

# Trend and Growth of Horticultural Production and Productivity in India

**Dr. S. THEENATHAYALAN**

*Head, Department of Economics and Centre for Research in Economics  
The Madura College (Autonomous) Madurai*

**S. MURUGAN**

*Assistant Professor, PG & Research Department of Economics  
Thiagarajar College, Madurai*

## Abstract

*Indian agriculture sector reached the remarkable heights with recorded production of various food grains, cash crops and horticultural crops during the recent years even during COVID-19 pandemic period. Horticulture is one of the important and growing sector in agricultural activities. It provides noteworthy income to the farmers and also provides livelihood security. The method of organic farming slowly picked up in India with proper application of organic type fertilizers and manures will really help us to get higher prices for the agricultural products in the International Markets. Diversification in agricultural sector leads to enhance the agricultural activities as well as pave the way to doubling income of the farmers. The diversification of crops mainly focusses on horticultural crops. In addition to that export oriented industries must be started more, it lead the greater opportunities for the citizens of India and the farm activities will be strengthened in the forthcoming years.*

**Keyword:** *CashCrops, COVID Period, Organic Farming, Fertilizers, Diversification*

## Introduction

Indian agriculture sector reached the remarkable heights with recorded production of various food grains, cash crops and horticultural crops during the recent years even during COVID period. India is food secure due to the self-sufficiency in food grains production but we have to achieve the goal of nutritional security by the way of producing and marketing needed quantity of fruits and vegetables with reasonable prices.

Horticulture is an important and growing sector in agricultural activity. It provides noteworthy income to the farmers and also provides livelihood security. Despite it earns foreign exchange especially while export to various Nations. The diversity of climate, soil and other factors are suitable for cultivating multi-varieties of horticultural crops in India. Especially the farmers of India are cultivating almost all the varieties of fruits, vegetables, flowers, plantations, spices and aromatic and honey. Over the past few years the remarkable progress have been made in the field of horticulture production, particularly area under different crops, productivity diversification of crops,

Technological advancements, irrigational facilities and etc... On the other side the remarkable changes have been done in the marketing process. India is the leading producing and exporting hub in the world due to the diversification of cropping patterns. In this regard this paper focuses the area production and productivity of the horticultural crops.

## Concepts of Horticultural Crops

Horticultural crops include fruits, vegetables, flowers, plantation crops, spices and aromatic and honey. These crops are important dietary nutritional components and sources of medicines and aroma along with significant esthetic values for human beings.

## Fruits

Fruits means the seed associated fleshy structures of plants that typically sweet or sour and edible in raw state such as Apple, Oranges, Banana, Grapes, Mango, Jack fruit and etc....

### Vegetables

Vegetables are the parts of plants which are used by human beings and animals as food for healthy and energetic living in the world.

### Flowers

A flower refers a bloom or blossom, is the reproductive structure found in flowering plants. The biological function of a flower is to facilitate reproduction, usually by providing a mechanism for the union of sperm with eggs.

- Some of the flowers possess medicinal properties.
- Chrysanthemum tea can reduce pain and fever.
- Marigold flower extracts can cure mouth and stomach diseases.
- Rosewater is used as a moisturizer. It helps to provide relief for the irritation in the eyes.
- Used as the Beauty Products etc...

### Plantation Crops

The term plantation crop refers to those crops which are cultivated on an extensive scale in contiguous area, owned and managed by an individual or a company. The crops include tea, coffee, rubber, cocoa, coconut, arecanut, oil palm, palmyrah and cashew

### Spices

A spice is a seed, fruit, root, bark, or other plant substance primarily used for flavoring or coloring food. Spices are distinguished from herbs, which are the leaves, flowers, or stems of plants used for flavoring or as a garnish. Dried Red Chiles, Cinnamon Sticks, Fenugreek Seeds, Cayenne Pepper, Coriander Seeds, Cumin Seeds, Cardamom, Brown Mustard Seeds and etc... are the spices.

### Aeromatic

Medicinal & Aromatic Plants (MAPs) are botanical raw materials, also known as herbal drugs that are mostly utilized for therapeutic, aromatic and/or culinary purposes as components of cosmetics, health, medicinal products and other natural health products.

### Honey

Honey is a sweet and viscous substance made by several bees, the best-known of which are honey bees. Honey is made and stored to nourish bee colonies.

### Uses of the Honey are

- Cure sore throat or a cough
- Honey has been used as a salve to heal burns and prevent infections.
- Strengthen Memory.
- cure Herpes.
- Suitable for Diabetes.
- Medicine for Cancer.
- Medicine for Hemorrhoids.
- Medicine for Wounds and ulcers.

### Objectives of the Study

1. To study the trends in cultivated area, production and productivity of horticultural crops in India from 2010-11 to 2020-21.
2. To offer the suggestions and policy recommendations for further enhancing the production and productivity of horticultural crops in India.

