



ORIGINAL RESEARCH PAPER

Economics

PRODUCTION AND PRODUCTIVITY OF HORTICULTURE CROPS IN INDIA AND ANDHRA PRADESH

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ABSTRACT

Fruits and vegetables account for nearly 90 per cent of total horticulture production in the country. The production of fruits and vegetables during the current year is estimated to be 314.5 million tonnes (mt), about 1 per cent more than what the country produced in 2017-18, the first advance estimates of horticulture production released by the government of India. The area under horticulture crop also rose to 25.6 million hectare from 25.43 million hectare. Hectare crop year in India is from July-June. India is producer of fruits and vegetables in the world and is the leader in several horticultural crops, namely Mango, Banana, Papaya, Cashewnut, Recant, Potato and Okra. However the nature of horticulture crops being such it's not easy to make assessment of their production. These crops, especially vegetables are grown in small plots, fields or in the courtyard of the houses, do not have single collecting in most of the cases which makes their valuation demanding. Various horticulture harvests have multiple proceeds in a single season. Correspondingly many fruit trees are speckled, which do not count for taxation. The need for diversification to horticulture sector was acknowledged by the Government of India in mid-eighties by focussing its attention on investment in this sector. Currently horticulture has recognized its credibility in cultivating income through increased productivity, generating occupation and in enhancing exports. Resultantly, horticulture has moved from rural confines to profitable venture. However, efficient employment of programme and policies call for strong information in time. In this backdrop, this book presents the overall information on horticulture focussing area, production and yield estimates apart from the information about crops price, market arrivals and export. The situation of horticulture crops in India has become very encouraging. Production: India has witnessed increase in horticulture production over the last few years. Important progress has been made in area development resulting in higher production. Over the last decade, the area under horticulture grew by 2.6 per cent per annum and annual production increased by 4.8per cent. During 2017-18, the production of horticulture crops was 311.71 Million Tonnes from an area of 25.43 Million Hectares. The production of vegetables has increased from 101.2 Million Tonnes to 184.40 Million Tonnes since 2004-05 to 2017-18 and production of fruits has increased from 50.9 Million Tonnes to 97.35 Million.

INTRODUCTION

India is the second largest country in population in Asian Continent. Agriculture is the main occupation since ancient times. In Indian Economy. Agriculture and related sectors play crucial role. Horticulture is an important sub sector in Agriculture, which is rapidly growing and contributes 28 per cent share in the Indian Economy. Horticulture influences consumption habits and attitude of customers. People are leaning towards horticulture products instead of food grains due to variety of reasons. Thus horticulture sector gaining significance in our economy and Agriculture as well. Horticulture is most lucrative among all other farming sectors in India. Horticulture sector providing employment opportunities at various levels in Cultivation and farming, crop maintenance, production post-harvest management, trading, storage, processing, , transportation, marketing, area development, training for farmers and distribution of horticulture produce are the important direct and indirect activities. Income for the farming activities rises through horticulture sector. If income increases of farming activities automatically national income will also increase. Horticulture is foundation for other supplementary industries like canning industries and processing industries. Rubber, Coconut and Tapioca industries. These industries are survived on horticulture produces for input and provide employment opportunities for small farmers and agriculture labours during all seasons. One hectare of fruit production generates 360 man-days per annum. Rut cereal crops generate just 143 man-days per annum. Grape, banana and pineapple are some of the industrial attribute crops and cultural intensive crops. It generates large employment i.e., from 200 to 336 man-days per hectare. Horticulture products are rich in nutrition and part of diet and meals of human beings. These horticulture produces have vitamins, minerals, fats, proteins, energy etc., which are required for human body. Fruit\ and vegetables are protective foods as they are necessary for the maintenance human health.

Horticulture Enhancement of green life of banana a technology to store and increase the green life of 'Grand Nain' and 'Poovan' bananas during glut and natural calamities was developed. Treatment with 1-methylcyclopropene enhanced the green life of pre-climacteric bananas for four months at 14oC and for 15 days at ambient temperature over the untreated controls without any adverse effects on physiological, biochemical and qualitative parameters. There was no incidence of anthracnose and crown rot as compared to control banana hands packed with ethylene absorbent (50 days) and control (17 days).

