

## Area, Production and Productivity of major Horticultural crops in India

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**Abstract:** In India the growth of horticulture products has become one of the dynamic forces for general development of agricultural sector. With the appearance of urbanization, modernization and change in cropping pattern from traditional to high value cash crops, especially the horticultural crops have been commenced in Indian agriculture. The Horticulture sector is conceivably the most profitable undertaking of all farming activities as it provides plenty of employment opportunities and capacity to raise the income of the farming community. The horticulture sector has also the remarkable prospective to push the overall agriculture growth to more than the targeted 4 per cent. The horticulture sector is also the fastest growing sector within agriculture. It helps in poverty alleviation, nutritional security and has sufficient scope for farmers to increase their income and is also helpful in supporting the large number of agro-based industries which generate huge opportunities of employment. Keeping these perceptives in mind, the present study estimates growth rates and percentage share of major horticultural crops in India. The study reveals that the growth of area, production and productivity of horticulture crops in the country was found to be statistically significant. Within the greater horticulture sector, the area and production of fruits and vegetables was found to be at the highest. Conversely, impressive output growth, the productivity growth rate of fruits was found to be statistically insignificant.

**Key Words:** Horticulture, Trend of Horticulture Produces, Profitable Undertaking, Growth, India.

### INTRODUCTION

In Indian economy the Agriculture sector plays a very important role. Horticulture is a sub part of agriculture, which is concerned with the cultivation of “garden crops” and can be defined as the branch of agriculture concerned with intensively cultured plants directly used by peoples for food, for medicinal purpose or for aesthetic gratification. Over 70 per cent of the rural households depend on agriculture as their chief means of livelihood Horticulture includes cultivation of fruits, nuts, vegetables, medicinal and aromatic plants, flowers, etc. The growth in the production of fruits and vegetables assumes critical importance nowadays due to the increase in the demand generated by the rapid increase in population and has been accelerated by the rise in the levels of income of the people and the consequent changes in the pattern of consumption. Importance of horticulture lies in the fact that it generates much income per hectare of land as compared to other agricultural crops assists in employment, food and nutritional security and industrialization too. India is the second largest producer of vegetables and fruits after China and is popularly known as Fruits and Vegetable Basket of the world. Fruits play a unique role in

countries like India both in economic and social sphere for improving income and nutritional status particularly of rural masses. The need for diversification to horticulture sector was acknowledged by the Government of India in mid-eighties by focusing its attention on investment in the horticulture sector. India has started putting greater thrust on the development of horticultural sector after sixties in order to exploit the country's vast potential and to generate the much needed value addition. Presently horticulture has established its credibility in improving income through increased productivity, generating employment and in enhancing exports. Resultantly, horticulture has moved from rural confines to commercial venture. Under the purview of Agriculture & allied activities, the share of plan outlay for Horticulture which was 3.9% during 9th Plan, has increased to 4.6% during the Twelfth Plan. India has witnessed voluminous increase in horticulture production over the last few years. Significant progress has been made in area expansion resulting in higher production. Over the last decade, the area under horticulture grew by about 3% per annum and annual production increased by 5.4%. During 2016-17, the production of horticulture crops was about 306818 MT. The importance of horticulture in improving the productivity of the land, generating employment, improving economic conditions of the farmers and entrepreneurs, enhancing exports and above all, providing nutritional security to the desert dwellers, can hardly be overemphasized.

**OBJECTIVES:**

- To analyze the growth trends of total area, production and productivity of horticultural crops in India.
- To identify the percentage share of area and production and of horticultural crops in India.

**METHODOLOGY:**

The data has been acquired from different official websites and official records & documents; such as National Horticulture Board (NHB), Handbook of Horticulture, Statistical Year Book, Agricultural and Processed Food Products Export Development Authority (APEDA), and others. Different Books, Reports, and Research Papers have been consulted to generate the idea and of literature available. Statistical techniques and tools like trend analysis, Percentages, Growth rates have been applied in drawing results and analysis of data. The annual growth rate and percentage has been collected by using the formulas as follows:

Annual growth rate has been calculated by using the formulae

Annual growth rate =  $\frac{\text{current year} - \text{previous year}}{\text{previous year}} \times 100$  and the percentage has been calculated by using the formulae

