**A Study on Recent Performances and Achievements of Horticulture in Himachal Pradesh**

**Abstract**

In this paper the performances and achievements of horticulture sector in terms of fruit production and income generation has been analysed in Himachal Pradesh. The study basically aims at analyzing the trends and patterns of fruit productivity and the resultant income generated in the sectors along with the investigation of annualized growth rates in the said aspects. The study has been conducted on the basis of the secondary sources of data and descriptive cum analytical methodology has been used in the study. It has been found from the study that, the leading position in fruits production has been occupied by apple, the state fruit of Himachal Pradesh. The production of the same has been found to be contributing the highest percentage of the annual state income of Himachal Pradesh followed by the production of different other tropical and sub-tropical fruits in the state. However, negative growth rate has been found in case of the productivity of apple and other tropical fruits in recent times. Thus, the unsatisfactory and underperformances of fruit production in Himachal Pradesh requires efficient government intervention.

**Keywords**: Fruits production, Tropical fruits, Sub-tropical fruits, Annual state income

**Introduction**

The global scenario is keep on changing in the present time and in this context the most vital issues like food, nutrition, and livelihood security are the matter of great concern across the globe to strengthen human, social and economic development. It is quite common and relevant to think that livelihood opportunities are the key factors behind the growth and development of any economy. This opportunity depends in turn on the basic structure of the economy including climatic condition, major productive sectors, major income generating sectors, quality of labor force, technical and advancement and the technological state. In this context, the work force participation and the condition of labour market determines the livelihood earning of workers. Despite the fact that, almost 70 per cent of the population in India are directly related and dependent on agriculture and allied activities but the declining trend of food grains production in the different states and lack of food security in an unstable phase are the two biggest challenges in our country. However, it is well recognized that, in improving the income of the rural people, horticulture play a vital and unique role in Indian economy by ensuring livelihood security. Farmers engaged in the production of fruits and vegetables earn relatively higher than farmers engaged in the production of cereal crops only (Babu, Naresh., et al. 2018). The economy of Himachal Pradesh is basically agrarian in nature and it is the only state in India almost 90 percent of total population lives in rural area in the state. Agriculture and horticulture sector are the major employment generating sectors which provides direct employment of almost 70 percent of work force in Himachal Pradesh. Horticulture play a unique role in the state economy of Himachal Pradesh by improving the income of the major work force participants ensuring their livelihood security and enhancing the standard of living. Among majority of work force in Himachal Pradesh horticulture has wider adaptability and provides wide range of choice to farmers which paves the strategic way of cultivating a wide range of crops in different environment, soil and climate conditions. Even in marginal and degraded soils the farmers can produce horticultural crops which enriches the farmers possessing degraded land by having variety of choice of crops and practices in real context (Singh & Malhotra, 2011). Conducive climatic conditions prevail in Himachal Pradesh which offers enough livelihood opportunities to the people of the state in terms of cultivating fruits especially apple and stone fruits in the northern high and low hills along with cultivation of other sub-tropical fruits grown in warm temperate and sub-tropical regions. A part from this, the rich agro-climatic conditions and topographical variations characterized by the well fertile soils offers the favourable environment to cultivate a variety of fruits ranging from temperate to sub-tropical fruits along with other ancillary horticulture produce lie different types of flowers, mushrooms, honey, hops etc. (Economic Survey Report, Himachal Pradesh: 2020-21). Horticulture sector is wide and diverse which includes the production of fruit, Production of ornamental plant including the Floriculture, Mushroom, Honey, and novel crops. The year 2021 has been declared as the International year of Fruits and Vegetables by the Food and Agriculture Organization (FAO), United States. As per 2020-21 estimates, India has produced about 331 million tons of horticulture produce. It occupies the second position in production of fruits and vegetables after China across the globe with a contributing share of 11.38 percent of fruits and vegetables production. Under the Himalayan ecosystem, the climatic condition of Himachal Pradesh is favouarble for horticultural produce which ranges from temperate to sub-tropical regions in the state (Draft Himachal Pradesh Horticulture Policy, 2022). Having this background of diversified importance and significance of horticulture based livelihood opportunities, this study has been undertaken in the context of mountain livelihood opportunities in Himachal Pradesh. Previous studies on horticulture based livelihood opportunities mainly focused on analyzing the trend of horticultural productivity, area under cultivation based on old data. However, there has been hardly any study found in the context of Himachal Pradesh analyzing the issue of current trends and future prospects of livelihood earning in the state. To mitigate this research gap, the present study focuses on the current trends in horticulture produce along with the income generating opportunities in the sector with an aim to emphasize on the lagging of present outcome of the sector and the future potentialities. The study will contribute to the policy makers and researchers to understand the current scenario of horticulture sector comprising of productivity trend and income generation in Himachal Pradesh.