### Review of Literature

Ananya Mitra and Shradhanjali Panda (2020) India's horticulture production has shown manifold increase in the past two decades and the country is ranking second in the world next to China. Keeping in mind, the increasing trend in horticulture production and individual product, the purpose of the current paper was to study the short run and long run relation between economic growth and horticulture production as a whole. The study used secondary data on horticulture production and Gross Domestic Product (GDP) from 2001 to 2018. Given that agriculture is the backbone of Indian economy, the absence of short run relation between horticulture and food grain production and food grain with GDP is a matter of concern.

Girish K Jha et al., (2019) Horticulture sector is recognised to have the potential to raise the farm income, provide livelihood security and earn foreign exchange. However, focused policy interventions are needed to realise the potential of the sector. The study examines the

trends of the horticultural sector in India and identifies the growth prospects. The consumption of selected fruits and vegetables has grown at a rate of 18-23% and 10-20% in rural areas during 1993-94 to 2011-12, still the quantity consumed is less than the recommended dietary requirements. Out of the overall growth rate of 3.56 per cent in agriculture during 2000-2011, fruits and vegetable alone accounted for 19.2%. Across states, there is wide variation on the growth performance. The major concerns of the sector are improving the productivity through research and development, enhancing the share of value added products, geographical diversification of exports and enhancing the infrastructure including cold storage and rural roads.

### Methodology

Secondary data have used for analysis. The data have collected from secondary sources such as Agricultural

Statistics at a glance 2021 which are published by the Government of India, Ministry of Agriculture & Farmers welfare.

### Tools of Analysis

To find the Growth rate, Annual Average Growth Rate model was applied.

### Period of the Study

The study period was from 2010-11 to 2020-21 (agricultural year).

### Results and Discussion

#### Area Under Cultivation of Horticultural Crops

Area under Cultivation of horticultural crops such as fruits, vegetables, flowers, plantations, spices and aromatic and honey are presented in the following table.

**Table 1 Cultivated Area of Horticultural Crops ('000 ha)**

Year	Fruits	Vegetables	Flower	Plantation Crops	Spices	Aromatic & Honey	Total Horticulture
2010-11	6383	8495	191	3305	2940	511	21825
2011-12	6705	8989	254	3577	3212	506	23243
2012-13	6982	9205	233	3641	3076	557	23694
2013-14	7216	9396	255	3675	3163	493	24198
2014-15	6358	9541	249	3534	3317	418	23417
2015-16	6301	10106	278	3680	3474	633	24472
2016-17	6373	10238	306	3598	3671	665	24851
2017-18	6506	10259	324	3744	3878	720	25431
2018-19	6597	10073	303	4069	4067	628	25737
2019-20	6774	10310	323	4143	4291	641	26482
2020-21	6914	10966	329	4190	4528	659	27586
<b>Average Total</b>	<b>6646.27</b>	<b>9779.80</b>	<b>276.82</b>	<b>3741.50</b>	<b>3601.50</b>	<b>584.63</b>	<b>24631</b>
<b>CAGR</b>	<b>0.74</b>	<b>2.35</b>	<b>5.04</b>	<b>2.18</b>	<b>4.0</b>	<b>2.34</b>	<b>2.15</b>

Source: Ministry of Agriculture and Family Welfare, Government of India 2021.

\*\*Numbers in the parenthesis indicates percentage

Table 1 depicts the Area under cultivation of horticultural crops in India from 2010-11 to 2020-21. The annual average growth rate of flower is 5.04 percent followed by spices is 4 percent, vegetables is 2.35 percent,

Aromatic and honey is 2.34 percent plantations is 2.18 percent and fruits is only 0.74 percent.

### Production of Horticultural Crops

Production of horticultural crops such as fruits, vegetables, flowers, plantations, spices and aromatic and honey are presented in the following table

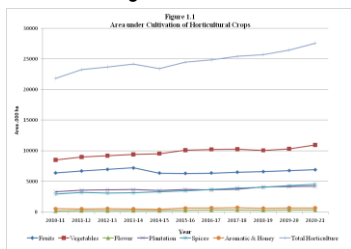


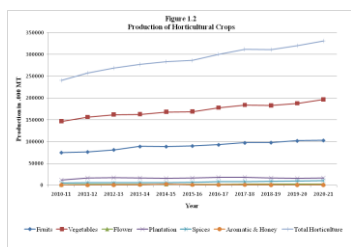
Table 2 highlights the Production of horticultural crops in India from 2010-11 to 2020-21. The annual average growth rate of total horticultural crops production is 2.95 percent per annum during the study period, flowers is 8.79 percent, spices 6.49 percent, plantations 2.99 percent, fruits 2.94 percent, vegetables 2.74 percent and aromatic and honey 2.2 percent.

