

An Analytical Study on Production and Export of Fresh and Dry Fruits in Jammu and Kashmir

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Abstract: Under the changing agricultural scenario, it has been realized that the horticulture sector plays a vital role in providing livelihood security to the farmers globally. Area, production, productivity and export of horticultural produces are vital for increasing farm income and overall employment in the agricultural sector. In this paper an attempt has been made to explore potential and strength of Jammu and Kashmir with regard to its production and export of fresh and dry fruits. Jammu and Kashmir is the major producer of apple and walnuts in India, 77 percent of apple and 90 percent of walnut production in India belongs to Jammu and Kashmir and percentage share of state in India's total production is showing an increasing trend and the state has been declared as the "Agri. Export zone for Apples and Walnuts". Given the declining share of traditional agricultural commodities in production, consumption and trade horticulture represent an important industry to improve income growth and employment in rural areas of Jammu and Kashmir. Agribusiness including export of fresh and dry fruits is the foundation of economy. The industry contributes nearly 60 percent of the states revenue and 22 percent of gross state domestic product (GSDP). It is also estimated that 80 percent of population is engaged in agriculture and its allied sectors including horticulture sector in the state.

Index Terms: Horticultural production, export growth, export earnings, agricultural sector

I. INTRODUCTION

The performance of agriculture sector in the Indian economy in the recent years has not been quite satisfactory because of the decrease in the growth rate of agricultural output (Chand, 2005). Not surprisingly, most farmers have made their intentions clear about disliking the agricultural sector and hence, given an option, want to quit agriculture and shift from agriculture to horticulture (Joshi, 2005). During the past few years, demand for high value crops has been showing much faster growth than demand for food grains (Kumar and Mruthyunjaya, 2002). With this backdrop, diversification towards horticultural crops has been suggested as a viable option to stabilize and raise farm income, enhance agricultural growth and increase employment opportunities (Vyas, 1996; Joshi, 2005; Birthal *et al.*, 2007). Horticulture has emerged as an indispensable part of agriculture, offering a wide range of choices to the farmers for crop diversification. It also provides ample opportunities for sustaining large number of agro based industries which generate substantial employment opportunities. The horticulture sector contributes around 28 percent of the GDP from about 13.08 percent of the area and 37 percent of the total exports of the agricultural commodities. Under the changing agricultural scenario, it has been realized that horticultural sector plays a vital role in providing livelihood security to the farmers globally. The diversification in agriculture for improving sustainability, profitability and productivity will help in not only improving the farm income but also will generate gainful employment. India is the world's second largest producer of fruits (57.73 million tonnes) with its projected value touching (98 million tonnes) by the year 2020-2021 (Banarjee, 2009) largest producer of banana, mango, sapotas and acid limes and enjoys reputation for highest productivity in grapes. India occupies prime position in the production of cauliflower and pea, second in onions, cabbage, tomato and brinjall, and third in cabbage in the world (Singh *et al.*, 2004).

Jammu and Kashmir is home to some world famous varieties of fresh and dry fruits, honey and saffron. Horticulture is one of the most vibrant sectors of the state economy which provides direct as well as indirect employment to the state population. Apples are the major produces of Jammu and Kashmir during the last five years production of apple has increased from 1151.7 thousand metric tonnes in fiscal year 2006 to 1373 thousand metric tonnes in the fiscal year 2010 and this figure has been reached to 1410 thousand metric tonnes during 2011. The production of apples in the state is growing every year as a result the percentage share of Jammu and Kashmir in the national production has also been increasing steadily; it has increased from, 63.5 percent in fiscal year 2006 to 77.2 percent in fiscal year 2010 (Report, National Horticulture Board 2010).