**Objectives of the Study**

1. To analyse the trends and patterns in the annual fruit production and to investigate the growth rate per annum of the same in Himachal Pradesh during 2010-11 to 2020-21.
2. To examine the status and to investigate the annual growth rate of state income generated from fruit production in Himachal Pradesh during 2010-11 to 2020-21.

**Review of Literature**

Horticulture is an important part of the agriculture sector and huge potential to contribute to the growth of the nation. There are many problems irrigation, marketing and storing the yield in this sector. The horticulture sector is not only meant for sustainable livelihood but also it helps maintain the sustainable environment by maintaining the ecology (Basa & Sahu, 2023). Horticulture practices help to generate employment opportunities in the rural areas. The rate of employment generation has increased to 25% from the 18% in the previous years by cultivating horticulture crops (Chapke & Tonapi, 2018). Literature tends to agree that participants of horticultural exports must reorient towards meeting the changing global markets and embracing opportunities through product and market diversification (Shepherd & Wilson, 2013). In modern economy, Horticulture has evolved as one of the highly potential sector for accelerating the growth of an economy (Mahesh, 2000). Export horticulture has become one of the highlights of African development because it has raised production standards in agriculture; provided good opportunities for increasing rural area incomes; improved nutrition of the people; resulted in diversification of exports; provided raw materials for agro-based industries and created employment, especially for the youth and women (Ouma, 2010, Ulrich, 2014 & Ongeri, 2014). Farming of horticultural crops particularly, fruit cultivation is the main occupation of the farmers of the upper Minjiang River basin of Sichuan province, China. Although the quality of fruits is high as well as high production and productivity but the villages are lacking in cold storages and arable land is comparatively less under horticultural crops which are major challenges in horticulture based livelihood opportunities (Sati et al. 2015). Export horticulture production is dominated by multinational companies that have established large-scale land investments of over 100 hectares of land with technology and labor to complement the production (Peter et al. 2018). Kenya’s export horticulture is regarded as an agro-industrial food system based on the economies of scale producing for mass markets outside of the production area (Henson & Humphrey, 2010 & Colonna, 2013). Studies on horticulture in Kenya and other African countries including Senegal reported both positive and detrimental effects of this sector to development and livelihoods (Dolan & Humphrey, 2000 & Asfaw et al. 2010). Export horticulture, when regarded as an agro-industrial food system producing for commercial markets outside of the production area thus, needs to be interrogated further in relation to sustainable food systems and ecological considerations and resource use (Colonna et al. 2013). There is climate risk in Indian horticulture as in the districts of North Bengal particularly in Cochlear the impact of climate variation dishearten not only horticulture sector but also entire agriculture sector (Datta, 2013). There are tremendous role of horticulture in human nutrition. From the existing literature it is clear that, on the one hand there are several glitches for the rural farmers to adopt new strategies to augment their farming pattern and this is due to lack of awareness and circulation of the new knowledge and ideas to accelerate the agriculture production (Padhy & Behera, 2015). Horticultural products are less diversified while the Hirschman-Herfindahl index for the market diversification showed are more diversified markets access. This shows that horticultural products have not increased instead concentrated into the same products while widening market access to other regions (Jane et al. 2022). Production and productivity of horticultural crops has been increased over the period but there is instability in production, productivity and area at both state and national level. On the other hand, there is a high positive correlation found between area and production of horticultural crops (Bhuyan & Kotoky, 2023). In Kenya, large-scale export-oriented horticulture farms, cultivating fruits, flowers and vegetables are facing challenges in front of crucial issues like increasing river water abstractions and related water scarcity, the call for living wages and social security etc. (Ulrich, 2014). In Kenya, horticultural production has been the second most important foreign exchange earner in the agricultural sector, after tea, over the past decade (Swinnen & Maertens, 2007). Farm size and irrigation was positive implication on households’ market participation of horticultural crops. The size of land allocated for horticultural crops affected the smallholder commercialization of horticultural crops positively and significantly (Tufa et al. 2014). The inequalities in common pool resources, mainly water and land including the land ownership disparities experienced between the rich and poor, unresolved colonial land legacies and post-colonial disintegration of big-man, big-land notions that have continuously marginalized local populations from producing horticulture goods (Nqutu et al., 2018). The growth in horticultural production of fruits and vegetables, for export, in developing countries has also been coupled with dramatic changes in governance patterns of trade in the sector (Ouma, 2010, Ellen, 2005 & Ellen, 2015). Large-scale land investments, such as export horticulture often emphasize the rapid increase in yield they can produce and the additional employment they can provide (Letai, 2011, De Schutter, 2011 & Borras, 2011). Export horticulture has become one of the highlights of African development because it has raised production standards in agriculture provided good opportunities for increasing rural area incomes; improved nutrition of the people etc. (McCulloch & Ota, 2017). Urban horticulture has positive effects on social, economic, food, and ecological sustainability within cities. It increases community livelihood, saves energy, sustains the environment, and improves health through fresh food supplies in urban environments (Khan et al. 2020). Urban Horticulture has emerged as a viable concept with the aim to provide sufficient fresh and safe food to cities, to achieve a sustainable food supply and food security (Jawaharlal & Kumar, 2013). Horticultural commodities, such as fruits and vegetables, are rich in minerals, fibers, and bioactive compounds and have the potential to reduce malnutrition. It also increases positive attitudes toward nature and natural habitats (Nugent, 2000, Haberman, 2014 & Artmann & Sartison, 2018). Higher poverty rates, malnutrition, stunted growth, and rising populations across the world have enhanced the importance of urban horticulture (Dubbeling et al. 2010). Urban horticulture is a way to increase the self-reliance of cities. It can lead to cities that are self-sufficient and independent (Ni et al. 2016). Urban horticulture has lessened the load of synthetic fertilizers and pesticides that are carcinogenic and hazardous to human health, and it has promoted the use of organic foods that are natural and healthier (Specht et al. 2014). In addition, there is an increased interest seen in indoor planting, as urban horticulture provides relief, reduces stress, and improves physical and mental health. Indoor planting improves the quality of air, visual stimulation, and has psychological benefits (Park et al. 2016 & Yang et al. 2009). In West Bengal, horticulture is an important allied sector of agriculture, which provides supplementary income, alternative livelihood especially to the landless, employment opportunities during non- agricultural seasons (Halder & Das, 2012). In Himachal Pradesh, agriculture and horticulture is mainstay of the rural population. The livelihood of more than 96% of population depends on agriculture and horticulture (Ram & Naithani, 2022). Presently in Himachal Pradesh, apple farming has become the prime source of occupation, income, and livelihood for the maximum proportion of district inhabitants, which have considerably influenced the stakeholders’ socio-cultural life (Yasmin et al., 2023). Endowed with conducive agro-climatic and geographical attributes, the state of Himachal Pradesh, the ‘fruit bowl of India’, has appreciably produced nearly 34 varieties of tropical and temperate fruits (Kaur, 2019). A sizeable proportion of cultivated land in a few districts like Shimla, Kullu, Mandi, Chamba, and Kinnaur are engaged in apple cultivation, and their share in this sector has been enhanced consistently. Besides, these districts have also produced a huge quantity of good-quality apples with a remarkable yield rate (Negi, 2020). The climate of Himachal Pradesh is suitable for agriculture and horticulture due to which a large number of agriculture and horticulture crops like food crops, fruit crops, flowers, mushrooms, vegetables and medicinal plants are successfully grown in the state (Kaushal et al. 2017). Himachal Pradesh grow various varieties of fruits from tropical to temperate which help in the economic development of the rural economy by generating employment and revenue to rural population (Chanda & Chandel, 2018). In a study in Himachal Pradesh it has been found that, the highest concentration of land under fruit crops has been reported in Kinnaur, Kullu, Shimla, and Lahaul districts. Districts like Lahaul-Spiti, Kullu, Kinnaur, and Shimla have low levels of fruit crop diversification in 2020-21 (Singh et al., 2022).