Percentage of area =  $\frac{\text{current year area}}{\text{total area}} \times 100$

Percentage of production =  $\frac{\text{current year production}}{\text{total production}} \times 100$

**RESULTS AND ANALYSIS:**

Table 1.1 shows the annual growth trends of total area, production and productivity of horticultural crops. Total area under horticultural crops has increased from 21825 thousand

hectares of 2010-11 to 25662 thousand hectares in the year 2017-18. Similarly, total horticultural production increased to 306818 thousand metric tons in 2017-18 from 240531 thousand metric tons of 2010-11. While the productivity of total horticulture is also showing an increasing trend which increases from 11.02 mt/hectare in 2010-11 to 11.95 mt/hectare in 2017-18. The table also shows that the growth in the horticultural area was highest in the year 2011-12 which is about 6.4 per cent; while production growth was also highest in 2011-12 which is about 6.9 per cent. Highest productivity was in the year 2014-15 which was 4.7 metric tons/ha while the lowest is -2.5 metric tons/ha in 2015-16.

Fruits, vegetables and plantation crops are the major component of horticultural crops. Besides these, flowers, aromatic and medicinal plants and honey are also important. Analysis of (Table 1.2) shows that vegetables rank first in terms of area among all horticultural crops from the year 2010-11 to 2017-18; while the fruits are positioned on the second. Plantation crops rank third in area terms. Area of fruits was 6383 (2010-11) thousand hectares which increased to 6514 thousand hectares in the year 2017-18. Vegetables show a prominent growth in a real term and the area under vegetables increased to 10383 thousand hectares in 2017-18 from 8495 thousand hectares in 2010-11. Area of flowers, aromatic and medicinal plants/honey has been increased from 701 thousand hectares (2010-11) to 1090 thousand hectares in 2017-18. Area under spices was 2940 thousand hectares in 2010-11 and increased to 3950 thousand hectares in 2017-18. The graphical representation of area of various horticultural crops has been shown in fig. 1.2.

In table 1.3 there is a tremendous increase in the production statistics of horticulture crops in India. From 2010-11 production of fruits has increased from 74878 thousand metric tons to 97055 thousand metric tons in 2017-18 which is a significant increase. Similarly production of vegetables has followed the same trend. Production of vegetables has increased from 146595 thousand metric tons to 179692 thousand metric tons in the study period from 2010-11 to 2017-18. Flowers, aromatic and medicinal plants/honey production rose more than 2 times, as it was only 1701 thousand metric tons in 2010-11 and became 3724 thousand metric tons in 2017-18. Production of plantation crops increased from 12007 thousand metric tons to 17874 thousand metric tons in the study period. Spices showed an increase in production between the years 2010-11 to 2017-18 which is clearly indicated in the figure 1.3.

Table 1.4 shows the Productivity of Various Horticulture Products in India from 2010-11 to 2017-18. It is clearly seen from the table that the productivity statistics of fruits and vegetables is high as compared to other crops. Vegetables occupy the first rank in productivity followed by fruits which occupy the second place. Plantation crops, flowers, aromatic plants/honey and spices occupy the third, fourth and fifth place respectively. The productivity of fruits was increased from 11.73 mt/hectare in 2010-11 to 14.89 mt/hectare in 2017-18. The productivity of vegetables have shown a slight increase during the study period except 2015-16. Similarly the other crops in the table are also showing the increasing trend during the study period which is clearly depicted in the figure 1.4.

Table 2.1 shows the percentage share area of various horticulture crops during the year 2010-11 to 2017-18. The percentage share area of fruits and vegetable is very high, and is increasing it is also evident in the fig. 2.1. The share of vegetables was high among other horticulture crops during the study period. Fruits occupy the second place in percentage area of total horticulture crops. Plantation crops occupy the third place. Spices occupy the fourth place and flowers, aromatic and medicinal plants and honey occupy the last place in the total percentage share area of horticulture crops.