Horticulture industry in Jammu and Kashmir is considered as bulwark of the rural economy in the state. Nearly 75 percent of temperate fruits in India are grown in the state. The cultivated orchards yield fine quality of pears, apples, peaches, cherries, walnut, almond, saffron, apricot, strawberry, plums etc. The horticulture industry earns Indian national rupee (INR) 500 million yearly and provides job facilities to thousands of people involved in the agricultural sector. The agro climatic conditions prove highly suitable for growth and development of fruits and various wild herbs. Local soil is deep and rich in organic matter and

access to human resources for farm labour is abundant. The horticulture industry also serves as a great advantage to the state due to its monopoly on walnuts, almonds, pears, cherries, hazelnuts, pecan nuts, strawberries and kiwi fruits. However, Kashmir horticulturists have limited their industry to merely supplying primary products rather than diversifying their market through value addition.

Relationship between horticultural production and socioeconomic development

There is a relationship between horticultural production and overall socioeconomic development. Horticulture encourages agricultural business development in the rural economy and generates income and employment. Growers learn to manage multiple cropping systems and deliver quality outputs on time by fulfilling contractual arrangements and dealing with sophisticated marketing systems. The management skills need for successful horticulture is the very skills required for socioeconomic development to take off. These skills enable farmers to run other kind of businesses. Horticulture production improves availability of micro-nutrient rich foods and consumption of micro nutrient rich foods improves health, learning capacity and working capacity of the population. All these factors collectively enhance working efficiency, thus facilitate and stimulate socioeconomic development of economy.

The positive economic benefits of horticulture sector in Jammu and Kashmir are listed below.

- Contribution to states income generations
- Expansion of employment opportunities
- Raising tax revenues
- Generation of foreign exchange
- Transformation of regional economy
- Social effects
- Cultural effects
- Impact on environment

II. METHODOLOGY AND DATA

Keeping in view the present status of research work the data has been obtained from both primary and secondary sources. Secondary data has been obtained from government official records, valid records of state government, department of horticulture, magazines, journals and other active related agencies of the department of horticulture in the state. The equation mentioned below was used to find out the trend value of production of fresh and dry fruits in Jammu and Kashmir.

$$Y = a + bx$$

Y = Dependent variable

x = Independent variable

a = Intercept coefficient

b = Slope coefficient

The value of a, b has been found by two normal equations

$$(a) \sum y = Na + b\sum x$$

$$(b) \sum xy = a\sum x + b\sum x^2$$

$$G. R = \frac{(Qt) - (Qt - 1)}{(Qt - 1)} \times 100$$

Qt = Quantity in *present period*

Qt - 1 = *Quantity in previous period*

To work out growth rate of total export and production in respective years the above formula has been used.

Table- 1: Production of fresh and dry fruits in thousand metric tonnes during 2004-05 to 2010-11 in Jammu and Kashmir

| Year | Fresh fruits | | | | Dry fruits | | | | Production of total fruits (Actual value) |
|---------|--------------|-------|--------|--------------------|------------|---------|-------|------------------|---|
| | Apple | Pear | Other | Total fresh fruits | Walnuts | Almonds | Other | Total dry fruits | |
| 2004-05 | 994.22 | 40.25 | 84.02 | 1118.49 | 100.60 | 13.47 | 0.19 | 114.26 | 1232.75 |
| 2005-06 | 1093.3 | 42.36 | 86.73 | 1222.42 | 108.27 | 14.33 | 0.20 | 122.80 | 1345.22 |
| 2006-07 | 1151.7 | 43.09 | 108.41 | 1303.2 | 114.93 | 15.18 | 0.22 | 130.33 | 1433.53 |
| 2007-08 | 1222.2 | 45.86 | 120.31 | 1388.37 | 146.78 | 11.26 | 0.24 | 158.28 | 1546.65 |
| 2008-09 | 1268.5 | 47.38 | 150.74 | 1466.62 | 147.64 | 12.17 | 0.25 | 160.06 | 1626.68 |
| 2009-10 | 1332.8 | 47.98 | 113.73 | 1494.51 | 165.02 | 12.52 | 0.19 | 177.73 | 1672.24 |
| 2010-11 | 1373 | 50.50 | 140.65 | 1564.15 | 163.74 | 12.51 | 0.22 | 176.47 | 1740.62 |
| 2011-12 | 1410 | 49.8 | 134.7 | 1594.5 | 172.24 | 13.24 | 0.19 | 185.67 | 1780.17 |

Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir.