**Data Source and Research Methodology**

The presentstudy is based on secondary sources of data collected from the official website of Department of Horticulture, Government of Himachal Pradesh available at (<https://eudyan.hp.gov.in>) & (<https://eudyan.hp.gov.in/Department/Portal/CitizenServices.aspx>.) Moreover, to examine and analyse the detailed aspects of horticultural productivity, area under cultivation and annual turnover of state revenue generated from the horticultural produce, data has been derived from other secondary sources. The sources include- Draft Himachal Pradesh Horticulture Policy Report, 2022, Economic Survey Report 2020-21, Statistical Year Book of Himachal Pradesh 2019-20 Published by the Economics and Statistics Department, Government of Himachal Pradesh. The data has been analyzed with the help of descriptive statistics like tabular and graphic presentations. In order to present the chronological trend of horticultural productivity and resultant revenue generation from the sector, trend line has been used. Moreover, percentage annual growth rate of fruit production and annual revenue growth rate has been calculated in a time period t by using the following formula-

Growth Rate= $\frac{A}{B}$ x 100

Where, A= difference between the variables (say fruit production, revenue generation etc.) at period t and (t-1) in a state.

 B= the variable in (t-1) time period in that state.

**Analysis of Data, Results and Discussion**

**Trends and Patterns in the Annual Fruit Production in Himachal Pradesh during 2010-11 to 2020-21**

The annual fruit production is an important indicator of the performance of horticulture sector in Himachal Pradesh. It necessarily reflects the recent trends of livelihood opportunities in the sector which is reported in table 1.