Table 2.2 shows the percentage share production of various horticulture crops during the year 2010-11 to 2017-18. The percentage share in production of fruits and vegetable is very high, and is increasing it is also evident in the fig.2.2. The contribution in production share of vegetables was high among other horticulture crops during the Study period Fruits occupy the second place in the production of total horticulture crops. Plantation crops occupy the third place. Spices occupy the fourth place and flowers, aromatic and medicinal plants and honey occupy the last place in contributing the production of total of horticulture production in India during the year 2010-11 to 2017-18.

**4.1 Analysis of growth trends in area, production and productivity of horticultural crops in India (2010-11 to 2017-18).**

Table 1.1: Annual Area, Production and Productivity Growth Trends of Total Horticultural Products in India (2010-11 to 2017-18) Area (000 Hectares) Production (000 Metric Tons) productivity (Mt/Hectare)

Year	Area (Hectare)	%Growth in Area	Production (MT)	%Growth in Production	in Pdy (MT/Hectare)	%Growth in Pdy
2010-11	21825		240531		11.02	
2011-12	23243	6.4	257281	6.9	11.07	0.4
2012-13	23694	1.9	268848	4.4	11.35	2.5
2013-14	24198	2.1	277351	3.1	11.46	0.9
2014-15	23411	-3.2	280987	1.3	12	4.7
2015-16	24473	4.5	286187	1.8	11.69	-2.5
2016-17**	24850	1.5	300643	5.0	12.09	3.4
2017-18**	25662	3.2	306818	2.0	11.95	-1.1

Source: Horticultural Statistics at a Glance, calculated\*\*

Table 1.2: Area of Various Horticultural Products in India (2010-11 to 2017-18)(000 Hectares)

Year	Fruits/Nuts	Vegetables/Mushrooms	Flowers, Aromatic Plants And Honey	Plantation Crops	Spices
2010-11	6383	8495	0701	3306	2940
2011-12	6705	8989	0760	3577	3212
2012-13	6982	9205	0790	3641	3076
2013-14	7216	9396	0748	3675	3163
2014-15	6235	9417	0908	3534	3317

<b>2015-16</b>	6301	10106	0912	3680	3474
<b>2016-17**</b>	6373	10238	0970	3598	3671
<b>2017-18**</b>	6514	10383	1090	3725	3950

Source: Horticultural Statistics at a Glance\*\* (3<sup>rd</sup> Advance Estimate)