During the survey of research work data was obtained which shows the production of fruits (fresh and dry) in Jammu and Kashmir from 2004-05 to 2010-11 given in the above mentioned table 1.

Table- 2: Production and Export of fruit outside the state in lakh metric tonnes during 2003-2010

| Year | Production in lakh metric tonnes | | | Export in lakh metric tonnes | | |
|---------|----------------------------------|------|-------|------------------------------|-------------|--------------|
| | Fresh | Dry | Total | Fresh | Dry | Total |
| 2003-04 | 11.65 | 1.08 | 12.74 | 7.63(98.32) | 0.139(1.68) | 7.76(60.83) |
| 2004-05 | 12.18 | 1.14 | 13.32 | 8.20(98.3) | 0.14(1.68) | 8.34(62.61) |
| 2005-06 | 12.80 | 1.23 | 14.03 | 8.58(98.62) | 0.12(1.38) | 8.70(62.01) |
| 2006-07 | 13.74 | 1.30 | 15.04 | 7.35(98.00) | 0.15(2.0) | 7.50(49.87) |
| 2007-08 | 14.78 | 1.58 | 16.36 | 7.34(97.86) | 0.16(2.13) | 7.50(45.84) |
| 2008-09 | 15.26 | 1.65 | 16.91 | 11.0(98.56) | 0.16(1.43) | 11.17(66.06) |
| 2009-10 | 15.35 | 1.76 | 17.12 | 9.34(60.84) | 0.23(12.99) | 9.57(55.90) |
| 2010-11 | 20.46 | 1.76 | 22.22 | 8.51(42.59) | 0.51(8.52) | 8.66(38.97) |

Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir

During the tenure of research work data was obtained which shows the export of fresh and dry fruits in Jammu and Kashmir given in the above mentioned table 2.

The overall production of fruits in Jammu and Kashmir has shown an increasing trend, especially the production of apple and walnut. Total fruit production in the state is dominated by production of apple and walnut.

Table-3: Growth rate, trend value of production and export of fresh and dry fruits in Jammu and Kashmir

| Year | Growth rate of production of total fruits | Trend value of total production of fruits (Y = 1193.4+78.632X) | Trend value of production of fresh fruits (Y=1089.1+67.773X) | Trend value of production of dry fruits (Y=104.33+10.86X) | Growth rate of export of total fruits |
|---------|---|--|--|---|---------------------------------------|
| 2004-05 | - | 1272.03 | 1156.83 | 115.19 | 7.47 |
| 2005-06 | 9.12 | 1350.66 | 1224.56 | 126.05 | 4.31 |
| 2006-07 | 6.56 | 1429.296 | 1292.29 | 139.91 | -13.79 |
| 2007-08 | 7.89 | 1507.92 | 1360.03 | 147.77 | 0 |
| 2008-09 | 5.17 | 1586.56 | 1427.76 | 158.63 | 48.93 |