**Table 1: Patterns of Annual Fruit Production in Himachal Pradesh (in Million Tonnes)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Apple** | **OTF** | **N & D** | **Citrus** | **OSTF** | **Total** |
| 2010-11 | 892112 (86.80) | 61378 (5.97) | 3620 (0.35) | 28676 (2.79) | 42035 (4.09) | 1027821 |
| 2011-12 | 275036 (73.77) | 31181 (8.36) | 2489 (0.67) | 25037 (6.72) | 39080 (10.48) | 372823 |
| 2012-13 | 412395 (74.21) | 55025 (9.90) | 2808 (0.51) | 24316 (4.38) | 61164 (11.01) | 555708 |
| 2013-14 | 738723 (85.27) | 66133 (7.63) | 3478 (0.40) | 22273 (2.57) | 35737 (4.13) | 866344 |
| 2014-15 | 625199 (83.15) | 43611 (5.80) | 2414 (0.32) | 22165 (2.95) | 58549 (7.79) | 751938 |
| 2015-16 | 777126 (83.67) | 70259 (7.56) | 3373 (0.36) | 26624 (2.87) | 51447 (5.54) | 928829 |
| 2016-17 | 468134 (76.51) | 51496 (8.42) | 2986 (0.49) | 28051 (4.58) | 61210 (10.00) | 611877 |
| 2017-18 | 446574 (79.00) | 45148 (7.99) | 3378 (0.60) | 26853 (4.75) | 43354 (7.67) | 565307 |
| 2018-19 | 368603 (74.41) | 37146 (7.50) | 3649 (0.74) | 29344 (5.92) | 56620 (11.43) | 495362 |
| 2019-20 | 715253 (84.60) | 49847 (5.90) | 4245 (0.50) | 32109 (3.80) | 43968 (5.20) | 845422 |
| 2020-21 | 481062 (77.03) | 40645 (6.51) | 4685 (0.75) | 33293 (5.33) | 64800 (10.38) | 624485 |

**Source:** Department of Horticulture, Government of Himachal Pradesh

Figure in the parentheses indicates percentage to total

OTF- Other Tropical Fruits, N&D- Nuts and Dry Fruits, OSTF- Other Sub-Tropical Fruits

Table 1 depicts that, productivity of Apple the state fruit of Himachal Pradesh is occupies the leading position among the fruit categories. It contributes 75 percent and even more in the total fruit production of the state. Other tropical fruits reveal a single digit productivity in percentage which includes the fruits like Almond, Walnut, Peanut, Hazulnut and Chest nut. Percentage productivity of Nuts and dry fruits are very negligible and below 1 percent of total fruit production. This category includes the fruits like mango, Litchi, Guava, Papaya, jackfruit, Grapes, Banana etc. Productivity of citrus ranges from 2 to 6 percent in the study period. However, percentage productivity of other sub-tropical fruits including Orange, malta, Kagzi lime, galgal etc. is relatively higher compared to other fruit categories. A closer look in to the table reveals that, in Himachal Pradesh, the major livelihood earning opportunities of the people are linked with the production of Apple. However, production of tropical and sub-tropical fruits are also the means of livelihood in the state but productivity contribution of these fruits are very negligible. In the recent time during 2020-21, it is seen that, in the total fruit production basket, contribution of apple is 77 percent and the rest 23 percent is contributed by all other categories of fruits. The trends in the annual fruit productivity in Himachal Pradesh is presented in figure 1.

**Figure 1: Annual Trends in the Fruit Production in Himachal Pradesh**

**Source: Drawn on the basis of table 1.**

OTF- Other Tropical Fruits, N&D- Nuts and Dry Fruits, OSTF- Other Sub-Tropical Fruits

As observed from figure 1, the direction of the trend line of apple production is almost similar to the trend line direction of total fruit productivity which implies that the total fruit productivity in Himachal Pradesh is determined by the productivity of apple. The small gap between the two trend lines indicate that, the contribution of other categories of fruits is very less and apple’s contribution is highest in the total fruit productivity. Productivity of other tropical and sub-tropical fruits are far lagging behind indicating the negligible contribution of these. The productivity trend of apple is not straight rather we see that from 2011-12 onwards annual production of apple has been increased up to 2015-16 with a slight downfall in 2014-15. However, after 2015-16 apple production has been drastically reduced with a sharp hike in 2019-20 followed by a downtrend again in the year 2020-21. Thus it is evident that, total fruit production including apple has been drastically fall down in recent times in Himachal Pradesh which is a challenge in livelihood earning.