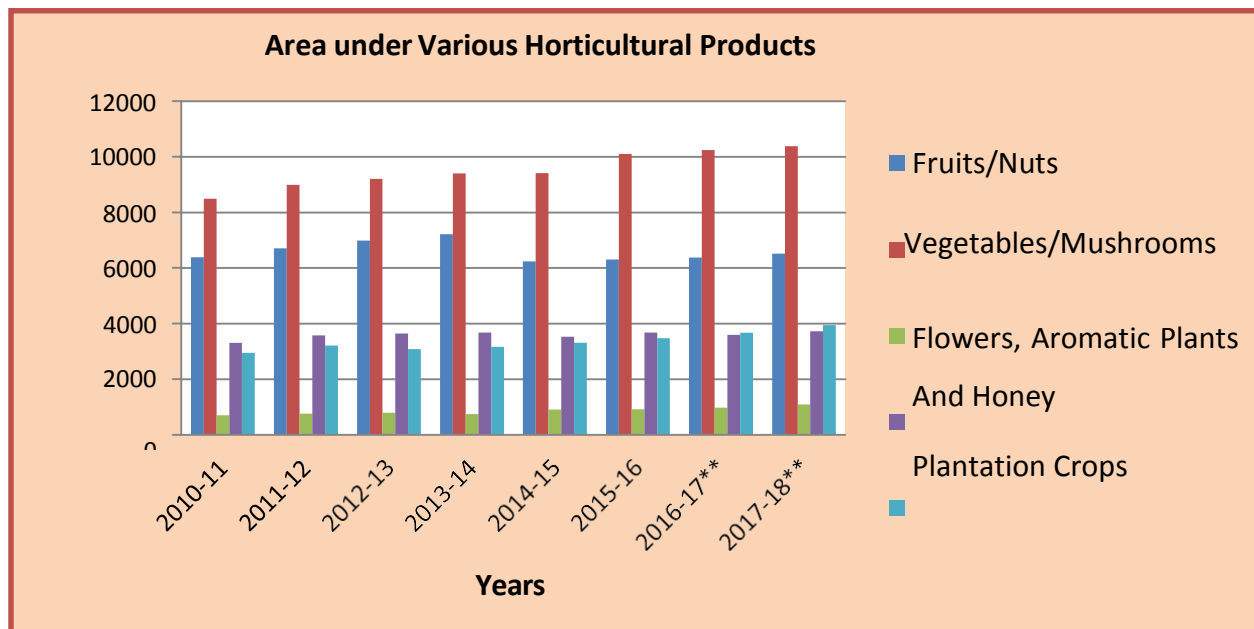


Table 1.3: Production of Various Horticulture Products in India (2010-11 to 2017-18) (000 Metric Tons)

Year	Fruits/Nuts	Vegetables/Mushrooms	Flowers, Aromatic Plants and Honey	Plantation Crops	Spices
<b>2010-11</b>	74878	146595	1701	12007	5350
<b>2011-12</b>	76428	156325	2218	16359	5951
<b>2012-13</b>	81285	162187	2647	16985	5744
<b>2013-14</b>	8.977	162897	3268	16301	5908
<b>2014-15</b>	89514	166566	3224	15575	6108
<b>2015-16</b>	90183	169064	3294	16658	6988
<b>2016-17**</b>	92918	178172	3364	17972	8122
<b>2017-18**</b>	97055	179692	3724	17874	8369

Source: Horticultural Statistics at a Glance \*\* (3<sup>rd</sup> Advance Estimate)

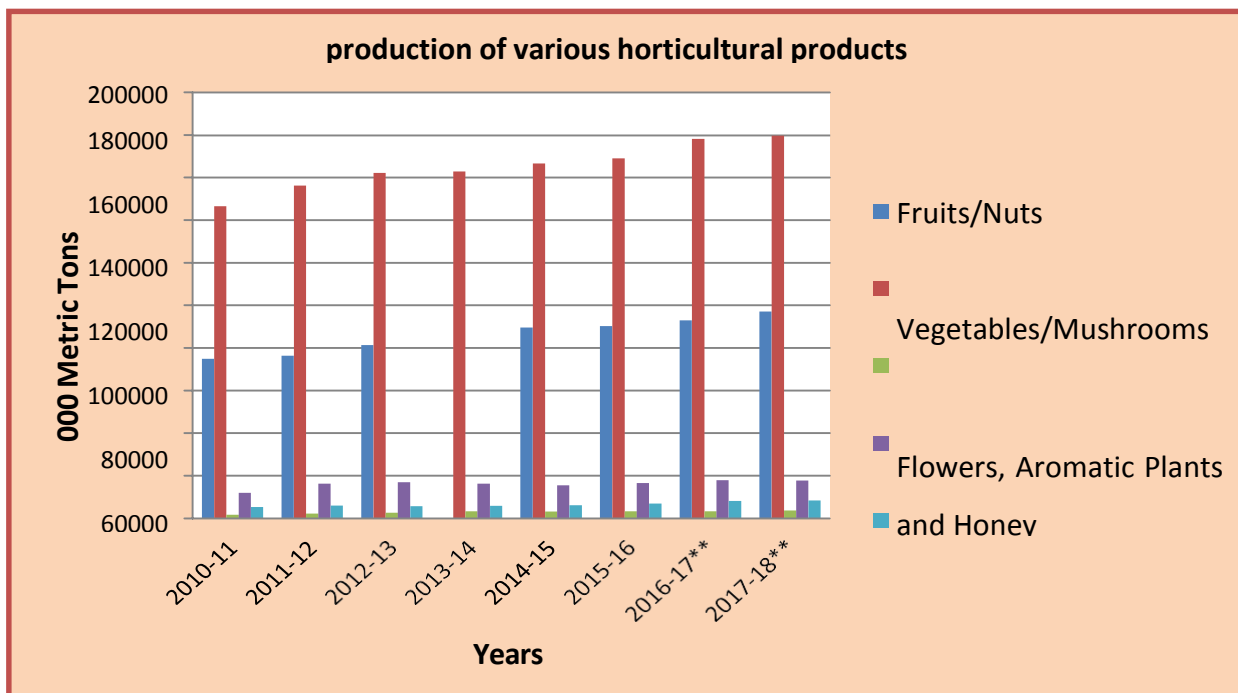
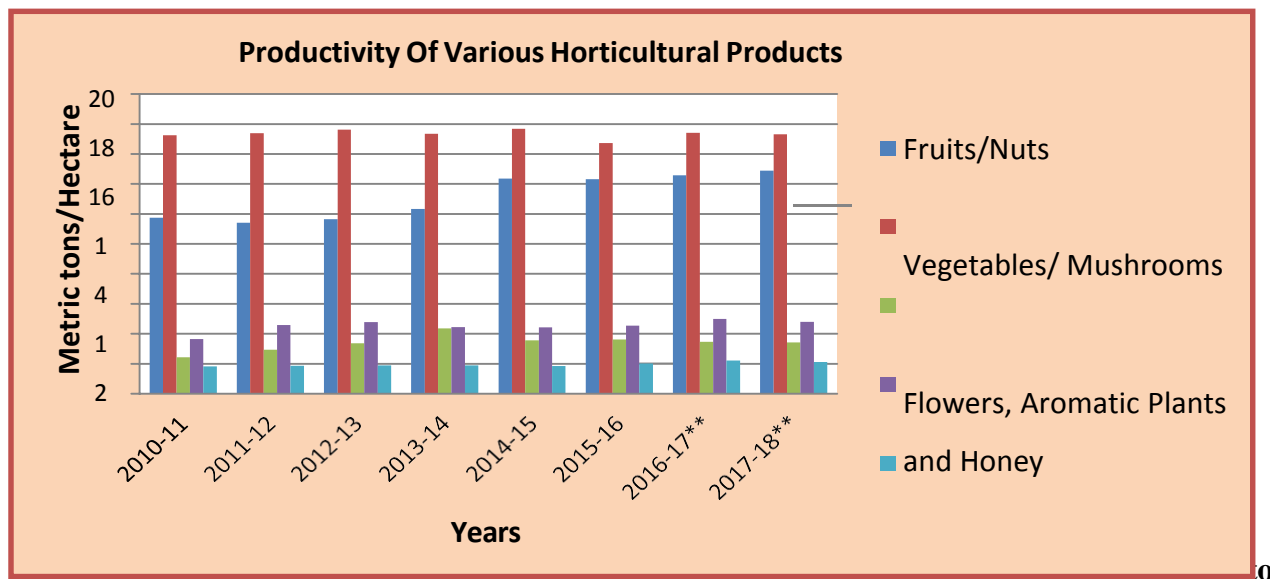


