Empowering Small and Marginal Farmers of Punjab

An Impact Assessment Study Report- FDP Project



Prepared by



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Abbreviations

CARD	Centre for Advanced Research and Development
CoE	Centre of Excellence
CSR	Corporate Social Responsibility
HDO	Horticulture Development Officer
FDP	Focused Development Program
NGO	Non-Government Organization
NHM	National Horticulture Mission
PAU	Punjab Agriculture University

Executive Summary

HDFC Bank CSR supported a Focused Development program (FDP) through the Department of Horticulture in 19 villages in three districts of Punjab including Ludhiana, Jalandhar and Kapurthala, under HDFC Bank CSR Parivartan. The aim was to support and empower the small and marginal farmers of the areas. A total of 50 farmers were supported with a 90% subsidy on the installation of poly houses (50% contribution from the Department of Horticulture and 40% from HDFC Parivartan). All the beneficiary farmers were provided with technical support as well as capacity-building training programs organized by the Department of Horticulture through a scientist from Punjab Agricultural University (PAU). The aim was **to introduce diversity in farming practices by facilitating farmers to grow different and exotic varieties of fruits and vegetables, eventually increasing productivity, income and crop diversity.**

IMPACT PSD was entrusted to conduct the impact assessment of the project to evaluate the effectiveness and sustainability of the support provided to the beneficiary farmers.

The Coverage

The study was conducted in three districts of Punjab namely Jalandhar, Kapurthala and Ludhiana. A total of 25 beneficiary farmers were interviewed to gather information about the support provided for polyhouses, as well as to comprehend their experiences and assess how this support influenced their crop yields and income.

Key Findings

- All 25 poly houses were operational and being used by the farmers. Physical verification confirmed that overall condition of the supported poly houses was found to be good.
- All the poly houses were of standard size i.e. 480 square meters and a fixed amount of INR 5,46,800 was incurred on the installation. This cost includes 50% contribution from the scheme under the National Horticulture Mission (NHM), 40% from HDFC Bank Parivartan and 10% by the farmers.
- The grant was limited to the installation of the poly house and expenditures related to farming were entirely borne by the farmer which included the cost of seeds, fertilizers, pesticides and most importantly labour.
- As per estimate, in one round of farming in the poly house, the farmer is expected to invest INR 100,000 which includes almost INR 60,000 for labour and INR 40,000 for materials. This seems to be an expensive affair.
- Findings suggest that a farmer who decides to take benefit of poly house scheme will have a first-time investment of INR 160,000. **This indicates that most of the small and marginal farmers who do not have the financial capacity to invest this amount, would not be able to avail the benefit of this scheme.**
- The scheme under NHM has been the key facilitating factor for opting the support. No set criteria were followed for the selection of beneficiary farmers.
- All the farmers were found growing seedless cucumber and some of the farmers reported cultivating color capsicum, tomatoes and melon.
- Two out of 25 farmers were also into making seedlings for selling to their fellow farmers.
- Among all 25 farmers, 96% of them were facing challenges in open farm cultivation which was lesser yield of crops and lesser earning. Due to this fact, these farmers got motivated by the Horticulture department and offered support under the NHM scheme (50%) and HDFC Bank Parivartan contributed the remaining 40% part and farmers opted to spend 10% for them.

- All the farmers received training at the Centre of Excellence at Kartarpur on Jalandhar-Amritsar National Highway along with exposure to demo plots and post-harvest management practices.
- About 80% of farmers confirmed receiving fertilizers support from the Horticulture department wherein these farmers could buy fertilizers at the subsidized cost.
- Three out of four farmers (75%) confirmed receiving pesticides at subsidized rates from the Horticulture department.
- For the income from poly house, as reported by the beneficiary farmers, on average, a farmer earned INR 52,000, from the last harvest they had taken.
- A large variation in this income was observed, ranging from INR 30,000 – 80,000, which cannot be completely explained by the limited data collected through this assessment. The average income of INR 52,000 per crop, from 480 square meters of land translates to almost INR 800,000 per acre per year, which is at least three times the per acre annual average income generated by cultivating traditional crops like wheat, paddy, or millets.
- Regarding challenges, one of the biggest challenges was the time required for the management of poly houses to keep them functional shared by 88% of farmers. Other challenges included the procurement of high-quality seedlings and fertilizers (76%) and a broader and larger set-up for the irrigation system (drip irrigation) (68%).
- Assessment on OECD criteria was attempted, and the results are as follows:

Evaluation Component	Score
Relevance	4.5
Coherence	4
Efficiency	4
Effectiveness	4
Impact	4
Sustainability	3.5
Overall Score	4 out of 5

INTRODUCTION

HDFC Bank CSR – Parivartan Program:

HDFC Bank helps in transforming the lives of millions of Indians through various social initiatives. HDFC Bank has a comprehensive program named 'Parivartan' aiming to contribute towards economic and social development by sustainably empowering its communities. The Parivartan program has been a catalyst in making a difference in the lives of people through its interventions in the areas of rural development, education, skill development and livelihood enhancement, healthcare & hygiene, and financial literacy.

Under Parivartan, the bank has a flagship "**Holistic Rural Development Program (HRDP)**" focused on Rural Development and caters to the needs of the rural communities in multiple focus areas. Another support program is the "**Focused Development Program (FDP)**" through which the Bank identifies an implementing partner with expertise in one of the focus areas and supports the partner to implement the intervention to improve the lives of the target groups concerning the focus area.

HDFC Bank CSR intended to conduct an impact assessment study for the FDP project and IMPACT PSD undertook the impact assessment to evaluate the effectiveness and sustainability of the support provided to the beneficiary farmers.