The National Horticulture Mission has provided a fillip to the horticulture sector, resulting in a significant increase in Horticulture business activities, besides bringing in vibrancy in the agricultural economy. It focus in the area of horticultural research development, post-harvest management, processing and marketing. The programme under horticultural development aims at increasing the production and productivity of all horticultural crops through timely adoption of improved technologies in crop production. Governments of India focus more attention towards horticultural programmes for providing relief and rescue measures to the small and marginal farmers through National Horticulture Mission

Meaning of Horticulture

Horticulture is the branch of agriculture. It is the art, science. Technology and business of plant cultivation. It also includes the cultivation of fruits. Vegetables, nuts, seeds, herbs, sprouts, mushrooms, flowers, seaweeds and non-food crops for instance grass and ornamental trees and plants and plant conservation, maintenance and arboriculture. Horticulture comes from the Latin word "hortus" which means garden and "cultura" it means cultivation. Fruits and berries are having sweet taste and also contain organic acid and pectin. Almost

of all varieties, fruits and berries are permanent crops. Strawberry is not a permanent crop, it is a seasonal crop. All varieties of fruits are growing mainly in trees, bushes, shrubs, vines and also palms. Some fruits grown singly and other fruits are grown and found in large attached to the branches or stalks or trunks of the plants e.g. bananas and grapes. Fruit crops are commercial crops. These crops are collected from sprinkled plants and they are cultivated under well-ordered orchards and compressed plantations. According to FAO, bananas, grapes dates and carobs are considered as fruit crops. But nuts, olives, coconuts, Melons are not a fruit crops. Horticulture crops can be cultivated in small scale by using small plots of mixed crops with wide variety. William L. George has divided horticulture into five distinct parts as floriculture, landscape horticulture, floriculture, penology and post-harvest physiology.

Mainly horticulture deals with four areas to be exact fruit culture, vegetable culture, floriculture and post-harvest technology. After green revolution, the scope of the horticulture is expanded to bamboo, mushroom, plantation crops and bee-keeping. For these developments, in horticulture can be redefined as the "Science of growing and management of hits, vegetables including tubers, ornamental, medicinal and aromatic crops, spices, plantation crops their processing, value addition and marketing".

Fruits

Fruits are generally eaten as raw. It is good for our health. The study or cultivation of fruit crops is called pomology. Mango guava, sweet orange and pineapple are some of the fruits.

Concept

The need for diversification to horticulture sector was acknowledged by the Government of India in mid-eighties by focussing its attention on investment in this sector. 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. The Department of Agriculture and Co-operation (DAC) of the Ministry of Agriculture is the nodal department for overseeing horticulture development in the country. It implements different programmes through Departments of Horticulture in all the States and provides the leadership to coordinate activities for the promotion of horticulture. However, efficient implementation of programme and policies call for a robust information in time. In this backdrop, this book presents the overall information on horticulture focussing area, production and yield estimates apart from the information about price, market arrivals and export. The scenario of horticulture crops in India has become very encouraging. The percentage share of horticulture output in Agriculture has become 30%. 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.

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programme and policies call for robust information in time. In this backdrop, this book presents the overall information on horticulture focussing area, production and yield estimates apart from the information about crops price, market arrivals and export. The scenario of horticulture crops in India has become very encouraging. The percentage share of horticulture output in Agriculture has become 33%. Under the purview of Agriculture & allied activities, the share of plan outlay for Horticulture.

Importance of Horticulture

Importance of horticulture in the society is indicated by many facts. Development in horticulture sector creates large employment opportunities as well as income for the rural farmers. If income increases in rural areas automatically the national income also increases. Horticultural produces contribute to national wealth. Horticulture products are very important in human diet. Horticulture products are also providing foreign exchange to the country. They are the important exportable commodities in many countries. India also greatest exporter of horticultural produces. Cultivation of horticulture products improves the income levels of poor people through different activities. It removes the poverty and increases income levels. Large income farmers can cultivate large quantity horticulture products for exportable purposes. Exporting to other countries can definitely earn foreign exchange. Through this foreign exchange national income will also increases. India is second largest population of country in the world. And also India is abundant with labour. So it creates employment opportunities throughout the year. It also provides nutrition security to the people. These horticulture products are very important to the human diet. Cultivation of horticulture products are improves the productivity of land. Industrial development can also done.

