NIILM University Shodh Manjusha: An International Multidisciplinary Journal

ISSN: 3049-2785 Vol.02, Issue 02, July- Dec 2025

Comparative Study of Cost Benefit Analysis of Horticulture Crops in Different Climatic Conditions

Ritu[1] and Dhull, Shamsher Singh[2]

[1]Research Scholar, Department of Geography, NIILM University, Kaithal

[2]Professor, Department of Geography, NIILM University, Kaithal

CITATION

Ritu & Dhull, S. S., (2025) Comparative Study of Cost Benefit Analysis of Horticulture Crops in Different Climatic Conditions

Shodh Manjusha: An International Multidisciplinary Journal, *02*(02), 142–151.
https://doi.org/10.70388/sm250148

Article Info
Received: Dec 31, 2024
Accepted: Mar 25, 2025
Published: Jul 10, 2025

https://doi.org/10.70388/sm250148

Abstract

The horticulture industry is responsible for around twenty percent of the gross domestic product (GDP) of agriculture and four percent of the total economic production of the nation. There are a number of problems that have prevented horticulture from reaching the degree of growth that is wanted, despite the fact that there is an abundance of optimal circumstances. There are a number of causes that are contributing to this, the most important of which are the increasing demand from external sources and the evolving dietary preferences of the local population toward foods that include higher quantities of vitamins and minerals. The National Horticulture Mission (NHM) was a program that was funded by the Indian government with the intention of increasing the produce that was produced by the horticulture sector. As part of the tenth five-year plan, it was initiated in 2005–2006 with the purpose of fostering the sector's comprehensive growth by means of policies that were centered on specific regions and regions that were diverse; generating employment opportunities for both skilled and unskilled workers, particularly young people who were without jobs; and so on. The expansion of horticulture to its fullest capacity in the state was another objective of this initiative, as was the increase in production of all horticultural products. Our objectives were all successfully completed.

Keyword: Cost, horticultural, product.

Introduction

Horticulture, which is also one of the subsectors of agriculture that is expanding at the quickest rate, is considered to be one of the most essential industries for the growth and development of an economy from a national perspective. Farmers, cultivators, producers, and workers in the field have access to a broad variety of crop diversification options thanks to the sector, which furthermore offers employment opportunities for horticulture professionals, employs a rising number of people in various capacities within the industry, and provides a wide range of crop diversification choices. The English term "horticulture" is really derived from the Latin words "Hourtus" and "Colere," which were combined to form the English word.The term "Colere" refers to "culture," but the term "Hourtus" refers to their "garden." Latin is the language that both of these terms have their origins in. Horticulture is the discipline of cultivating plants, which includes the cultivation of ornamentals, grass, fruits, nuts, vegetables, herbs, and a wide variety of foliage, in addition to the cultivation of hardwood ornamentals, flowers, and vegetables. Horticulture is a field that brings together the sciences and the arts. Within the garden or landscaping profession, the majority of workers have some level of experience working. In addition to supplying food, horticulture also contributes to the preservation of the natural world and, by employing scientific concepts, offers potential answers to problems that may arise in the future.

In addition, a number of studies have observed and confirmed that there is a growing demand for horticulture crops in both domestic and international markets throughout the world. Because of this, the cultivation of protected crops, the creation of hybrids, the revival of old orchards, the management of postharvest activities, the control of pests and fertilizers, and the cultivation of protected crops need to be given a high priority in order to increase crop yields. Producing crops during the off-season in controlled settings is not only the most effective alternative to the land use plans that are now in place, but it is also one approach to boost the efficiency with which resources are used.

Evolution of Crop Insurance in Haryana

In the year 1920, Shri. J.S. Chakravarthi developed a crop insurance plan that was founded on the idea of rainfall. This plan was produced in the beginning of the 20th century. It is possible that this may result in the beginning of India's unique crop insurance programmes (Vyas and Singh, 2006). This is the place where the idea that would later become known as crop insurance might have been conceived. Despite this, the year 1965 was a big step forward in

the direction of the widespread use of crop insurance measures. Environmental catastrophes led to a reduction in agricultural production, which in turn led to economic losses. As a means of compensating for the losses, this was carried out. Among the various crop insurance choices that are made available by the agricultural sector, the plans that have been listed above are only a few examples. The DHAN Foundation in Haryana and BASIX in Andhra Pradesh are two examples of non-governmental organisations (NGOs) that are collaborating with commercial insurers such as ICICI-Lombard and IFFCO-TOKIO to develop crop insurance plans on a smaller scale. Within the scope of these initiatives, we are working in conjunction with other organisations.