About the Project:

HDFC Bank CSR supported a Focused Development Program (FDP) through the Department of Horticulture in 19 villages in three districts of Punjab including Ludhiana, Jalandhar and Kapurthala, under HDFC Bank CSR Parivartan. The FDP aimed to support and empower the small and marginal farmers of the areas. In these 19 villages, 50 farmers were supported with a 90% subsidy on the installation



of poly houses that included a 50% contribution from the Department of Horticulture and 40% from HDFC Parivartan. All the poly houses were of standard size i.e. 480 square meters and with a fixed amount of INR 5,46,800 including the 10% share of the farmer. All 50 farmers were provided with technical support as well as capacity-building training programs organized by the Department of Horticulture through a scientist from Punjab Agricultural University. The aim was **to introduce diversity in farming practices by facilitating farmers to grow different and exotic varieties of fruits and vegetables, eventually increasing productivity, income and crop diversity.**

About Poly House:

Poly house is a proven technology in agriculture that allows farmers to grow unconventional crops by controlling the environment. A poly house is made of galvanised iron with a UV-stabilized poly film covering. Poly film sheets are used to divide the interior and external environment, which helps the plants to withstand harsh and unsuitable weather. The structure is constructed in a way to effectively regulate climate (including temperature and humidity) providing a favourable condition for plants to grow and stop pest infestation. A poly house can be of any size, depending on the need, available space and the capacity to invest. Poly house technology is one of the most cost-efficient and low-maintenance techniques, as compared to other models of developing a greenhouse.

A study conducted by Jain et al. (2021)¹ revealed that the total cost incurred in crop cultivation under poly house conditions was higher than open field conditions for three crops under the study. The share of the total variable cost was more than 65 percent for the three crops in each condition and was slightly higher under open field conditions, while the share of fixed costs was higher in the total cost of cultivation for the crops grown under poly house. On the other hand, returns obtained from polyhouse cultivation were observed more than the returns obtained from open field conditions. For all the crops, net returns were more than double when grown in polyhouses, which suggested a profitable situation for the crops-grower under poly house.

Advantages Poly House Farming:

One of the biggest advantages of using poly house is that it facilitates vertical growth and therefore creepers can yield up to 5 times the quantity produced otherwise. In addition, it rationalizes the use of water and fertilizers, as it uses drip irrigation and sprinklers. The third important advantage is that in poly house cultivation, the use of pesticides is minimized, as the climatic environment within the poly house is generally not favourable for the growth of pests. The use of poly house is not limiting in any way as the other farming options such as inter-cropping are easily possible within the poly house. With all this, the produce from poly house is of much better quality, fetching higher prices for the farmer. Finally, it allows the farmers to grow non-seasonal vegetables and fruits, which further provides them with higher market value.



¹ Jain S, Suwalka C and Shekhawat PS (2021): Comparative Analysis of the Economics of Crop Cultivation under the Poly House and Open Field Conditions in Rajasthan. Indian J of Economics and Development, Volume 17 No. 1, 2021.

Grow Non-Seasonal and Exotic Vegetables:

Most farmers in Punjab who have adopted poly house cultivation are cultivating seedless cucumbers (commonly known as English cucumbers). Farmers have also attempted coloured capsicum but it is not the preferred crop for many. This is primarily because due to high rates, the demand for such capsicum is low and at times it gets difficult to sell these in the local market. Only the farmers who have sales networks outside of Punjab attempt this crop. Farmers have also successfully cultivated other crops such as strawberries and Dragon fruit, but these are limited in number. Some farmers also mentioned cultivating okra and bitter guard during winter (off-season) as it fetches higher rates. However, all this was possible only with poly house cultivation.

Costing:

Poly houses are generally more cost-effective compared to greenhouses due to their simpler construction and the use of lightweight materials, still, the initial cost of constructing a poly house is around INR 600,000² which most farmers may not be able to afford by themselves. Therefore, farmers are dependent on the subsidies provided through the department or projects like the one supported by HDFC Bank. They are a suitable option for small-scale and medium-scale farmers with limited budgets. Even with subsidy, the model is not suitable for marginal or small farmers as the initial investment in inputs is comparatively high. For a poly house of 480 square meters (provided under this project), input costs including labour can cost up to INR 100,000³ per crop cycle and marginal and small farmers would struggle to manage this investment. However, it is also a fact that if a farmer can manage this investment, poly house certainly provides a good ROI (return on investment).

Challenges in Setting and Managing Poly House:

March and other warm months see rapid increases in air temperature of above 30 degrees Celsius in places like Punjab and Haryana, which ultimately raises the temperature inside the poly house. Despite temperature regulation features, a poly house should not be used during this period and experts suggest that this period should be used for solarization i.e. treating the soil to regain its fertility and for pest management. This, along with crop cultivation is a labour-intensive process. Farmers suggest that labour can constitute as much as 70% of the total input cost required for poly house cultivation.

Setting up a poly house is a technical process and hence requires a particular skill set. Therefore, only certified contractors can take up the task of building a poly house and there are not many contractors with expertise in setting up the poly house.

It requires both effort and resources to maintain a poly house. With temperature, humidity and water, the metal can rust and weaken over a period. Also, if quality is not assured, poly sheets can crack

² Estimated cost shared by HDO, Kapurthala and Ludhiana

³ Estimated cost shared by a beneficiary farmer under the project

during high temperatures. The ropes used for vertical cultivation have a short shelf life and need to be replaced every season. While there are lesser chances of pest infestation, if infested, it grows rapidly and fast becomes unmanageable, infecting the entire crop.

METHODOLOGY

The approach used for the impact assessment study is covered in this chapter, along with information on data management, implementation strategies, sample size, and research techniques. In the upcoming discussion, the specifics of many components have been covered.

Assessment Framework:

We suggested using the following assessment framework that includes the OECD-DAC criteria, which are widely regarded as gold standards in evaluation, to carry out the impact assessment research. This framework recommends adapting this framework, wherever feasible and applicable:



Using this framework, we suggested following questions that were adopted to assess project, using the six parameters stated above in the illustration. These questions were finalized in discussion with the HDFC MI team.