Figure 1.3 Production of Various Horticulture Products in India (2010-11 to2017-18) Table 1.4: Productivity of Various Horticulture Products in India (2010-11 to2017-18) (Mt/Hectare)

Year	Fruits/Nuts	Vegetables/ Mushrooms	Flowers, Aromatic Plants and Honey	Plantation and Crops	Spices
2010-11	11.73	17.25	2.42	3.63	1.82
2011-12	11.40	17.39	2.92	4.57	1.85
2012-13	11.64	17.62	3.35	4.76	1.87
2013-14	12.33	17.34	4.36	4.44	1.87
2014-15	14.35	17.68	3.55	4.41	1.84
2015-16	14.31	16.73	3.61	4.53	2.01
2016-17**	14.57	17.40	3.46	4.99	2.21
2017-18**	14.89	17.30	3.41	4.79	2.11

Source: Horticultural Statistics at a Glance \*\* (3<sup>rd</sup> Advance Estimate)



2017-18).

Table 2.1: Percentage Share Area of various Horticulture Crops in Total Horticulture Area (000 Hectares)

Year	Fruits/Nuts	Vegetables/ Mushrooms	Flowers/Aromatic and Medicinal Plants/Honey	Plantation crops	Spices	Total
2010-11	29.24628	38.92325	3.211913	15.14777	13.47079	100%
2011-12	28.84739	38.67401	3.269802	15.38958	13.81921	100%
2012-13	29.46738	38.8495	3.334177	15.36676	12.98219	100%
2013-14	29.82065	38.82966	3.091165	15.18721	13.07133	100%
2014-15	26.63278	40.22468	3.878519	15.09547	14.16855	100%
2015-16	25.74674	41.29449	3.726556	15.03698	14.19524	100%
2016-17**	25.64588	41.1992	3.903421	14.47887	14.77264	100%
2017-18**	25.38384	40.4606	4.247526	14.51563	15.39241	100%