Demand and Consumption of Horticulture

With increasing Indian population, there is an increase in demand for food. People are suffering from hunger, poor life style and diets. Its deficit causes malnutrition and no communicable diseases. Hence, it is important to include a diverse range of Nutritious horticultural produce as a component of healthy diet. The demand for horticulture products are increasing rapidly. It generates employment opportunities and income in various activities involved in the production of horticulture. It provides income as main sources for small-scale farmer and rural entrepreneurs and urban entrepreneurs.

The production and operations of horticulture produces improves the food security, nutrition security and employment generation to the producers and who involved in production cycle of horticulture produces. These horticulture operations contribute towards economic growth and development. The production of horticulture products has high income elasticity of demand. Income increases, automatically demand for horticulture produces also increases rapidly in both middle and high income groups in developing and developed countries. In developed countries, people mainly concentrate on health and nutrition with increased income. It caused consumer preferences to shift from high fat, high cholesterol foods such as meat and livestock products to low fat, low cholesterol foods such as fish, fruits and vegetables. People have to turn towards to maintain diet and good health they prefer hits and vegetables in developed countries. It facilitates to develop both imports and exports of a country. Nutritious food is the main concept in the National agenda. It can be achieved by facilitating nutritional and balance diet to the population. According to ICMR (Indian Council of Medical Research) recommendation on dietary, 120 Gms fruits and 250 Gms vegetables are necessary per person per day.

Supply and Production of Horticulture

The climate conditions are very important for growing horticulture produces in the country. The production of horticulture crops are mainly depending on labour. India is gifted with abundant labour in relation to capital has competitive advantage in production and exports. Cultivation of horticulture produces generates employment in cultivation processing, marketing and distribution. Small farm size groups are cultivating horticulture produces, because it needs less expenditure, generates employment and provides large income to the farmers in developing countries. All most all horticulture produces especially fruits are having high demand in world trades. Rural poverty can be detached by the efficient production of high value horticultural products on small farm size group. High Production of horticulture produces encourages the agricultural business development in the rural economy and generates employment and income. Farmers learnt modern and innovative techniques to increase their production capacity as well as to manage multiple cropping systems and deliver quality outputs on time and dealing with complicated marketing systems. They also learnt management skills that are needed for successful horticulture production and for socio-economic development to take off large production of horticulture produces improves the availability of micronutrient rich foods. Consumption of sufficient micronutrients improves health, learning capability, and working capacity of the population. These factors improve the working efficiency of the farmers and it facilitates and stimulates socio-economic development. For that reason, there is a strong relationship between horticultural production and overall socioeconomic development.

Production

India has witnessed 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 2.6% per annum and annual production increased by 4.8%. During 2017-18, the 2 Horticultural Statistics at a Glance 2018 production of horticulture crops was 311.71 Million Tonnes from an area of 25.43 Million Hectares. The production of vegetables has increased from 101.2 Million Tonnes to 184.40 Million Tonnes since 2004-05 to 2017-18 and production of fruits has increased from 50.9 Million Tonnes to 97.35 Million Tonnes since 2004-05 to 2017-18. The horticulture sector has been a driving force in stimulating growth in Indian agriculture. India is currently producing 277.7 million tonnes of horticulture produce from an area of 23.2 million hectares, which has surpassed the estimated food grain production of 257 million tonnes. Though the production of food-grains and horticultural produce are not meaningfully comparable due to fundamental differences in the nature of their farming, characteristics of produce, nature of land requirements, and most importantly, their nutritional purpose and value, it has come to light that India is the second largest producer of fruits in the world and is the leader in producing fruits like mango, banana, pomegranate, sapota, acid lime and aonla.

- India's fruit productivity is better than that of China, though China is the largest fruit producing country.
- Special efforts are being made to improve the productivity of fruit crops by enhancing the supply of quality planting material from accredited nurseries and improved package of practices.
- The per capita availability of fruit to the Indian population is 189 gm/person/day and has been helping in supplementing nourishment.

Horticultural farming is much productive and gainful. The productivity of horticultural crops has increased by about 34 per cent between 2004-05 and 2014-15. The special attention given to the sector, especially after the introduction of the Horticulture Mission for North East and Himalayan States (HMNEH) and the National Horticulture Mission (NHM) in the

11th Plan, has borne bumper fruit. Given the increasing pressure on land, growth strategies have been focusing on raising productivity through high density plantations, protected cultivation, micro irrigation, quality planting material, rejuvenation of senile orchards and an emphasis on post-harvest management and marketing of produce for better price realization.