Modified NAIS

The National Agricultural Insurance Scheme (NAIS), which is India's primary crop insurance plan, has a structure that is technically solid with regard to its entire foundation. Nevertheless, there are a large number of locations and characteristics inside the NAIS that have the potential to be improved further. Due to the fact that the bulk of the financing for the current National AIDS Information System (NAIS) comes from ex-post public contributions, both the state and federal governments are susceptible to a financial vulnerability that is highly variable and open-ended. Ex-post financing administrative and financial processes implemented by the government have resulted in severe delays in the payment of NAIS claims, which may often run for as long as nine or twelve months to complete. Farmers who are located in close proximity to insurance units are not given preferential treatment and are not picked in a fair manner because of the inadequate classification of risks.

Select Agricultural Commodities

Rice, which is the most widely consumed staple food in India, is mostly produced from paddy, which is a kind of grain. India is experiencing difficulties in providing food for all of its citizens as a result of its rapidly expanding population. In order to fulfil the needs of the global population for food by the year 2030, it is anticipated that the annual output of foodgrains would need to be increased to 260 million metric tonnes. Rice, which is one of the most important foodgrain commodities produced in India, is grown on 44.4 million hectares of land, and the country's yearly harvest of grain is 84.9 million tonnes. One definition of "inefficiency" is the situation in which a farmer is unable to maximise the quantity of production that is practically attainable given the resources that are available to him.

According to the most recent research, it would seem that farmers in underdeveloped nations do not always make full use of the technology that are available to them. Productivity may be increased in a number of ways, one of which is by improving the effectiveness of the manufacturing process. These are only few of the ways available. In particular, it is an essential component of productivity and growth, particularly in developing agricultural nations that have limited resources and little chances for the development and implementation of new technology for agricultural purposes. This is of utmost significance in agricultural economies that are still in the process of development.

Objective

1. To conduct an investigation on the extent to which people in the area in question are aware of the challenges that agricultural horticulture is now facing.

2. To research the use of high-tech methods for the growing of horticulture crops in locations that are highly restricted.

Method

Since the beginning of the twentieth century, several separate agricultural subfields have emerged. Farmers in this sector develop a broad range of crops, including sugarcane, fruit and vegetable, flower, dairy, and seed cultures, according to their agricultural practices. In contrast to field crops, horticulture crops are largely dependent on the connection with environment in order to produce fruits and vegetables for extended periods of time throughout the year. A strategy that is one of a kind is required since there are a great number of distinct factors involved in the production of fruit, and these variables may vary depending on the region. Taking into consideration the obvious indications of fruit growing, we have made an effort to put together the geographical structure of horticulture in the Rohtak region. Additionally included in this is the cultivation of fruits and vegetables.

Being aware of the many historical contexts that surround the location where the study is being conducted is not only important but also relevant. Because they have a common history, the lives of all of these individuals are interwoven and have a significant influence on one another. It is possible for individuals to derive significant lessons from their experiences, which may then be applied to a variety of scenarios that may arise in the future. It is possible that our past contains a great deal of significance that may be learned from it. In addition,

political factors have a significant influence, if not a complete one, on the modification of the appearance of the region. Through the implementation of a number of projects with the objective of increasing the social and economic conditions of the region, man has the power to lay the foundation for a multitude of programs and initiatives. Both the possibility of agricultural development into wooded regions and the redirection of river water away from constructed reservoirs are two significant factors that posea significant risk to the ecosystem of the surrounding area. When these modifications are implemented, the physical environment will be transformed into a social and economic environment. Because of this, it is extremely important to include a detailed description of each place. This will allow the reader to create their own personal mental image of the area and appreciate it to the best extent possible.

Result and Discussion

Profile Socio-Economic of Choiced Cultivators

In order to achieve the objectives of the sample survey, it is essential to get information on the usual size and composition of households, the level of education of the respondents, and the land-use pattern of the farmer who was chosen. The classification of horticulture producers according to the amount of land they own is now being considered as a potential course of action. It was decided that farmers who were active in horticulture would have their socioeconomic position evaluated when they submit their applications. Included in this calculation were the costs of production that were borne by the farmers. The purpose of this study was to investigate the difficulties that horticultural producers encounter and the degree to which they are content with the intermediaries that they collaborate with in order to sell their products. Additionally, the difficulties that were experienced by intermediaries were brought under scrutiny.