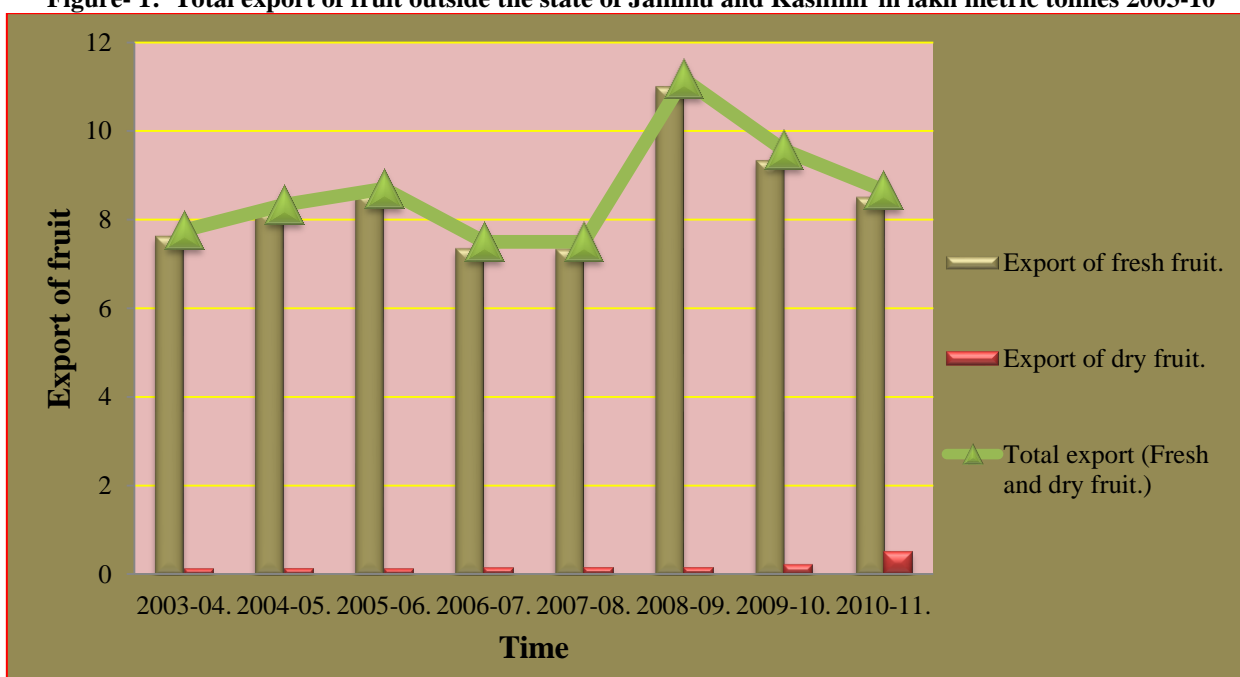
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|---------|------|---------|---------|--------|--------|
| 2009-10 | 2.80 | 1665.19 | 1495.49 | 169.49 | -14.32 |
| 2010-11 | 4.09 | 1743.82 | 1563.23 | 180.35 | -9.50 |
| 2011-12 | 2.27 | 1822.45 | 1630.96 | 191.21 | - |

Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir

III. RESULTS AND DISCUSSIONS

In Jammu and Kashmir state export of fruits outside has occupied a prominent place in the trade matters. Export of fruits has shown considerable progress. The total quantity exported during 2009-10, was 9.57 lakh metric tonnes which is 55.9 percent of the production figure of the same year and during 2010-11, total quantity exported was 8.66 lakh metric tonnes which is 38.97 percent of the production figure of the same year. The total production of fruits under horticulture is increasing every year particularly production of apple and walnut however, there is no significant growth in the export of outside the state. The decline in the export of fruits outside the state is due to the introduction of market intervention scheme (MIS). In Jammu and Kashmir fruits especially dry fruits, go also to other countries and earn substantial foreign exchange. The export of dry fruit viz, almond and walnut during 2007-08, was 688.11 metric tonnes comprising of 197.11 metric tonnes of almond, 6692 metric tonnes of walnuts.