**Annual Growth rate in Fruit Production in Himachal Pradesh**

Calculation of annual growth rate in fruit productivity is important in the sense that it is an indication of progress in the horticulture sector in a particular year in comparison to the previous year over time period. This is reported in table 2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Time Period | Apple | OTF | N & D | Citrus | OSTF | Total |
| 2010-11 | - | - | - | - | - | - |
| 2011-12 | -69.17 | -49.20 | -31.24 | -12.69 | -7.03 | -63.73 |
| 2012-13 | 49.94 | 76.47 | 12.82 | -2.88 | 56.51 | 49.05 |
| 2013-14 | 79.13 | 20.19 | 23.86 | -8.40 | -41.57 | 55.90 |
| 2014-15 | -15.37 | -34.06 | -30.59 | -0.48 | 63.83 | -13.21 |
| 2015-16 | 24.30 | 61.10 | 39.73 | 20.12 | -12.13 | 23.52 |
| 2016-17 | -39.76 | -26.71 | -11.47 | 5.36 | 18.98 | -34.12 |
| 2017-18 | -4.61 | -12.33 | 13.13 | -4.27 | -29.17 | -7.61 |
| 2018-19 | -17.46 | -17.72 | 8.02 | 9.28 | 30.60 | -12.37 |
| 2019-20 | 94.04 | 34.19 | 16.33 | 9.42 | -22.35 | 70.67 |
| 2020-21 | -32.74 | -18.46 | 10.37 | 3.69 | 47.38 | -26.13 |
| Avg. GR | 6.83 | 3.35 | 5.09 | 1.91 | 10.50 | 4.20 |

**Table 2: Annual Growth rate in Fruit Production in Himachal Pradesh**

**Source:** Department of Horticulture, Government of Himachal Pradesh

OTF- Other Tropical Fruits, N&D- Nuts and Dry Fruits, OSTF- Other Sub-Tropical Fruits

Table 2 reveals that, percentage growth rate of apple production is highest i.e, 94 percent the year 2019-20. Though the growth rate of apple is 69 percent in the year 2011-12 but growth rate has been decreased after that except in the years 2013-14 and 2019-20. Growth rate in the production of other fruits including tropical, Nuts and dry and other sub-tropical fruits has been decreased in the recent times. It is to be noticed from the table that, in the whole study period almost half of the period shows negative growth rate in the production of different types of fruits. Highest negative growth rate in production of apple has been found in the six years in the period considered. It is important to note that, the negative growth rate in the production of apple in particular and the total production of fruit in general occurred at the same time period which clearly indicates that, the annual fruit productivity in Himachal Pradesh is determined by the productivity of apple. Though it is seen that, nuts and dry fruits production experienced least negative growth rate and other fruits also experienced lesser negative growth rate compared to apple but it is not significant as apple’s productivity. In the recent times 2020-21, it is seen that, apple and other tropical fruits has revealed negative growth rate which hampers horticulture based livelihood opportunities in the state.

**Status Report of Annual State income generated and its growth rate from Fruit Production in Himachal Pradesh during 2010-11 to 2020-21**

The annual market value of the fruits produced in Himachal Pradesh is an indicator of the livelihood earned by the people in the state. It further indicates the status and position of horticulture sector in providing livelihood opportunities which is presented in the figure 2.

**Figure 2: Status of Annual State income Generated from Fruit Production in Himachal Pradesh**

Source: Drawn on the basis data derived from the Department of Horticulture, Government of Himachal Pradesh

As seen from the figure 2, the highest annual state income has been generated from the fruit production in Himachal Pradesh in the year 2019-20 about rupees 6300 crore. Though the second highest annual income has been earned from the said sector in the year 2013-14 but income generated in other period are not satisfactory. The lowest income earned from the fruit production has been found in the period 2011-12 and 2017-18 indicating the poor performance of horticulture sector in case of fruit production. The ups and down in the status of income generation from the said sector indicates the inefficient performance of the sector in providing livelihood earning to the people of the state. In the recent time during 2020-21, the annual income generated from the fruit production has been fall down to almost rupees 3600 crore which is an unhealthy symptom in the horticulture sector in Himachal Pradesh.

|  |  |
| --- | --- |
| **Time Period** | **Annual Percentage Growth Rate in Income from Fruit Production** |
| 2010-11 | - |
| 2011-12 | -37.73 |
| 2012-13 | 104.53 |
| 2013-14 | 22.98 |
| 2014-15 | -25.85 |
| 2015-16 | 16.82 |
| 2016-17 | -31.26 |
| 2017-18 | -20.1 |
| 2018-19 | 33.86 |
| 2019-20 | 104.24 |
| 2020-21 | -41.89 |
| Average Growth Rate | 12.56 |

**Table 3: Annual Growth rate in State Income from fruit Production in Himachal Pradesh**

**Source:** Department of Horticulture, Government of Himachal Pradesh

Table 3 depicts that, the annual growth rate in income generated from the production of fruits in Himachal Pradesh is composed of both positive and negative rate and the negative growth rate is found in half of the time period. The highest annual growth rate in income generated from the said sector has been found during the period 2012-13 and 2019-20. It is observed from the table that, growth rate in income from the said sector is unstable with the lowest positive growth rate in the year 2015-16. Positive growth rate in income as seen in table 3 indicates the successive increase in the annual fruit productivity and resultant income generation in a year in comparison to the previous year. This is a healthy symptom in the horticulture sector providing the scope of earning. However the opposite is the case happened in case of negative growth rate as it is an indication of successive fall in productivity and income in a year compared to the preceding year. It is surprising to note that in recent time during 2020-21, negative growth rate has been found in the income generated from the sector. It is further observed that, the average growth rate is far lagging behind the growth rate in respective year indicating the deteriorating scope of earning livelihood form horticulture produce in Himachal Pradesh.

