**Original Research Article**

**Recent Trends and Income Generation from Fruit Production in Himachal Pradesh: An Analytical Study**

**Abstract**

In this paper the performances of fruit production and the resultant income generation from the same has been analysed in Himachal Pradesh. The study basically aims at analyzing the trends and patterns of fruit production and the income generation from it 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 in terms of tabular and graphic presentations along with the simple growth rate formula has been used in the study. It has been found from the study that, out of the total fruit production in Himachal Pradesh, apple the state fruit of Himachal Pradesh recorded 77.03 percent production recently in 2020-21. The overall growth rate in production of apple in the whole study period of 10 years has been found to be 6.83 percent and the fruit production has been found to contribute to 12.56 percent of the annual state income in 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 production of apple and other tropical fruits in the recent times and the relevant causes behind such decline is also discussed. Based on the crucial findings in the study, policy suggestions are given to attract government and policy makers’ attention towards the unsatisfactory and underperformances of fruit production in the recent times in Himachal Pradesh.

**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. 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 plays 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 analyzing the fruits productivity and income generation 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 fruits 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 fruits productivity in 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 sectors 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 is 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). In Himachal Pradesh, the economy of apple accounts for market value worth of Rs 6,000 crore approximately and is fundamental to ensure the livelihoods of more than four lakh families (Himachal Headlines, 19th May, 2024).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). However, in the recent times the productivity of apple has been found to be declined (Dhiman et. al., 2023). It has been found that, Himachal Pradesh, the fruit bowl of India, has been showing a decreasing trend in the apple production. The same has been declined from 3.5 crore boxes in 2021 to 2.09 crore boxes in 2024 (Hindustan Times, 27th February, 2025). 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 grows 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). 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 Sources 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= 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.

**Causes behind the recent decline in the Fruits Production in Himachal Pradesh**

**Climate change:**

The rise in the temperature is an important reason behind the decline in the production of apple and other fruits in Himachal Pradesh. Apple is considered as a temperature sensitive fruit. However, recently the minimum level of temperature in the state is rising due to global warming. This vital challenge in front of apple cultivators in the state (Arundhati & Bhagat 2023). Himachal Pradesh currently facing a significant change in the agro-climatic conditions which lead to sub-humid subtropical to dry temperate zones. As a result, production of apple has been declined (Kumar & Mukherjee, 2024).

**Reduction in the snowfall during winter season:**

Due to the decline in the snowfall in Himachal Pradesh, Apple production of apple has been found to be declined by 6.39% in the current year 2025. When the snow fall decreases warmer weather conditions leads to increased fungal infection which increases the production of the apple and the other fruits in the state thereby leading to decline in the apple production in the state. During warmer winter season, premature bud break and early flowering of different fruits including apple occurs which further results in poor quality and decline in yield. Since January 1, 2025 the snow and rainfall deficits in Himachal Pradesh have been found to be in between -58% and -90% in the different districts. **(**The Indian Express, 27th February, 2025; Economic Times, 14th June 2024).

**Lack of chilling hours:**

Rakesh Singha, leader of the apple growers association in Himachal Pradesh reported that, in the production process apple needs at least 1,200 hours of chilling below 7.5°C during winter specifically in between January and February. When chilling hours falls short it causes early flowering and poor fruit setting resulting in reduced production apple (The New Indian Express, 27th February, 2025; Himachal Headlines, 19th May, 2024).

**Outdated fruit orchards:**

In Himachal Pradesh on account of lack of modern research and innovation, all most all farmers are still using the old and outdated fruits orchards. These orchards are not at all adaptable and almost unresponsive to the changing climatic condition in the state. There is not much initiatives taken by the fruits grower to replace the old orchards As a result, the productivity of the different types of fruits including apple has been found to be on declining over the years (World Bank Group Report, 5th December, 2024).

**Traditional methods of cultivation:**

In Himachal Pradesh, the cultivation method is still outdated without extensive scientific method of cultivation. This leads to the inefficient cultivation techniques and affects the quick productivity. The High Yielding Varities (HYV) seeds are also not used in the production process. As a result, the fruits productivity has been declined in the state (World Bank Group Report, 5th December, 2024).

**Inadequate irrigation facilities:**

The irrigation facilities in Himachal Pradesh are not adequate and unable to supply water in off season. As a result in the absence of rainfall, farmers are not able to produce fruits which leads to the decline in the fruits productivity in the state (World Bank Group Report, 5th December, 2024).

**Rising cost:**

On account of decline in the fruits productivity in Himachal Pradesh the apple growers are not able afford the costs of production from their earnings. It is found that, the increase in the cost of fertilizers, pesticides, insecticide etc. leads to increasing costs and declining profitability in the market. As a result, the fruits peroducvity has been further declined in the state. (Himachal Headlines, 19th May, 2024).

**Debt burden on the farmers:**

It has been found that, many small farmers including the apple growers who took loan at high rate of interest and invested on apple orchards are now facing loss due to fall in the apple production. As a result, their propensity to further investment on apple and on other fruits is declining and thereby leading to further decline in the production of apple in Himachal Pradesh (The Indian Express, 27th February, 2025; World Bank Group Report, 5th December, 2024).

**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.

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

**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**

As per the analysis conducted in the study, it is found that, the annual productivity of fruits and the resultant income generation from is mainly influenced by the production of apple in Himachal Pradesh. It contributes 75 percent and even more in the total fruit production of the state. However, production of tropical and sub-tropical fruits are also the vital means of livelihood in Himachal Pradesh 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. It is noteworthy that, although the contribution of other fruits in strengthening this sector is very less but these fruits not only provide food security rather provides the scope of earning as well. The matter of concern is that, in recent times, 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. During 2020-21, it is seen that, apple and other tropical fruits has revealed negative productivity growth rate which hampers horticulture based livelihood opportunities in the state. 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. The recent trends in fruits productivity and income generation indicates unhealthy and inefficient management and practices. However, if the causes behind such deterioration in fruits productivity and income generation is addressed and resolved, it will lead to ample future prospects of livelihood earning in Himachal Pradesh.

**Policy Suggestions**

Though it is a descriptive study at the preliminary stage but based on the crucial findings in the study, it is suggested that, Government should develop the irrigation facilities in Himachal Pradesh with multipurpose connectivity of water flow from the water source to the cultivated fields. This will develop the habit of all weather cultivation of fruits in the state. Government should allocate fund and give emphasis on the research and innovation in the horticulture sector. This will lead to the renovation of the horticulture sector in the modern scientific line to ensure sustained livelihood in this sector. Moreover, government should take initiative in order to provide the farmers the weather-based crop insurance schemes to cover the loss in fruits productivity due to the occurrence of the natural calamities and climatic change in Himachal Pradesh. Government should take immediate steps to arrange trainings and workshops by deputing agricultural and horticultural experts in order to create awareness among the Farners and to take steps for sustainable fruits productivity in the state. Moreover, the common masses including farmers must also undertake necessary steps to strengthen the major contributing sector in overall development of the state. In this context, crop diversification is a vital measure to adapt with the changing climatic conditions in Himachal Pradesh. Farmers should give emphasis on cultivating pulses, vegetables, and rearing of livestock which will provide additional income to them.

**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.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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