Family Size and its Composition:

In the cultivation industry, the size of a cultivator's family has a significant impact on the availability of human labor resources. Age is an extremely important factor to take into account in the agricultural production system. When it comes to agricultural methods, a person's age has a significant impact on the amount of knowledge they possess. Age is a factor that is taken into consideration while forming different groups of farmers since older people are better able to predict the future. A common belief among academics is that older

people have more life experience in agriculture, which makes them more receptive to new technologies. This is because older people have more agricultural experience. On the other hand, older people are more cautious than younger people when it comes to adopting new technology because of their increased aversion to danger associated with those technologies. Sixty-three percent of the farmers who participated in this study found themselves to be of middle age in relation to the number of persons who lived in their families.

Table 4.1 Respondents' Classification by Age Group

No	Age's groups	Respondents	
		Frequencies	Percentages
1.	Not too old (less than thirty year)	30.0	23.81
2.	between thirty- and sixty-year-old	76.0	60.30
3.	advanced ages (over 60)	20.0	15.86
	Entire	126.0	100.01

Sources: A compilation that was prepared by the investigator and is based on the data that was obtained from the field survey.

There exists a significant relationship between the age range of the farmers who were included in the sample and the type of horticulture that they engage in.

Test's Employed	Level of Liberty	Degree of Importance	Table's Quantity	Determined Values	Results
Chi-Squares	2.0	5.0%	5.992	42.47	Reject

The tabular data the findings indicate that thirty individuals, which means that 23.80% of the total, took part. At the age group level, we discover that sixty-one households, which accounts for 15.87 percent of the total, are classified as belonging to the over-60 age group, while seventy-six families, which constitutes 60.31 percent of the total, are classified as

belonging to the under-60 age group. This is the typical number of members that make up the families of the two farmers that we have included in our sample.

Education:

In the fight against poverty, education is a resource that may be quite useful. It would be beneficial for agricultural workers and farmers alike to continue their education in order to keep up with current events, such as the pricing of crops and the trends in the market. Education is essential for farmers because it enables them to comprehend and evaluate the agricultural information that is provided to them from a variety of sources. The information that was offered by the development agent is something that can be simply understood and evaluated by anyone who is knowledgeable about agriculture.

Table 4.2 Respondent categorization according to educational attainment

No	**Educations**	**Respondent**	
		Frequencies	**Percentages**
1.	Illiterates	29.0	23.00
2.	elementary schools	42.0	33.32
3.	Senior-higher schools	30.0	23.81
4.	Secondary-Higher Schools	15.0	11.93
5.	Graduates	10.0	7.94
	Entire	126.0	100.02

You may find more specific information by looking at Table 4.2. Although only 13% to 18% of the participants were able to read, write, and perform basic arithmetic, 15% of them were actively interested in gardening, according to the findings of the study.

One may observe a considerable correlation between the level of education of the sample farmers and the amount of horticultural goods they produce.

Test's Employed	Level of Liberty	Degree of Importance	Table's Quantity	Determined Values	Results

Chi-Squares	4.0	5.1%	9.487	16.9	Reject

It is possible that the respondents' broad literacy came about as a result of their exposure to urban regions. In addition, it was observed that 33.33 percent of the individuals who grow horticulture had finished elementary school, 23.80 percent had completed high school, 11.90 percent had completed senior high school, and 7.33 percent had graduated from high school.

Conclusion

It has been shown via previous study carried out at the village level in the area that is the subject of this inquiry that horticultural farming is a viable industry. In the specific area that was the subject of the inquiry, the researcher conducted an analysis of the actual situation regarding horticulture farming. Both the fruit segment and the vegetable half of the study are considered to be equally important. At this location, the researcher investigates a broad range of different topics. The scale of the horticulture area was examined, along with the proportion of areas that are irrigated as opposed to regions that are not irrigated, the techniques that are employed, the sources of seed and water, the possibilities for storage and transportation, information on government scheme plans, and standalone systems. Additionally, the researcher looked into the family histories of the farmers as part of their examination, which went beyond agricultural problems. The researcher will speak with the farmers in the Rohtak region throughout the final portion of the study in order to further increase the horticulture growing that is taking place there.Horticulture agriculture was shown to have a favourable correlation with eight of the eighteen criteria that were taken into account in the Rohtak region. There are a lot of variables that are included in this collection. Some examples of these variables are the proportion of the population that lives in rural regions (0.22), the number of cultivators (0.8), livestock, market centres, and irrigated land (0.26). Horticulture has a weak link with other elements such as banks, temperatures, humidity, farming equipment, and fertilisers. This is because horticulture is often a very small industry.