**Conclusion and Policy Suggestions**

So far as the analysis is concerned in this study, it is found that, the annual productivity of horticultural produce especially in case of fruits and the resultant income generated from the said sector is mainly and primarily influenced by the production of apple in Himachal Pradesh. It is noteworthy that, although the contribution of other fruits in strengthening this sector is very less but these fruits not only provides food security rather provides the scope of earning as well. The matter of concern is that, in recent times it has been found that, the productivity of apple has been drastically fall and so as to have tremendous impact on annual state income and in turn on live livelihood of people in the state. The recent trends in horticulture sector indicates unhealthy and inefficient management and practices with ample future prospects of livelihood earning if the causes behind such deterioration in productivity and income per annum is investigated and resolved. Though it is a descriptive study at the preliminary stage, it is suggested that, government must take immediate steps to find out the recent downfall in horticulture production in Himachal Pradesh and renovate the horticulture sector in the modern scientific line to ensure sustained livelihood in this sector. Moreover, the common masses including farmers must also undertake necessary steps to strengthen the major contributing sector in overall development of the state.

**Limitations and Future Scope of the Study**

The study has the limitation in the context of partial intervention in the fruit segment of the horticulture sector and the overall state level analysis. Thus, future research has the scope to conduct studies at the district level in particular and in the context of India as a whole to understand the status of the sector along with finding the causes behind the recent deteriorating performance in the said sector.