Evaluation Component	Suggested Research Questions	Target Respondents
Relevance	Do farmers see the importance and usefulness of the support offered under FDP	Farmers
	Was there a demand for such support by the farmers	Farmers
Coherence	What services are expected by the farmers and which of these expected services were available before receiving the support	Farmers
	Was the support provided at the right time when it was needed	Farmers
Efficiency	Number of farmers received increased crop productivity	Farmers
	Number of farmers capacitated through trainings	Farmers
Effectiveness	Proportion of farmers gained knowledge on agriculture practices and water conservation	Farmers
	Proportion of farmers claimed increase in crop production	Farmers
	How many farmers found motivated to continue practices	Farmers
	How much money could be saved as compared to past years	Farmers
Impact	Proportion of farmers got higher price for their yield	Farmers
	How many farmers reported increase in knowledge resulted in higher productivity	Farmers

Evaluation Component	Suggested Research Questions	Target Respondents
	How many people have adopted newer practices which helped them in getting quality crop and better price	Farmers
	How many farmers disseminated the knowledge to fellow farmers due to which their fellow farmers got higher productivity and price	Farmers
	Type of impact seen among farmers due to the poly house support	Implementation partner
Sustainability	Poly house as a revenue model	Farmers/Stakeholders
	Willingness to continue with the poly house	Farmers
	Plans/efforts made to expand their area and install more poly house	Farmers

Research Methodology:

A mixed methods approach was adopted for the impact assessment. Under the approach, largely a quantitative survey was undertaken with the beneficiary farmers who received financial support under the project in coordination with the Department of Horticulture in different districts of Punjab. Additionally, in-depth interviews under qualitative research were used to obtain information from the government officials from the Horticulture department. In addition, the program manager for the project at HDFC Bank shared information about the processes and coordination structure with the Horticulture Department, Government of Punjab.

Target Groups:

The following target groups were included in the impact assessment:

- Beneficiary Farmers
- Government officials from the Horticulture Department
- HDFC Bank Program Officials

A physical verification of the infrastructure developed i.e., Poly House and its utilization was assessed by the team visiting the villages.

Sample Size and Selection:

Since the number of beneficiary farmers was very small, we proposed to select every second farmer from the list of total 50 farmers and cover half the farmers (50%) supported through the HDFC Bank support. Thus, a total sample size of 25 farmers was covered under the impact assessment. These 25 farmers were randomly selected using systematic sampling from the list of a total of 50 farmers provided by the Horticulture Department from three districts namely, Jalandhar, Ludhiana and Kapurthala.

Sample Coverage:

The following sample coverage for the impact assessment study was achieved:

Target Group	Coverage
Villages	19
Beneficiary Farmers (Quantitative)	25
Government Officials from Horticulture Department (Qualitative)	3
HDFC Bank Officials	2

Development of Tools:

Considering the type of support provided, a quantitative tool was developed for capturing the details from the farmers having semi-structured questions. The quantitative tool incorporated the demographic profile of the farmers such as age, gender, educational qualification, caste and religion. The quantitative survey tool was appropriately scripted for the data collection using Kobo Collect for CAPI. For the qualitative interviews, a discussion guide was developed for in-depth interviews with the stakeholders (officials from the Horticulture Department of the Government of Punjab and HDFC Bank). All the study tools were translated into the local language and pre-tested at Ludhiana to see the flow of the questions and smoothness in administering the tools.

Team Deployment:

A team of 3 coordinators was deployed to cover three districts (Ludhiana, Kapurthala and Jalandhar). All three coordinators covered three districts in 6 days covering 25 farmers. All the team members were residents of Punjab state experienced in farmers' surveys as well as well-versed in regional and vernacular languages.

Training of Data Collection Team:

We conducted a 1-day training of the data collection team on the orientation of tools and methodology to be adopted. All the team members were experienced and provided with all survey specifics including obtaining consent, the process of making physical visits, etc. After the orientation on study tools, the mock calls were conducted for the practice. All the team members were shared with the contacts of the officials of the Horticulture Department so that the team could contact them for any clarifications or get directions for the geographical reach.

Study Implementation:

The study incorporated the following key steps:

- The officials from the Horticulture department informed all the farmers about the data collectors' visit and why the impact assessment study is being conducted.
- All the team members were provided with the mobile contact numbers of the farmers. Before the visit, the team contacted the selected farmers and appointments were sought for the interviews.

- Upon reaching the location, farmers were requested for the physical verification of their poly houses.
- Post physical verification, farmers were interviewed and information was gathered.
- Senior researchers also visited to meet a few selected farmers along with officials from the Horticulture Department in Ludhiana and Kapurthala.
- The assessment team acknowledge the support received from the HDOs of all three districts as well as the HDFC Bank MI team for their meticulous coordination.

Data Analysis and Report Writing:

Post-data collection, the collected data were processed at the IMPACT office in MS Excel and/or SPSS and frequency runs were obtained. Post-completion of tabulation and cross-tabs, the interpretation of results was undertaken.

Challenges Faced:

- During the data collection phase, farmers' protests were in progress which hampered the transportation between the districts followed by districts to villages.
- Farmers were busy with their agriculture and other administrative works which seeking appointments was difficult and interviews were conducted during the entire day with consistent follow-ups for their availability.

STUDY FINDINGS

This chapter discusses the need for HDFC Bank support to farmers for opting poly houses as well as how the HDFC Bank supported the farmers. The key findings are discussed at length in this section.

What Farmers Have Done So Far:

As informed by the Department of Horticulture, all the beneficiary farmers are using their poly houses for cultivation and have taken two to three crops so far. These farmers have attempted multiple activities in their poly houses, as shown below:

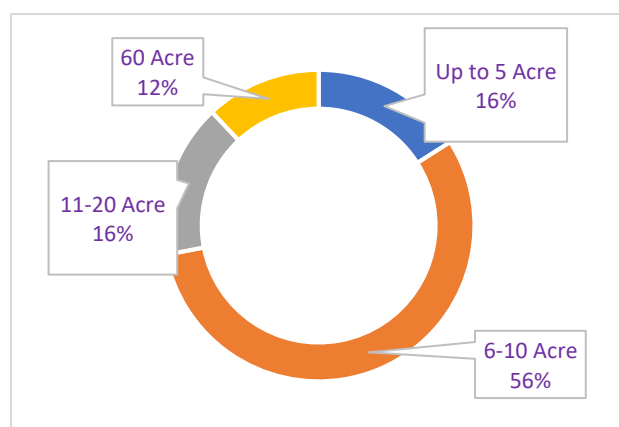
- Growing Vegetables (seedless cucumber, colour capsicum, tomatoes, etc.)
- Growing Fruits (melon, dragon fruit, strawberries)
- Inter-cropping (multiple crops in the same plot)
- Nursery for preparing Seedlings (seedless cucumber) and using them for themselves and sale

All these key activities generate money for these farmers which has resulted in the enhancement of their income.