References

1. Amor, F., Gálvez, A., Martínez, B., & Manuel, J. (2019). Cost-Benefit Analysis of Tomato Crops under Different Greenhouse Covers. López-Marin, Josefa & Rodriguez, M & del. *Journal of Agricultural Science and Technology*, *21*, 235–248.
2. Awasthi, O. P., Singh, J., & Singh, B. (2013). Cost benefit analysis uner fruit based multiple cropping system. *Progressive Horticulture*, *43*, 72–75.
3. Baruah, K., Tare, Kime, Sherpa, T., & Kaushik, K. (2023). *Economics of horticultural production*.
4. Bhatt, B. P., & Misra, L. K., lohit krishna. (2018). Production potential and cost-benefit analysis of agrihorticulture agroforestry systems in Northeast India. *Journal of Sustainable Agriculture*, *22*(2), 99–108. https://doi.org/10.1300/J064v22n02_07
5. Daujanov, A., Groeneveld, R., Pulatov, A., & Heijman, W. J. M. (2016). Cost-benefit analysis of conservation agriculture implementation in Syrdarya Province of Uzbekistan. *Visegrad Journal on Bioeconomy and Sustainable Development*, *5*(2), 48–52. https://doi.org/10.1515/vjbsd-2016-0009
6. Dixon, G., Collier, R., & Bhattacharya, I. (2013). An assessment of the effects of climate change on horticulture. *Horticulture*, *2*, 817–857. https://doi.org/10.1007/978-94-017-8581-5_10
7. Elias, A., Nohmi, M., & Yasunobu, K. (2017). Cost-benefit analysis of cultivating three major crops and its implication to agricultural extension service: A case study in North-West Ethiopia. *Japanese Journal of Agricultural Economics*, *19*, 31–36. https://doi.org/10.18480/jjae.19.0_31
8. Gora, J. S., Verma, A. K., Singh, J., & Choudhary, D. R. (2019) R. Kumar, V. P. Singh, D. Jhajharia, R. Mirabbasi (Eds.), *Agricultural impacts of climate change* (pp. 45–61). CRC Press. https://doi.org/10.1201/9780429326349-3
9. Hassan, B., Bhattacharjee, M., & Wani, S. (2021). Value-chain analysis of horticultural crops-regional analysis in Indian horticultural scenario. *International Journal of Applied Research*, *6*, 367–373. https://doi.org/10.22271/allresearch.2020.v6.i12f.8122
10. Karanja, S. (2017a). *Cost and Benefit Analysis for Climate-Smart Soil practices in Western Kenya*.
11. Karanja, S. (2017b). *COST AND BENEFIT ANALYSIS FOR CLIMATE-SMART AGRICULTURAL (CSA) PRACTICES IN THE Coastal Savannah AGRO-ECOLOGICAL ZONE (AEZ) OF Ghana working paper*.

12. P., Prakash & Kumar, Pramod & Reddy K, Viswanatha & Jaganathan, D. & Immanuel, Sheela, Perumal, Anbukkani, Sivalingam, Niranjan, Selvakumar, Raman, Venkatesh, Paramesh, Rajanna, G. A., Kamble, A. L., Selvakumar, R., Immanuelraj, K. T., Manogaran, B. R., Perumal, A., Maruthanayagam, U., Niranjan, S., … Niranjan, S. (2022). Protected cultivation of horticultural crops as a livelihood opportunity in Western India: An economic assessment. *Sustainability*, *14*(12). https://doi.org/10.3390/su14127430
13. Singh, T. (2014). *Cost-benefit analysis of vegetable cultivation: A case study of Patiala District*, *4*.
14. Webb, L., Darbyshire, R., & Goodwin, I. (2014). Climate change. *Horticulture*. https://doi.org/10.1016/B978-0-444-52512-3.00240-0
15. Yadav, A. (2018). Cost benefits ratio of organic horticultural products and comparison with conventional products. *International Journal of Advanced Biological and Biomedical Research*, 1. https://doi.org/10.18869/IJABBR.2018.95