**References**

1. Aman Tufa, Adam Bekele and Lemma Zemedu (2014). African Journal of Agricultural Research, 9(3), 310-319, DOI: 10.5897/AJAR2013.6935.
2. Anne Ulrich (2014). Export-Oriented Horticultural Production in Laikipia, Kenya: Assessing the Implications for Rural Livelihoods. Sustainability 2014, 6, 336-347, doi:10.3390/su6010336.
3. Artmann, M.; Sartison, K. (2018). The Role of Urban Agriculture as a Nature-Based Solution: A Review for Developing a Systemic Assessment Framework. Sustainability, 10, 1937.
4. Asfaw, S., Dagmar, M., and Waibel, H. (2010). Economic Impact of GlobalGAP Standards on African Producers: the case of Horticultural Export from Kenya. International Journal of Food, Agribusiness and Marketing, 22, 225–276.
5. Basa, Smruti Rekha,. & Kabita Kumari Sahu (2023). Impact Of Horticulture On The Livelihood of Rural Farmers in Mayurbhanj District of Odisha. EPRA International Journal of Agriculture and Rural Economic Research (ARER), 11(2), 6-15, DOI: https://doi.org/10.36713/epra0813.
6. Benojir Yasmin, Arindam Roy, Mehedi Hasan Mandal, Giyasuddin Siddique, and Subhendu Ghosh (2023). Challenges and Prospects of Apple Cultivation in Himachal Pradesh. Space and Culture, India, 10(4), 52-67 <https://doi.org/10.20896/saci.v10i4.1252>.
7. Borras, S.M., Jr.; Hall, R.; Scoones, I.; White, B.; Wolford,W. (2011). Towards a better understanding of global land grabbing: An editorial introduction. J. Peasant Stud. 2011, 38, 209–216.
8. Chanda, K.& K.Chandel (2018). Challenges for Horticulture Industry in Himachal Pradesh: Vision 2030. HGPI International Journal of Multidisciplinary Research and Development, 1(1), 24-28.
9. Chapke, R. R., & Tonapi, V. A. (2018). Socio-economic impact and adoption of improved post-rainy sorghum (Sorghum bicolor) production technologies in Maharashtra. Indian Journal of Agricultural Sciences, 88(7), 992-7.
10. Chet Ram & B.P. Naithani (2022). Contribution of Agriculture and Horticulture in Rural Development of Kullu Block (Kullu District, Himachal Pradesh) and Related Challenges. Shodhsamhita, 9(3), 172-183.
11. Colonna, P., Fournier, St., and Touzard, J.-M. (2013). Food Systems. In M. R. and N. B. Catherine Esnouf (Ed.), Food system sustainability. Insights from DuALIne: 69–100. Cambridge University Press.
12. Dalip Singh, Sanjeev Kumar & Ajay Chanjta (2022). Cultivation of Fruit Crops in Himachal Pradesh: Trend, Concentration and Diversification. Journal of the Asiatic Society of Mumbai, 96(9), 104-115.
13. Datta, S. (2013). Impact of Climate Change in Indian Horticulture - A Review. International Journal of Science, Environment and Technology, 2(4), pp. 661-671.
14. Debajit Bhuyan , Ankita Kotoky (2023). Instability in Production and Productivity of Horticultural Crops in Assam. Indian Journal of Agricultural Research, 57(1), 23-27.
15. De Schutter, O., (2011). How not to think of land-grabbing: Three critiques of large-scale investments in farmland. J. Peasant Stud., 38, 249–279.
16. Dolan, C., Humphrey, J. (2000). Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry. Journal of Development Studies, 37(2): 147–176. <https://doi.org/10.1080/713600072>.
17. Dubbeling, M.; Zeeuw, D.H.; Veenhuizen, V.R. (2010). Cities, Poverty and Food Multi-Stakeholder Policy and Planning in Urban Agriculture; RUAF Foundation: Rugby, UK, 152.
18. Economic Survey Report of Himachal Pradesh, 2020-21 published by the Economic and Statistics Department, Government of Himachal Pradesh Retrieved from <https://himachalservices.nic.in/economics/en-IN/publications.html> accessed on 10th May, 2023.
19. Ellen, P., (2005). Overview of the Sanitary and Phytosanitary Measures in Quad Countries on Tropical Fruits and Vegetables Imported from Developing Countries; (No. 1); University of Antwerp: Antwerp, Belgium.
20. Haberman, D.; Gillies, L.; Canter, A.; Rinner, V.; Pancrazi, L.; Martellozzo, F. (2014). The Potential of Urban Agriculture in Montréal: A Quantitative Assessment. ISPRS Int. J. Geo Inform. 3, 1101–1117.
21. Henson, S., Humphrey, J. (2010). Understanding the Complexities of Private Standards in Global Agri-Food Chains as They Impact Developing Countries Understanding the Complexities of Private Standards in Global Agri-Food Chains as They Impact Developing Countries. The Journal of Development Studies, 46(9): 1628–1646. https://doi.org/10.1080/00220381003706494.
22. H.P. Singh and S.K. Malhotra (2011). Horticulture for Food, Nutrition, Health Care and Livelihood Security, Key note lecture in International Consortium of Contemporary Biologists, 4th International Conference on Life Science Research for Rural and Agricultural Development at Central Potato Research Station, Patna, 27-29, 2011.
23. Humphrey, J. (2008). Private standards, small farmers and donor policy: EUREPGAP in Kenya. Working paper series, 308. Brighton: IDS. <http://bldscat.ids.ac.uk/cgi-bin/koha/opac-detail.pl?biblionumber=178597>.
24. Jadab Chandra Halder and Pannalal Das (2012). Present Status and Futuristic View of Horticulture in West Bengal. Geo-Analyst, 2(1), 1-11
25. Jane Githiga, Asres Elias & Kumi Yasunobu (2022). Product and Market Diversification Trends: The Case of Horticulture Exports in Kenya. International Journal of Environmental and Rural Development, 13 (1), 88-94.