Source: Horticultural Statistics at a Glance, calculated by author \*\* (3<sup>rd</sup> Advance Estimate

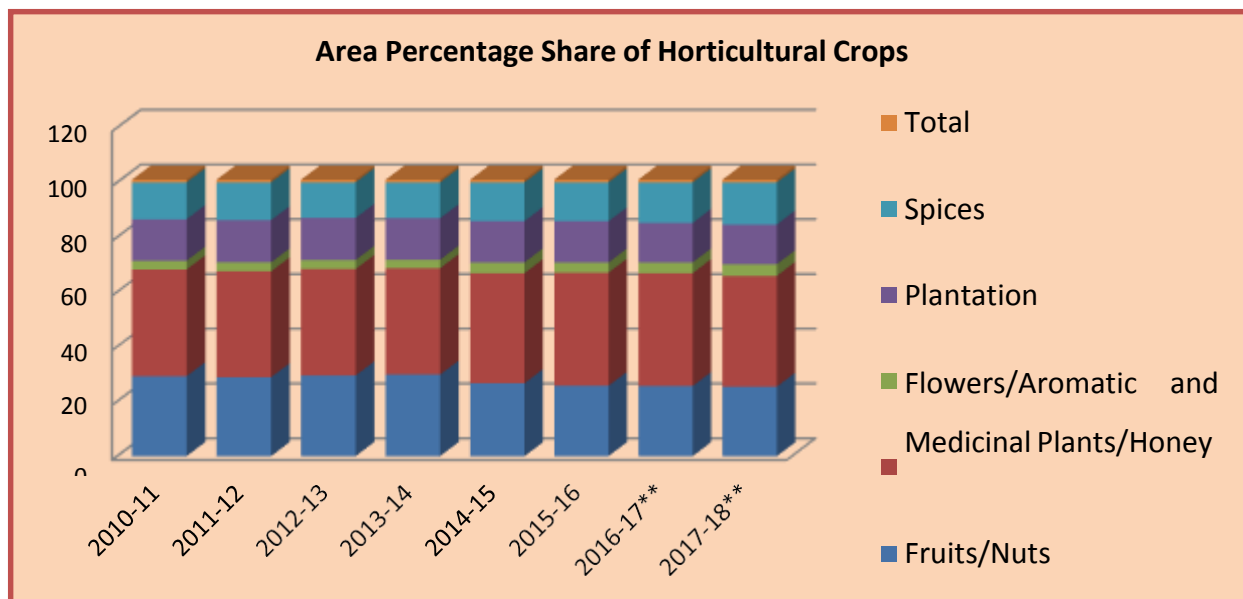


Figure 2.1 Percentage Share Area of various Horticulture Crops in Total Horticulture

Table 2.2: Percentage Share Production of various Horticulture Crops in Total Horticulture Production (000 Metric Tons)

Year	Fruits	Vegetables	Flowers/Aromatic and Medicinal Plants/Honey	Plantation crops	Spices	Total
2010-11	31.13029	60.94641	0.707185	4.991872	2.224246	100%
2011-12	29.70604	60.76041	0.862092	6.358417	2.313035	100%
2012-13	30.23456	60.32665	0.984571	6.317696	2.136523	100%
2013-14	32.08101	58.73316	1.17829	5.87739	2.130153	100%
2014-15	31.85699	59.2789	1.147384	5.542961	2.173766	100%
2015-16	31.51191	59.07466	1.150996	5.82067	2.44176	100%
2016-17**	30.90642	59.26364	1.118935	5.977854	2.701543	100%
2017-18**	31.63276	58.56632	1.213749	5.825603	2.727676	100%



Source: Horticultural Statistics at a Glance, calculated by author\*\* (3<sup>rd</sup> Advance Estimate)