**Table 2 Production of Horticultural Crops ('000 MT)**

Year	Fruits	Vegetables	Flower	Plantation Crops	Spices	Aromatic & Honey	Total Horticulture
2010-11	74878	146554	1031	12007	5350	711	240531
2011-12	76424	156325	1652	16359	5951	566	257277
2012-13	81285	162187	1729	16985	5744	918	268848
2013-14	88977	162897	2297	16301	5908	972	277352
2014-15	88819	168300	2143	15575	6108	2523	283468
2015-16	90183	169064	2184	16658	6988	1111	286188
2016-17	92918	178172	2392	17982	8122	1057	300643
2017-18	97358	184394	2785	18082	8124	971	311714
2018-19	97967	183170	2910	16592	9500	913	311052
2019-20	102080	188284	3000	16116	10137	854	320471
2020-21	103027	197230	2605	16602	10679	905	331048
<b>Average Total</b>	<b>90356</b>	<b>172416</b>	<b>2248</b>	<b>16296</b>	<b>7510.1</b>	<b>1045.5</b>	<b>289872</b>
<b>CAGR</b>	<b>2.94</b>	<b>2.74</b>	<b>8.79</b>	<b>2.99</b>	<b>6.49</b>	<b>2.22</b>	<b>2.95</b>

Source: Ministry of Agriculture and Family Welfare, Government of India 2021.

\*\*Numbers in the parenthesis indicates percentage



**Productivity of Horticultural Crops**

Productivity of horticultural crops is presented in the following table

**Table 3 Productivity of Horticultural Crops (MT/ha)**

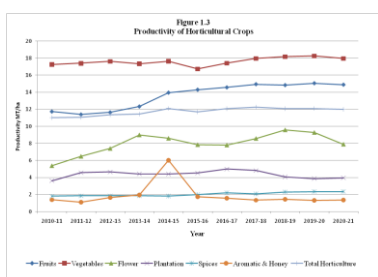
Year	Fruits	Vegetables	Flower	Plantation Crops	Spices	Aromatic & Honey	Total Horticulture
2010-11	11.73	17.25	5.39	3.63	1.82	1.39	11.02
2011-12	11.39	17.39	6.5	4.57	1.85	1.11	11.07
2012-13	11.64	17.62	7.42	4.66	1.86	1.65	11.35
2013-14	12.33	17.34	9.01	4.43	1.86	1.97	11.46
2014-15	13.96	17.64	8.61	4.41	1.84	6.03	12.11

2015-16	14.31	16.73	7.86	4.53	2.01	1.75	11.69
2016-17	14.58	17.4	7.82	4.99	2.21	1.59	12.09
2017-18	14.96	17.97	8.59	4.83	2.09	1.35	12.26
2018-19	14.85	18.18	9.6	4.08	2.33	1.45	12.08
2019-20	15.07	18.26	9.29	3.89	2.36	1.33	12.1
2020-21	14.9	17.98	7.92	3.96	2.36	1.37	12
<b>Average Total</b>	<b>13.61</b>	<b>17.62</b>	<b>8</b>	<b>4.36</b>	<b>2.06</b>	<b>1.91</b>	<b>11.75</b>
<b>CAGR</b>	<b>2.2</b>	<b>0.38</b>	<b>3.56</b>	<b>0.79</b>	<b>2.39</b>	<b>0.13</b>	<b>0.78</b>

Source: Ministry of Agriculture and Family Welfare, Government of India 2021.

\*\*Numbers in the parenthesis indicates percentage

Table 1.3 represents the productivity of horticultural crops in India from 2010-11 to 2020-21. The average total of horticultural crops productivity is 11.75 MT/ha. Hence the average total of vegetables productivity is 17.62 MT/ha followed by fruits 13.61 MT/ha, flowers 8 MT/ha, plantations 4.36 MT/ha spices 2.06 MT/ha and aromatic and honey 1.91 MT/ha. The annual average growth rate of flower is 3.56 percent spices is 2.39 percent fruits is 2.2 percent plantations 0.79 percent vegetables 0.38 percent and aromatic and honey 0.13 percent per annum respectively. The annual average growth rate of total horticultural crops is 0.78% per annum.



### Suggestions

- Enhance the diversity in the cultivation of crops.
- cultivate the climate resilient crops
- Increase the vertical and horizontal productivity of the crops.
- Educate and adapt the efficient water and fertilizer management
- Establish the export processing zones (EPZ) in many places across the country.

- Utilisation of waste land for agricultural activities.
- Facilitate the credit and subsidy by the government
- Establishment of more horticultural farms strengthen the research and development centres for horticultural crops.
- Enhance to start more Horticulture base industries in our India.
- Usage of Drone Cameras should be enhanced for the purpose of observation of horticultural crops and reduce the damages and thefts
- Separate agricultural budget must be framed and implemented in all over the India like Tamil Nadu.

### Conclusion

The method of organic farming slowly picked up in India with proper application of organic type fertilizers and manures will really help us to get higher prices for the agricultural products in the International Markets.

Diversification in agricultural sector leads to enhance the agricultural activities as well as pave the way to doubling income of the farmers. The diversification of crops mainly focusses on horticultural crops. The recent past statistical data show that the increasing trends in gross cultivated area and production of horticultural crops notably. This may lead India the strongest nation in export as well as to earn foreign exchange. In addition to that export oriented industries must be started more, it lead the greater opportunities for the citizens of India and the farm activities will be strengthened in the forthcoming years.

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