With a production of 88.8 million tonnes, fruits account for about 31 per cent of total production of horticulture crops. The area under fruit crops cultivation during 2013-14 was 6.3 million hectares, which is about 27 per cent of total area under horticulture cultivation in India. The area under fruit crops cultivation has increased from 5 million hectares in 2004-05 to 6.24 million hectares in 2014-15, with a corresponding increase in production from 50.9 to 86.2 million tonnes. A large variety of fruits, such as banana, mango, citrus, papaya, guava, grape, sapota, pomegranate, pineapple, aonla, litchi, pear, plum and walnut are grown in India. India accounts for about 13 per cent of the total world production of fruits and leads in the production of mango, banana, papaya, sapota, pomegranate, acid lime and aonla.

During 2014-15, Maharashtra stood first in terms of fruit production with a 12.22 per cent share in total production followed by Andhra Pradesh with 10.57 per cent, Uttar Pradesh with 10.03 per cent, and Gujarat with 9.27 per cent and Tamil Nadu with 6.26 per cent shares. These states together contributed about 50 per cent of the total fruit production in the country. Banana is the most cultivated fruit accounting for 33 per cent of total production, followed by mango at 21 per cent, citrus at 14 per cent, papaya at 6 per cent, guava at 4 per cent, grapes at 3 per cent, apple at 2 per cent and others with a 16 per cent share in the country. In the case of the Himachal Pradesh and Jammu and Kashmir, the value of output from apples, plums, pears and stone fruits exceeds the value of output from cereal crops.

The area under cultivation, production and productivity of fruit crops have registered significant increases during the last decade, as depicted in Vegetables occupied an area of 9.5 million hectares during 2014-15 with a total production of 167 million tonnes having average productivity of 17.6 tonnes per hectare. Vegetable production registered a quantum jump of 66 per cent between 2001-02 and 2014-15.

The major planned activities taken up under the Mission for Integrated Development of Horticulture (MIDH) scheme included programmes for production of planting material, area expansion including high density planting, rejuvenation of old and senile orchards, protected cultivation, creation of water resources and promotion of INM and IPM, which are basically aimed at productivity improvement. Organic farming and good agricultural practices (GAP) are promoted to enable chemical residue free horticulture produce, besides addressing environmental concerns of soil and land degradation. Horticulture mechanization is promoted to bring in efficiency in horticulture production and harvesting operations. Production and productivity improvement programmes are complemented by the creation of infrastructure facilities for post-harvest management, processing and marketing.

Towards Sustainable and Inclusive Growth in Horticulture

The major challenge for horticulture is to sustain this growth in a manner which ensures a higher income for the primary producer through better institutional support mechanisms such as infrastructure and technology support for the entire value chain from preplanning to post harvest management. While the ICAR system, with its research institutions, national research centres and state agricultural universities have addressed issues relating to soil health, planting material and

new and adaptive varieties, the major challenge for the DAC and FW is to assure higher returns for the farmer by ensuring that what is produced is not lost in transit on account of poor handling or perishability and that the farmer is part of the value chain.

Horticulture hub in Andhra Pradesh

The Government of Andhra Pradesh is committed to farmer centric programmes and identified Horticulture sector as one of the growth engines to achieve double digit inclusive growth. In Andhra Pradesh area under Horticulture crops is 16.02 Lakh Ha. with a production of 251.35 Lakh MTs. The vision of Hon'ble Chief Minister is to make Andhra Pradesh as major Horticulture Hub and aims to expand the area under Horticulture crops from existing 16.02 Lakh Ha to 40 Lakh Ha (1 Crore Acres) and also to cover the entire area under Micro Irrigation.

Significant achievements of Department of Horticulture.