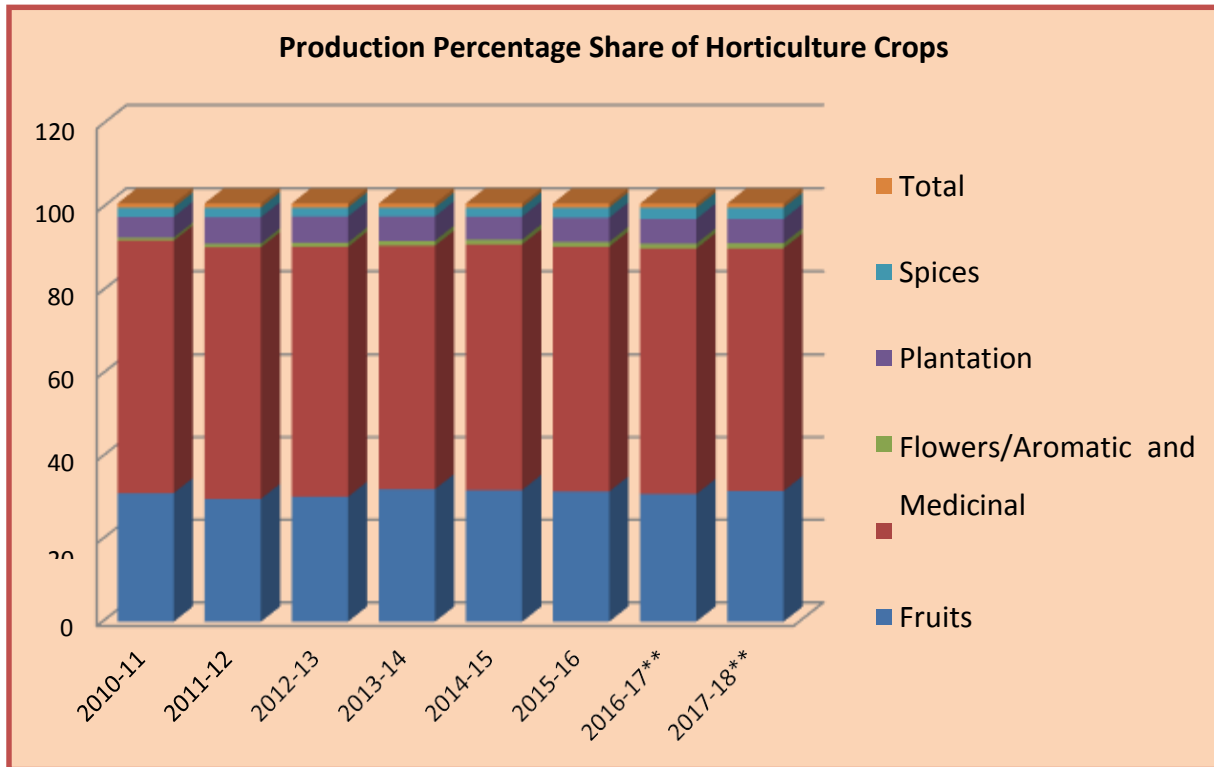


Figure 2.2 Percentage Share Production of various Horticulture Crops in Total Horticulture

**CONCLUSION AND SUGGESTIONS:**

In India the growth of horticulture products has become one of the dynamic forces for general development of agricultural sector. With the appearance of urbanization , modernization and changes in cropping pattern from conventional to high value cash crops, particularly the horticultural crops has been initiated in Indian agriculture. Its products have more insist in local, national and international markets. It inhabits a significant position in terms of given that livelihood options, meeting the required amount of demand for food and nutritional security. The study reveals that there is positive relationship between area, production and productivity of horticulture crops in India. In order to increase the production and productivity we should adopt the modern technology in Indian horticulture sector. In spite of noteworthy growth in production, the yield growth rate of fruit was not very remarkable. Consequently, it calls for technological innovation in the sector. On the policy side, as the concern of environmental degradation, sinking of arable land and urbanization have been at the forefront of national debate now, more prominence should be given to augment the yield level with the help of modernism and technology. Secondly, , the problem of storage should be solved by setting up more and more warehouses and cold storages facilities in all districts and sub districts in the country. Thirdlyto improve production and meet up increasingly demand of horticulture crops, cultivable waste lands of the larger Statescould be brought under horticulture cultivation.

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