Profile of Farmers Included in the Assessment:

In all, 25 farmers across three districts were covered in a sample to assess the impact of the HDFC Bank support on a PPP project. The following discussion provides the status of farmers and beneficiaries of the project.

Graph 1: Distribution of Farmers by Agricultural Land

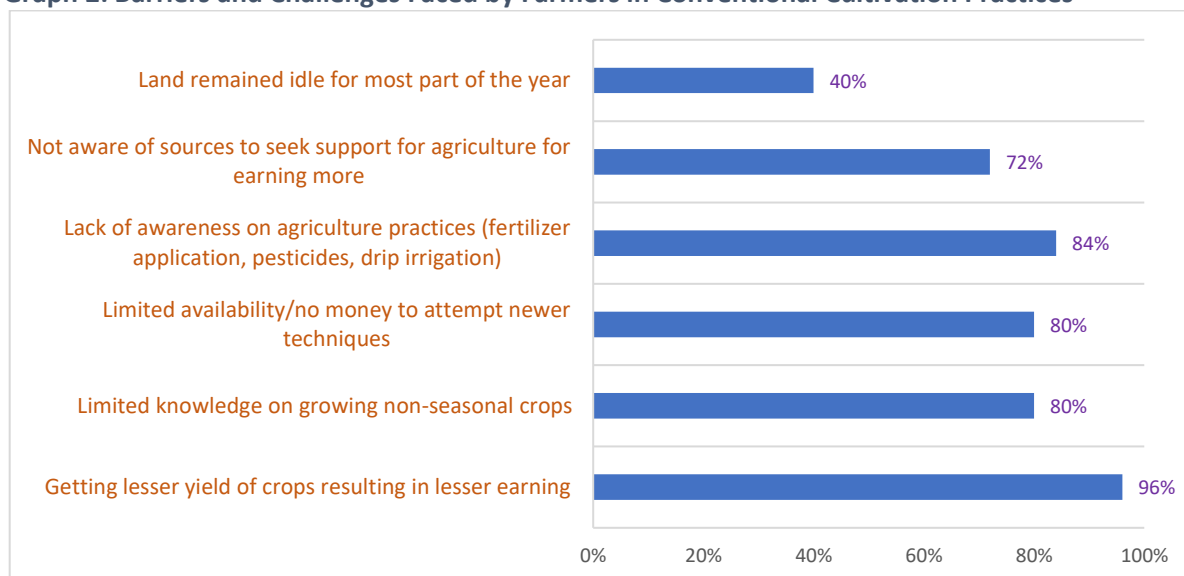


Majority of farmers (56%, N=14) of farmers had land in the range of 6 to 10 acres followed by 4 farmers each having up to 5 acres and 11 to 20 acres respectively. Only 3 farmers had 60 acres of land. Of all 25 farmers, only 3 farmers claimed to have rented land where they were growing vegetables.

The farmers were asked about barriers they face in their agricultural practices in general.

Almost all farmers (96%) had a major concern that they were not getting an adequate yield for their produce which resulted in a low earning against high investment and efforts. The following graph illustrates various barriers and challenges they face in their conventional agricultural practices.

Graph 2: Barriers and Challenges Faced by Farmers in Conventional Cultivation Practices



Four out of five farmers (80% to 84%) did not know how to grow non-seasonal vegetables across the year, had no money or limited resources for attempting newer techniques in agriculture, depending on locally used conventional practices and had no awareness of irrigation practices, optimum utilization of fertilizers and pesticides, etc. Almost two-fifths of farmers (40%) mentioned that some part of their land remained unused for most of the year for managing the soil and fertility-related practices leading to no income.

Eligibility for Getting Subsidy Under the Project:

All the farmers (100%) included in the survey had working and functional poly houses which indicates that these farmers have adopted the support for their agriculture and utilizing as envisaged by the project. Upon asking farmers shared that they were informed by the Horticulture Department about the project and support availability which was validated by the HDO at Kapurthala district. The assessment team intended to assess the criteria adopted for the selection of farmers for the Poly house support under the project.

There were no set criteria adopted under the project. There were primarily three requirements as follows:

- The farmer must be trained at the CoE, Kartarpur for the agriculture using poly house so that only interested farmers are provided with the support.*
- The farmer should be the owner of land having at least 1 Acre so that he can utilize 1/8th of the land for poly house and the remaining could be used for their usual agriculture purpose.*
- The farmer must have adequate money in the range of up to one lakh so that he can bear the additional cost of farming in a poly house such as purchasing seedlings at subsidized prices from CoE or the horticulture department, buying fertilizer, deploying labor for the management of crop within the poly house, and ensuring availability of water for drip irrigation.*

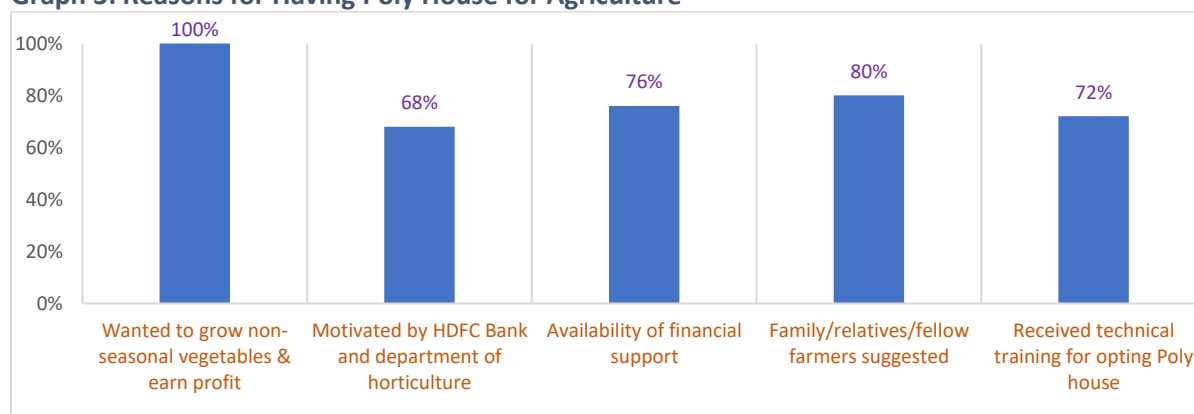
As shared by HDO, Kapurthala

Of all 25 farmers, 8 farmers already had a poly house and sought support from the department for the additional poly house. This is a confirmation that setting up a poly house is a profitable business for farmers. Farmers who were interviewed during this assessment also confirmed that they are considering setting up more poly houses, even on rented land.