- Andhra Pradesh stands at 1st position in productivity for Chillies, Cocoa, Lime, Oil Palm, Papaya, Coconut and Tomato,
- 2nd in Cashew, Mango, Turmeric and Sweet Orange in India.
- State has emerged as the "Fruit Basket" of the country with highest production of fruits at the National level.
- State has emerged as the largest producer of Spices in the Country.
- Andhra Pradesh is emerging as the largest hub for Cocoa in India with an area of 26,600 Ha. The Cocoa beans produced in A.P. are comparable to the best quality of Ghana.
- Andhra Pradesh has highest area under Oil palm cultivation with an area of 1.62 Lakh Ha.
- The Andhra Pradesh Banganapalle Mango has got a Geographical Indication (GI) tag, making Andhra Pradesh the proprietor of the variety known for its sweetness.
- Centre of Excellence for Vegetables & Floriculture in Kuppam with State of Art facilities to disseminate latest technologies to the Horticulture farmers of Andhra Pradesh.
- State achieved the highest coverage under micro-irrigation in the Country during 2017-18 and 2018-18
- Under Drip Irrigation implementation Kadapa and Ananthapuramu Districts stands in 1st and 2nd place in India among the top 10 districts in area coverage (2018-19) and whereas Prakasam, Kurnool, Chittoor and West Godavari are also among the top 10 districts in area coverage.
- So far an area of 11.53 lakh ha. Has been covered under Micro irrigation in all the 13 Districts in the state benefitting 9.16 lakh farmers.

Rayalaseema as Horticulture hub

Government of Andhra Pradesh is committed to make Rayalaseema as Horticulture Hub. In pursuance, the following initiatives have been taken up by the Department of Horticulture to achieve this goal.

- Focus is on reducing the cost of cultivation, increasing productivity and quality produce to achieve higher net income / returns.
- GVA from Horticulture Sector during 2017-18 was Rs.26, 973 Crores (63.52% of the state share) in Rayalaseema Districts (constant price).

Promotion of Micro Irrigation and Area Expansion

- An additional area of 1.40 Lakh Ha is brought under Horticulture plantations.
- An area of 7.30 lakh Ha. (63.31%) has been covered under Micro irrigation in all the 4 Districts benefitting 7.25 lakh farmers.

Production and Quality Enhancement

- Rejuvenation and Canopy Management - 44,000 Ha.
- Protected Cultivation (Poly Houses and Shade net

Houses)-18.00 Lakh Sq. Mtrs.

- Pandals & Trellis system of vegetable cultivation - 8,000 Acres.
- Mulching - 12,000 Ha.

Promotion of Marketing Infrastructure

- 2500 Nos of Post-Harvest Management units including Cold Storages, Ripening Chambers, Pack Houses, Processing units etc.
- M/s. Kusalava Organic Products, Konduru (V), Lepakshi (M), Anantapuram District has exported 5 lakh rose cut flowers to different countries.
- Six Integrated Pack Houses with State of Art facilities have been created in Ananthapur for exporting High Value herbs like Onion Chives, Moroccan Mint, vegetables etc. used for culinary purpose in western countries.
- Modern integrated APEDA certified Packhouse with facility of Vapour Heat Treatment (VHTP) at Tirupathi & Nuzvid.
- Among all the 4 districts of Rayalaseema Ananthapuram is fast emerging as Horticulture Hub with presence of many private corporate i.e. Future Group, INI Farms, Big Basket, Ninja Cart, Desai Fruits etc.
- 72 Farmers Producers Organization (FPOs) have been registered with coverage of 30,000 No. of farmers and Rs. 7.50 crores provided to FPOs to implement Business plans.

CONCLUSION

Horticulture is the branch of agriculture. It is the art, science. Technology and business of plant cultivation. It also includes the cultivation of fruits, Vegetables, nuts, seeds, herbs, sprouts, mushrooms, flowers, seaweeds and non-food crops for instance grass and ornamental trees and plants and plant conservation, maintenance and arboriculture. Horticulture comes from the Latin word "hortus" which means garden and "cultura" it means cultivation. Fruits and berries are having sweet taste and also contain organic acid and pectin. Almost of all varieties, fruits and berries are permanent crops. Strawberry is not a permanent crop, it is a seasonal crop. All varieties of fruits are growing mainly in trees, bushes, shrubs, vines and also palms. Some fruits grown singly and other fruits are grown and found in large attached to the branches or stalks or trunks of the plants e.g. bananas and grapes. Fruit crops are commercial crops. India's horticulture production is estimated to rise by 1 per cent to record 314.67 million tonnes in 2018-19 on the higher area. The agriculture ministry released the final estimates for 2017-18 and the first estimates for 2018-19 of area and production of horticulture crops. These estimates are based on the information received from different states and Union territories. As per the final estimates of 2017-18, horticulture production stood at record 311.7 MT, which is 3.7 per cent higher than the previous year and 10 per cent higher than the past five years' average production. The area under coverage rose to 25.87 million hectares from 25.43 million hectares.

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