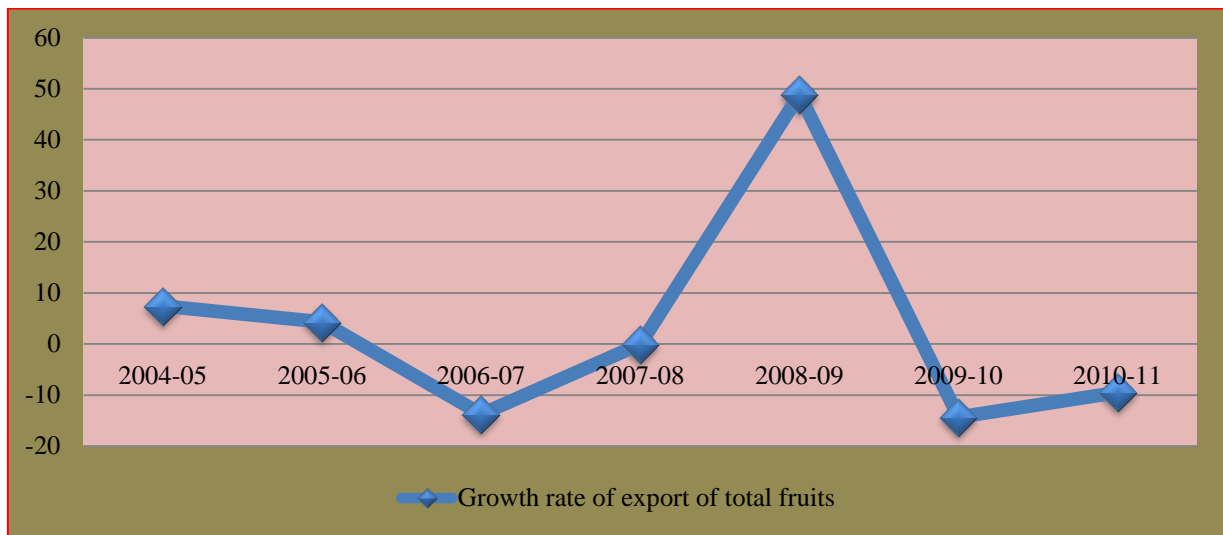
Figure- 1: Total export of fruit outside the state of Jammu and Kashmir in lakh metric tonnes 2003-10



Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir.

The figure mentioned above shows that during 2003-04, the total export of fresh and dry fruits outside the state was 7.76 lakh metric tonnes in which the relative share of fresh fruits was 7.63 lakh metric tonnes and relative share of dry fruit was 0.13 lakh metric tonnes however, this figure has been reached to 8.66 lakh metric tonnes during 2010-11, in which the relative share of fresh fruit was 8.15 lakh metric tonnes while, as relative share of dry fruit was 0.51 lakh metric tonnes. In absolute terms the share of fresh fruits in total export of state has shown a considerable progress as compared to export of dry fruits.