Reasons for Option for Poly House:

All the farmers (100%) demonstrated their interest in growing non-seasonal vegetables which are in demand across the year and fetch higher market prices. It means that these farmers have an understanding of the demand for seasonal and non-seasonal vegetables in the market and the geography where such demands exist. Three out of four farmers (76%) informed that the financial support was the main reason that motivated them to opt for poly house. The following graph shows the reasons for opting poly house cultivation.

Graph 3: Reasons for Having Poly House for Agriculture



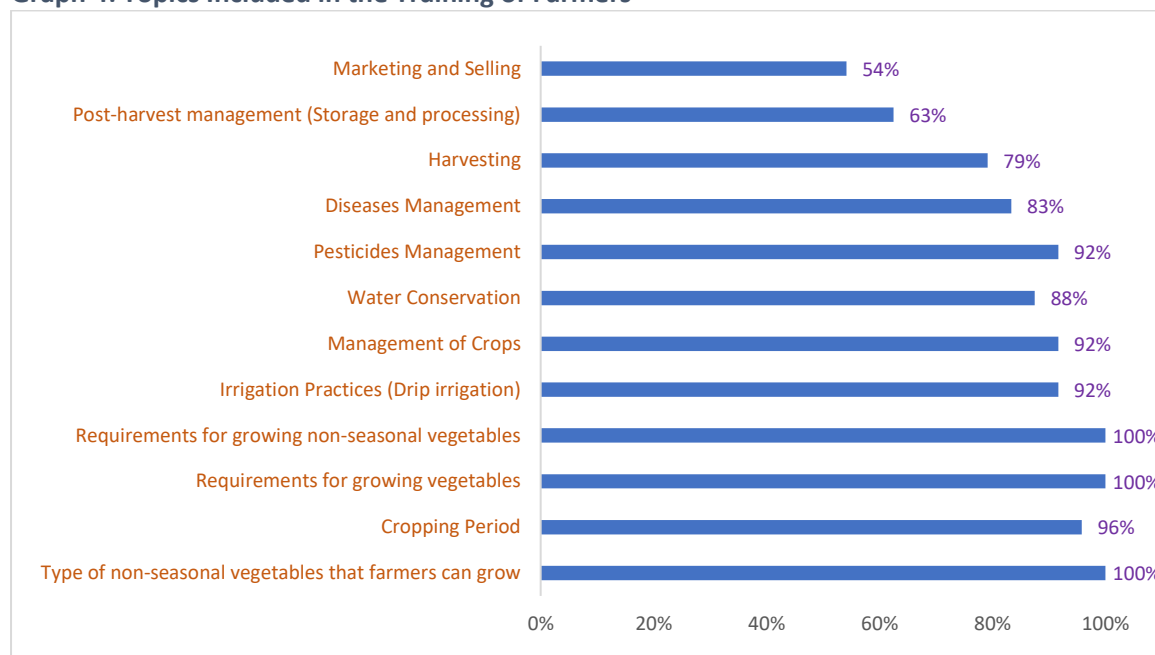
Receipt of Training:

All the farmers were enquired about the type of training received from CoE, Kartarpur and other details about the training. Interestingly, 10 farmers (40%) received training twice and the majority (N=14) could recall the duration as 5-7 days.

“All farmers (100%) received technical training for growing non-seasonal vegetables using poly house technique.”

Enquiry on topics covered under the training revealed that all the farmers (100%) were informed about the type of non-seasonal vegetables and crops they can grow and what are the focused requirements for the same. Almost all farmers (96%) were also told about the cropping period for the variety of non-seasonal vegetables. The following graph depicts the topics covered in the training.

Graph 4: Topics Included in the Training of Farmers



Farmers were provided with all details about the cultivation practices related to non-seasonal vegetables or fruits and other requirements. For some non-seasonal vegetables, these farmers were also given demonstrations at the plots at COE where these

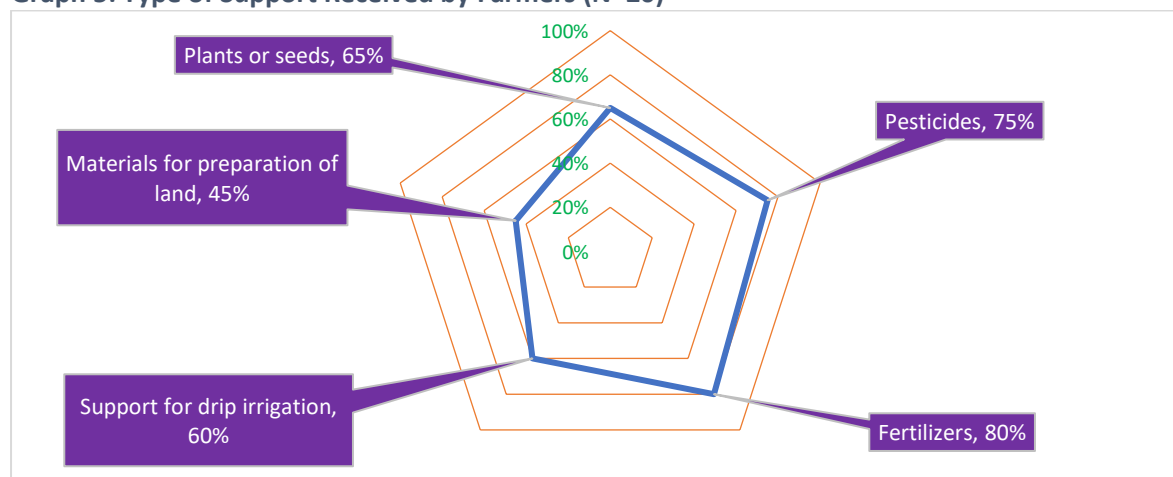
“All farmers (100%) were found satisfied with the trainings received at CoE.”

vegetables are grown for demonstration and institutional selling through their own sales outlet. These farmers were also informed about the post-harvest management of vegetables to keep them fresh using controlled climatic conditions and avoid perishing the harvest. On further investigation, farmers mentioned that with the training, they were able to learn about pesticides and disease management (33%), crop management (34%) and new irrigation practices (33%).