26. Jawaharlal, M.; Kumar, C.S.R. Innovation in Roof Top and Terrace Gardening. In Urban and Peri-Urban Horticulture-A Perspective; Sumangla, H.P., Malhotra, S.K., Chowdappa, P., (2013). Eds.; Confederation of Horticulture Associations of India: New Delhi, India, 12–15.
27. Kaur, N. (2019). Early spatial diffusion of orchards in Himachal Pradesh; India (1950-1995). Indian Journal of Hill Farming, Special Issue, 82-90.
28. Kaushal R., D.S.Thakur & A. Kumar (2017). Growth and contribution of horticulture of Himachal Pradesh: A case study of Kotgarh Valley of Shimla District, Himachal Pradesh. International Journal of Advanced Research 5(7), 393-400.
29. Letai, J., (2011). Land Deals in Kenya: The Genesis of Land Deals in Kenya and Its Implication on Pastoral Livelihoods: A Case Study of Laikipia District; Oxfam: Nairobi, Kenya.
30. Mahesh, N., Reddy, T.R.K. and Lalith, A. (2000). An empirical analysis of growth and instability of Indian tea industry. Agricultural Banker. 24(2): 25-27.
31. Mariah Ngutu Peter, Salome A. Bukachi, Charles O. Olungah, and Tobias Haller (2018). Opportunities and Challenges in Export Horticulture as an Agro-industrial Food System: Case Study of Northwest Mount Kenya Region. International Journal Food System Dynamics, 9 (5), 470-483: DOI: <http://dx.doi.org/10.18461/ijfsd.v9i5.957>.
32. Mariah Ngutu, Salome Bukachi, Charles Owuor Olungah, Boniface Kiteme, Fabian Kaeser and Tobias Haller (2018). The Actors, Rules and Regulations Linked to Export Horticulture Production and Access to Land and Water as Common Pool Resources in Laikipia County, Northwest Mount Kenya. Land, 7 (110), 1-22, doi:10.3390/land7030110.
33. McCulloch, N.; Ota, M. (2017). Export Horticulture and Poverty Reduction. (IDS Working Paper No. 174). Available online: https://www.ids.ac.uk/files/Wp174.pdf (accessed on 8 December 2017).
34. Muhammad Mumtaz Khan, Muhammad Tahir Akram, Rhonda Janke, Rashad Waseem Khan Qadri, Abdullah Mohammed Al-Sadi and Aitazaz A. Farooque (2020). Sustainability, 12, 1-21; doi:10.3390/su12229592.
35. Naresh Babu, Kundan Kishore, A K Shukla, Abha Singh, S K Srivastava, M. Prusty, Tapaswini Sahoo and S.K. Behera (2018). Resource Efficient Horticulture Technologies for Livelihood Improvement of Farmwomen, Technical Bulletin No. 30, ICAR- Central Institute for Women in Agriculture Bhubaneswar, 751 003, Odisha.
36. Negi, C. M. (2020). Dynamics of apple production in Himachal Pradesh. Agricultural Situation in India, LXXVII (2), 20-30.
37. Ni, X.; Song, W.; Zhang, H.; Yang, X.; Wang, L. (2016). Effects of Mulching on Soil Properties and Growth of Tea Olive (Osmanthus fragrans). PLoS ONE, 11, e0158228.
38. Nugent, R. (2000). The impact of urban agriculture on the household and local economies. Themat. Paper. 3, 67–97.
39. Ongeri, B.O., (2014). Small Scale Horticultural farming along the Kenyan Highways and Local economic development: Exploring the effect of factor prices. Int. Rev. Res. Emerg. Mark. Glob. Econ., 1, 102–119.
40. Ouma, S., (2010). Global Standards, Local Realities: Private Agrifood Governance and the Restructuring of the Kenyan Horticulture Industry. Economic. Geography, 86, 197–222.
41. Padhy, C. & Behera, S. (2015). Role of Horticulture in Human Nutrition: An Analytical Review. International Journal of Engineering Technology, Management and Applied Sciences, 3(6), pp. 167-176.
42. Park, S.-A.; Song, C.; Choi, J.-Y.; Son, K.C., Miyazaki, Y. (2016). Foliage Plants Cause Physiological and Psychological Relaxation as Evidenced by Measurements of Prefrontal Cortex Activity and Profile of Mood States. Horti Science, 51, 1308–1312.
43. Shepherd, B. and Wilson, W.L.N. (2013). Product standards and developing country agricultural exports: The case of the European Union. Food Policy, 42, 1-10, Retrieved from DOI https://doi.org/10.1016/ j.foodpol.2013.06.003.
44. Specht, K.; Siebert, R.; Hartmann, I.; Freisinger, U.B.; Sawicka, M.; Werner, A.; Thomaier, S.; Henckel, D.; Walk, H.; Dierich, A. (2014). Urban agriculture of the future: An overview of sustainability aspects of food production in and on buildings. Agric. Hum. Values, 31, 33–51.
45. Swinnen, J.F.M.; Maertens, M. (2007). Globalization, privatization, and vertical coordination in food value chains in developing and transition countries. Agric. Econ. 37, 89–102.
46. Tsimbiri, P.F.; Moturi, W.N.; Sawe, J.; Henley, P.; Bend, J.R., (2015). Health Impact of Pesticides on Residents and Horticultural Workers in the Lake Naivasha Region, Kenya. Occup. Dis. Environ. Med. 3, 24–34.
47. Ulrich, A.. (2014). Assessing the Implications for Rural Livelihoods. Sustainability, 6, 336–347.
48. Vishwambhar Prasad Sati, Deng Wei, Song Xue-Qian (2015). Potential of Horticultural Farming in Livelihood Sustainability and Development: A Geo-Empirical Study of the Upper Minjiang River Basin, Sichuan Province, China. International Journal of Interdisciplinary Research and Innovations, 3(2), 75-84.
49. Yang, D.S.; Pennisi, S.V.; Son, K.-C.; Kays, S.J. (2009). Screening Indoor Plants for Volatile Organic Pollutant Removal Efficiency. Horticultural Science, 44, 1377–1381.

**WebAddres:**<https://hpshiva.hp.gov.in/cms/media/wx4kjafi/2022_09_09_doh_draft-himachal-pradesh-horticulture-policy.pdf> Accessed on 10th May, 2023