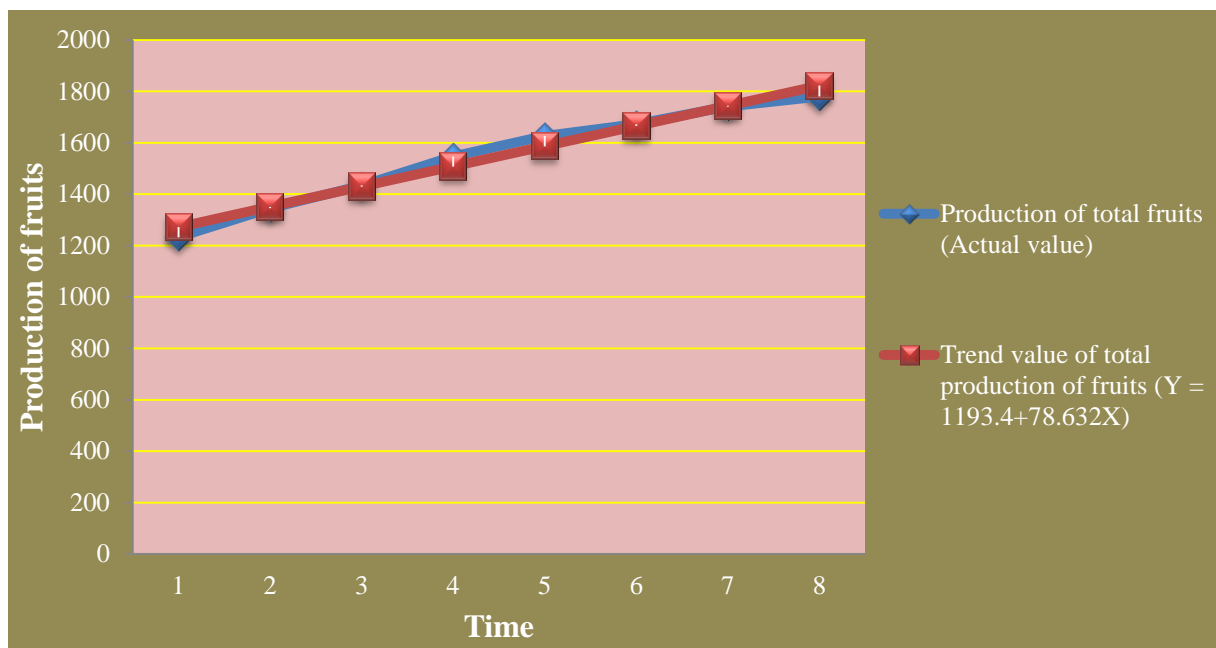
Figure -2: Growth rate of export of total fruits in Jammu and Kashmir



Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir

The above mentioned figure evidicts that the growth rate of export of total fruits has been showing upward and downward movement during the overall period. During 2004-05, the growth rate of export was 7.47 percent and during 2010-11, the growth rate of export was negative (-9.50 percent) which has marginally decreased and it is significantly very low as compared to earlier period (2004-05). However, during the overall period the average growth rate of total exports was 2.88 percent.

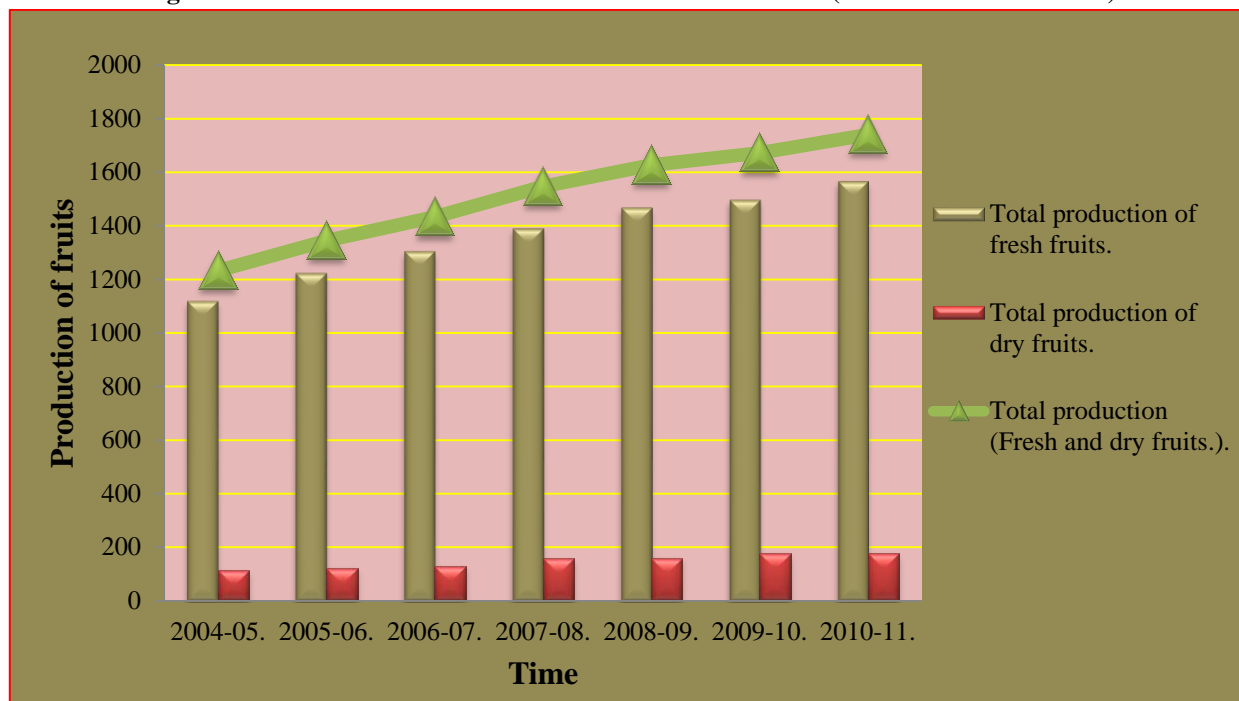
Figure -3: Production trend of total fruits in Jammu and Kashmir



Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir.

The figure mentioned above shows the actual value of production of total fruits and its trend value calculated from the regression equation $(Y = 1193.4 + 78.632X)$ as it is clear from the figure that actual value has not shown much deviation from the trend value. Upward increasing trend of production clearly indicates that in absolute terms the production of fruits has increased and there is a positive relation between total fruit production and number of years. The coefficient of determination $R^2 = 0.9754$, indicates that fruit production in Jammu and Kashmir has shown significant increase during the study period.

Figure- 4: Production of total fruits in Jammu and Kashmir (thousand metric tonnes)



Source: Digest of Statistics 2010, Directorate of Economics and Statistical Planning, Government of Jammu and Kashmir.

The figure mentioned above shows that during the overall period from 2004-05 to 2010-11, production of total fruits in Jammu and Kashmir has shown an absolute increasing trend with a growth rate of 9.12 percent during 2005-06 and 2.17 percent of growth rate during 2010-11 however, the average growth rate of total fruit production was 4.73 percent during the period of study. The total fruit production during 2004-05, was 1232.75 thousand metric tonnes in which the relative share of fresh fruit was 1118.49 thousand metric tonnes and relative share of dry fruits was 114.26 thousand metric tonnes however, this production figure has been reached to 1740.62 thousand metric tonnes during 2010-11, in which the relative share of fresh fruits was 1564.15 thousand metric tonnes and relative share of dry fruits was 176.47 thousand metric tonnes.

IV. CONCLUSION

Horticulture sector serves as a highly contributing industry to the state's economy. Out of the total area of horticulture in the state, 90 percent is concentrated in the valley due to its suitable climate with annual turnover of 75 million US\$, this sector is the biggest source of income in the state's economy next to agriculture. Contribution of horticulture sector to states GDP is 7-8 percent and 45 percent of economic returns in the agricultural sector are accounted for by horticulture. Due to continuous increasing trend in the production and export of fresh and dry fruits the agricultural land gets diversified into horticultural land and increasing production of horticultural produces directly influences the income, employment and living standard in the rural areas of state. The unique climatic conditions of the state facilitate the growth of diverse vegetation including horticulture. About 20 percent of total cultivated area is under horticulture crop in physical terms the area under fruit cultivation is about 3.03 lakh hectares. However, the sector is adversely affected due to lack of marketing strategy. Considering the growth prospects of this sector, the state government needs to plan for higher and more quality production. The state should shift its agriculture development strategy from food security mode to that of value addition by growing certain products like high value fruits, vegetables and cash crops like saffron that can give high returns. The aggregate production and export of fresh and dry fruits has shown increasing trend the overall production of fresh and dry fruits during 2004-05 was 1232.75 thousand metric tonnes and it reached to 1740.62 thousand metric tonnes during 2010-11 and the overall export of fresh and dry fruits was 7.6 lakh metric tonnes in 2003-04 and it reached to 8.66 lakh metric tonnes in 2010-11.

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