Receipt of Extension Services:

Among all 25 farmers, 20 (80%) agreed that they received different types of support from the Horticulture Department which were beneficial. The key support as extension services these farmers received was guidance on the type and quantity of fertilizers and pesticides to be used, for each vegetable crop. Many farmers also mentioned that they received fertilizers (80%) and pesticides (75%) at subsidized rates. The following graph illustrates the type of support received by these farmers.

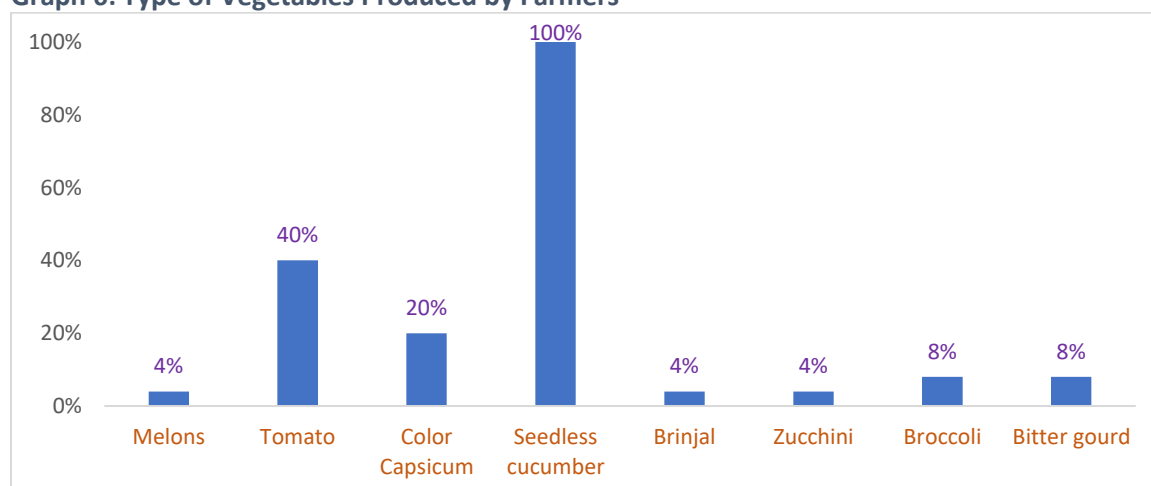
Graph 5: Type of Support Received by Farmers (N=20)



Type of Crop Cultivated:

Further, all the farmers were asked to specify the type of vegetables they have grown post receipt of support for poly house. The following graph presents the non-seasonal vegetables grown by farmers.

Graph 6: Type of Vegetables Produced by Farmers



Largely, farmers were growing seedless cucumber (100%) followed by tomatoes (40%) and color capsicum (20%). Interestingly, farmers were also attempting other vegetables like broccoli and bitter gourd (both 8%) and melons, brinjal and zucchini (4% each).

Three out of five farmers (64%; N=16) could grow two crops in a year and 32% (N=8) attempted and succeeded in growing three crops in a year. This shows that the use of poly house offers opportunities to attempt growing more crops in a year which helps farmers enhance their annual income. However, farmers also informed that for 3 months in a year (May to July), the poly house has to be left for solarization (a process of preparing the beds and pest management). This is also the hottest season of the year and therefore not ideal for cultivation.

Selling the Harvest:

Findings suggest that more than two-thirds of farmers (72%) sold their harvest in Mandi near their villages followed by a quarter (28%) had their shops or enterprises where they sold their crops. Only 5 farmers got the buyers who purchased the harvest directly from the farm.

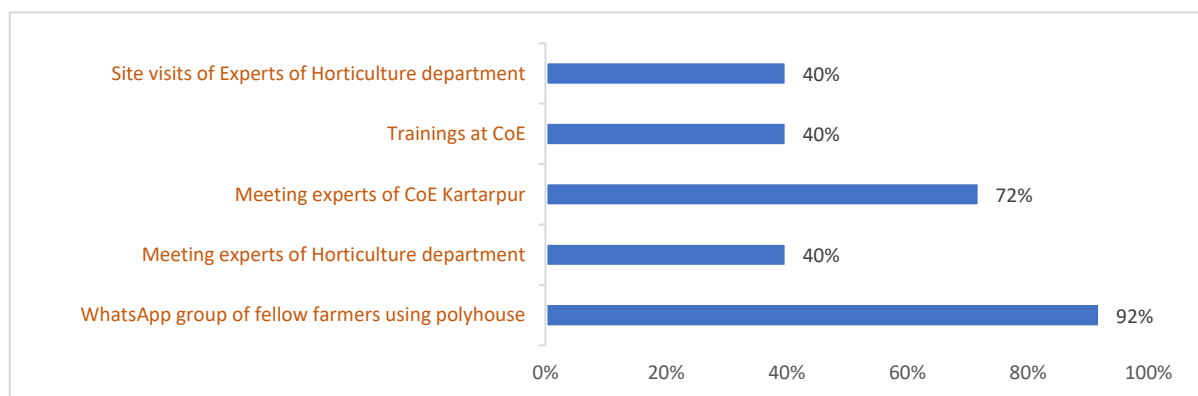
Income from Poly House:

Analyzing the income from poly house, as reported by the beneficiary farmers, it was observed that on average, a farmer earned INR 52,000, from the last harvest they had taken. However, there was a large variation in this income, ranging from INR 30,000 to INR 80,000, which cannot be completely explained by the limited data collected through this assessment. The average income of INR 52,000 per crop, from 480 square meters of land translates to almost INR 800,000 per acre per year, which is at least three times the per acre annual average income generated by cultivating traditional crops like wheat, paddy or millets.

Receipt of Extended Support from Government:

On enquiry, 92% of farmers mentioned that they could seek support from fellow farmers using poly houses through a WhatsApp group. The following graph shows the type of support these farmers received for the management of poly house.

Graph 7: Type of Vegetables Produced by Farmers



The responses from the farmers also depict the efforts of the Department of Horticulture in providing technical support to the beneficiary farmers by responding to their questions and providing the farmers an opportunity to engage with the experts.

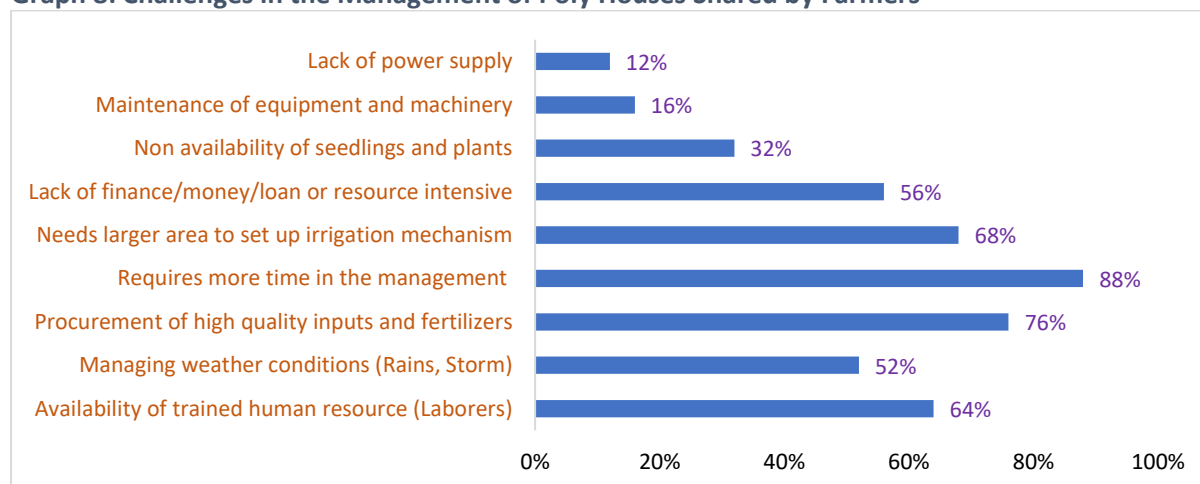
To cultivate non-seasonal vegetables, nearly all of the farmers (96%; N = 24) stated that they would like to keep using poly houses. Inquiries further revealed that the main justifications for maintaining poly house were less effort required for disease and pest management (64%), higher output (80%), improved crop quality owing to controlled conditions (84%), and increased revenue (76%).

Positively 92% of the farmers had the opinion that other farmers also got motivated for opting poly house for growing non-seasonal vegetables after seeing the success of their crop yield, harvesting and higher income. The Department of Horticulture also confirmed that several farmers have approached them for subsidies to set up the poly houses, which they may consider in the forthcoming rounds.

Challenges in the Management of Poly Houses:

These farmers were asked about the difficulties they encountered in managing poly houses. One of the biggest challenges was the time required for the management of poly houses to keep them functional. Other challenges were the procurement of high-quality seedlings and fertilizers (76%) and a broader and larger set-up for the irrigation system (drip irrigation). The challenges shared by the farmers are shown in the following graph.

Graph 8: Challenges in the Management of Poly Houses Shared by Farmers



During discussions, some of the farmers also mentioned the challenges they faced in setting up the poly house, mostly with the contractor identified by the department to install the poly house. Most of them mentioned that the contract used inferior-quality materials, did not provide all materials, as agreed and delayed the installation by a few months. Some of the farmers also mentioned that they had formally submitted a complaint to the department, with a request to blacklist the contractor.

It can be seen that it is not an easy task to manage poly house irrigation but still, the efforts and money expenses on cultivation using poly houses provide a concrete income or revenue that is a true support to the farmers.

ASSESSMENT USING OECD CRITERIA

This chapter discusses the findings based on components included in the OECD framework. The following discussion will demonstrate the overall scoring of the HDFC Bank’s support to the rural farmers of Punjab through the Horticulture Department under the National Horticulture Mission.

FINDINGS

Evaluation Component	Score
Relevance	4.5
<p>The agriculture belt of central Punjab (including districts of Ludhiana, Jalandhar and Kapurthala) is one of the largest producers of vegetables and certain varieties of fruits such as mask melon. The department of Horticulture identified an opportunity to promote the cultivation of exotic vegetables and fruits and also grow certain seasonal vegetables like okra and bitter gourd round the year. For this, advanced methods like poly house were required and the local farmers were willing to experiment, with the support from the Department of Horticulture. The department had earlier tested the waters by training over 100 local farmers on poly house cultivation and found it relevant to encourage farmers to adopt poly house cultivation.</p> <p>The Department of Horticulture had a scheme to provide subsidy for setting up the poly house and had certain budget allocated for the scheme. With the additional support from HDFC Parivartan, the department could reach out to almost double the number of farmers with the allocated budget they had.</p> <p>Hence, it was quite relevant and timely for HDFC Parivartan to collaborate with the department to support these farmers.</p>	
Coherence	4
<p>Discussion with the farmers who have adopted the poly house farming reveals that it is a resource intensive approach and therefore not all farmers can afford to adopt the approach. Therefore, it is highly desirable that the farmers who are willing to adopt the approach are financially supported in some ways and the Department of Horticulture has exactly done that. The support from HDFC has further added value to the support because farmers can then reserve the money as working capital and use it for investing in the purchase of seeds, fertilizers and payment for labour.</p> <p>Under this component, HDFC Bank support was Coherent as farmers were provided with the support in coordination with Horticulture Department at the time when they wanted to have. The farmers largely expected the financial support for the installation along with the extension services like seedlings and fertilizers on subsidy which has been manifested through the findings.</p>	
Efficiency	4
<p>Assessment findings have revealed that all farmers supported under the project for setting up poly house for growing non-seasonal vegetables have adopted the method and have a live poly house. Each of these farmers have taken at least 2 crops of non-seasonal and/or exotic vegetables and some have gone ahead to develop nurseries. All the 25 farmers (100%) covered under the study were trained by the department and</p>	

Evaluation Component	Score
<p>were knowledgeable on agricultural practices such as drip irrigation and applying fertilizers and pesticides through drip irrigation.</p> <p>The department had earlier trained the farmers on adoption of poly house and picked farmers only from that pool of trained farmers to enrol for this program. About 96% of farmers claimed that they would continue using poly house for growing non-seasonal vegetable, particularly seedless cucumber. Therefore, all farmers who were supported under this project are using poly house cultivation regularly and finding it economically productive.</p> <p>Therefore, the intervention is implemented efficiently as the selection of farmers was appropriate and all farmers continue to use the poly house for cultivation.</p>	
Effectiveness	4
<p>Four out of five farmers (80%) reported that they got the increased yield due to poly house project which demonstrates the effectiveness of the support. Moreover, 88% of farmers observed lesser incidences of disease attack on crop and which reduced their input cost on pesticides and provided a higher-grade produce, which fetched them a higher market price.</p> <p>With respect to the sales or increase in income, findings show that on average, a farmer is able to earn INR 52,000 per crop from a relatively small piece of land (480 square meters), which translates to approximately 400,000 INR per acre per crop and with a minimum of 2 crops, it would be INR 800,000 yearly. This is substantially higher as compared to any crop grown using traditional approach. Therefore, it is financially viable for farmers to adopt poly house.</p> <p>This project has economically benefitted the farmers and with the HDFC support, it has been able to benefit an even larger number of farmers.</p>	
Impact	4
<p>The Department of Horticulture is of the opinion that with the additional support from HDFC Bank, they have been able to create a demand for setting up more poly house cultivation in their region. Poly houses in the region are technically guided by the Centre of Excellence and therefore it is benefitting the farming economy of the region. Increase in the number of poly houses in the state will eventually increase the quantity and quality of vegetables and fruits, benefiting the farmers and further strengthening the status of the state in farming economy.</p> <p>Growing non-seasons vegetables and fruits also provides more options for common people, which is another impact this intervention is creating.</p> <p>With active support from HDFC Bank and the proactive approach of the Department of Horticulture, the farmers of central Punjab are creating a replicable example for the rest of the state and country. While it benefits individual farmers, it is certainly creating a positive environment for more and more farmers to adopt this promising practice and contribute to the overall farming economy of the country.</p>	
Sustainability	3.5

Evaluation Component	Score
<p>Assessment team has observed that the poly house cultivation is a revenue generation model. If poly house is managed appropriately, it can continue to earn profit to the farmers for at least 5 years, with minimum investment on repairs and maintenance. All the farmers included in this assessment confirmed that they will continue to use the poly house for the coming years.</p> <p>As long as farmers use poly house with care, which they are using currently, they will continue to generate profit from the intervention.</p>	

Overall Score	4 out of 5
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CONCLUSION AND RECOMMENDATION

The study covered a total of 25 beneficiary farmers who were supported in the installation of poly houses to enhance their yield and income. Following are the conclusion drawn from the study.

- All 25 poly houses were operational, currently being used by the farmers and the overall condition of the poly houses was found to be good.
- All the poly houses were 480 square meters in size with an expenditure of INR 5,46,800 for the installation. The total cost included a 50% contribution from the National Horticulture Mission (NHM), 40% from HDFC Bank Parivartan and 10% from the farmers.
- All the expenditures related to farming were borne by the farmers such as the cost of seeds, fertilizers, pesticides, and labourers used during the cultivation period.
- As per an estimate, in one round of farming in the poly house, the farmer is expected to invest INR 100,000 which includes almost INR 60,000 for labour and INR 40,000 for materials. This seems to be an expensive affair.
- The official from NHM/Department of Horticulture mentioned that if a farmer decides to take benefit of poly house scheme, then there will be a first-time investment of INR 160,000. **This indicates that most of the small or marginal farmers with a low financial capacity to invest would not be able to avail the benefit of this scheme.**
- No set criteria were adopted for the selection of beneficiary farmers rather farmers were informed about the scheme and their participation was sought.
- All the farmers were found growing seedless cucumber and some of the farmers reported cultivating color capsicum, tomatoes and melon.
- Two out of 25 farmers were into making seedlings for selling to their fellow farmers.
- 96% of farmers were facing challenges in open farm cultivation such as lesser yield of crops and lesser income earning. Such a situation forced the farmers to receive major support from the Horticulture department under the NHM scheme (50%), 40% from HDFC Bank Parivartan and 10% by the farmers themselves.
- All the farmers received training at the Centre of Excellence at Kartarpur on the Jalandhar-Amritsar National Highway. The Department of Horticulture provided the confidence and undertook the grievance redressal of their complaints. About 80% of farmers confirmed receiving fertilizers support from the Horticulture department wherein these farmers could buy fertilizers at the subsidized cost.
- Three out of four farmers (75%) confirmed receiving pesticides at subsidized rates from the Horticulture department.
- For the income from poly house, as reported by the beneficiary farmers, on average, a farmer earned INR 52,000, from the last harvest they had taken.
- For income earning, a large variation in the income was observed, ranging between INR 30,000 – 80,000, which cannot be completely explained by the limited data collected through this assessment.
- The average income of INR 52,000 per crop, from 480 square meters of land translates to almost INR 800,000 per acre per year, which is at least three times the per acre annual average income generated by cultivating traditional crops like wheat, paddy, or millets.
- One of the biggest challenges was the time required for the management of poly houses to keep them functional shared by 88% of farmers. Other prominent challenges were the procurement of

high-quality seedlings and fertilizers (76%) and a broader and larger set-up for the irrigation system (drip irrigation) (68%).

Recommendations:

Recommendations are being provided for future programming in designing the intervention as follows:

- A comprehensive report from the grantee organization where full details are reported such as the adopted process, activities, coverage, and evidence.
- While disbursing the money to beneficiary farmers as support, consider all the potential expenditures that are to be incurred during the cultivation phase. For the current grant, they were asked to deposit 10% of the total cost as their contribution but no other evidence was asked to show in terms of capacity of incurring expenditures on the cultivation of the crop.
- A comprehensive monitoring system should be developed to track the progress of the grants.
- Specify the type of beneficiaries to be included in the intervention which essentially means that farmers' financial capacity should be considered where the total cost of the product output of the support is higher (poly house in the current case).



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