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Status of horticulture in Bihar

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Abstract

Horticulture is defined as the science and arts of growing and farming fruits, vegetables flowers and ornamental nature of plants. Further I includes soil management and maintenance, plant conservation, landscape restoration and garden design.

In current years horticulture is treated as such field having rapidly emerging in Bihar having great impact on commercialization and moment. The economy of Bihar is one of the fast accelerating in India. It is properly service-based, with a good share of agriculture and other sectors. Again the GDP of state has been \$ 9,76,518 crores (\$120 Billion) at the present market price (2024-25). In Bihar horticulture plays prime role in promoting economy. It is important to know that in Bihar horticulture is an important sector contributing significantly to the state economy. The state favorable agro-climatic based conditions and fertile soil make it proper for a large range of horticultural crops. The state is known for its production of fruits and vegetables like mango, litchi, guava, and banana, as well as vegetables such as cauliflower, tomato, and brinjal.

Keywords: Flowers, fruits, horticulture, mango, vegetables

Introduction

The importance of horticulture for the society is accepted by all. Horticulture is significant is sustainable agriculture, providing solutions to the ecological, environmental, economic and nutritional challenges. By promoting better horticultural practices. The state can conserve natural resources. Generate economic growth and provide food security in the state. Further the national horticulture Mission is an scheme promoted by the government. The Indian 86 percent government contributes 86 percent while 14 percent is contributed by state governments. Horticulture in the state has been growing over the years, contributing significantly to the state's economy. Further from cultivation of fruits and vegetables to floriculture and medicinal plants. The state horticultural sector has undergone proper transformations. Bihar has a diverse agro-climatic condition suitable for the cultivation of range of horticultural crops. The Bihar is blessed with fertile soil, water resources and a favorable climate making it conducive for horticultural crops and products.

The history of horticulture in Bihar dates back to ancient times when the region was known for its rich agricultural practices. Historical records suggest that fruits such as mangoes, bananas, and lechies were grown in Bihar during ancient period the Mughal rulers also contributed to the development of horticulture by introducing new of fruits and flowers. In Bihar horticulture has emerged as significant component of agricultural sector. The state government along with other organizations has been promoting horticultural practices among farmers to enhance productivity and income in Bihar. The cultivation of fruits like mango, banana lichi and vegetables such as onion potato, tomato and brinjal has gained important position in

- **Fruits:** Bihar is know for its orchards particularly in Patna, Bhagalpur, Muzaffarpur. Bihar produces large quantity of bananas, litchis, and papayas. The cultivation of high-yielding and disease varieties has lead increase fruits production and export activity.
- **Vegetables:** Vegetables play prime role in state horticultural economy. Farmers cultivate a diverse range of vegetables throughout the year to get domestic consumption and markets in nearby states. Crops such as potato, onion, and cauliflower are the major vegetables of Bihar.
- **Floriculture:** For the growing demand for flowers in domestic and international markets, floriculture has emerged as good venture for farmers in Bihar. Roses, gladioli, and jasmine are some of the popular flowers cultivated in Bihar. The cultivation of flowers not only generates income but also adds aesthetic value.

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- **Medicinal plants:** Bihar is home for the rich biodiversity of medicinal plants with good potential for pharmaceutical and herbal industries. Several initiatives has been taken to promote the cultivation of medicinal plants like neem, aloe vera, ashwagandha, and tulsi. These plants not only contribute to healthcare but also offer income-generating opportunities.

Bihar a state India, plays a significant role in the agricultural economy. Some key points about horticulture in the state are:

- **Mangoes:** Bihar is known for its quality mangoes, particularly varieties such as Zardalu, Gulabkhas, Paper Maldah etc.
- **Litchi:** Muzaffarpur (Bihar) often called the Litchi Kingdom is famous for its sweet and juicy litchis. Shahi litchi is produced in Muzaffarpur.
- **Banana:** Gaya district is famous for Bana cultivation. In Bihar Bhagalpur is also producing quality banana.
- **Guava, Papaya, and Pineapple:** These tropical fruits are also grown in various parts of the state of Bihar.
- **Vegetables:** Bihar also produces a Quality of vegetables like potato tomatoes, potatoes, cauliflowers, brinjals, etc.

Challenges of Horticulture sector

Inspite of the proper progress made in horticulture sector. This sector access various challenges which negates its growth in Bihar.

- **Infrastructure:** The lack of proper infrastructure like as cold storage facilities, processing units, and transportation and market nearness. These infrastructure minimizes the proper growth of horticulture. Lack of cold chain and storing facilities have negative impact.
- **Limited Access to Technology:** Mostly small and marginal farmers in the state lack access to latest agricultural technologies which hinders their productivity and profitability in the state.
- **Diseases:** Infestations pose threat to horticultural crops which leading to yield losses if not managed properly. Farmers require access to pest-resistant varieties and knowledge about pest management practices in the state.
- **Market:** Inspite of potential of horticultural crops the Bihar farmers on often face challenges in connecting markets and obtaining fair prices for produce. Strengthening market linkages is crucial for providing better returns to farmers.
- **Climate Change:** Climate change poses challenges horticultural sector in Bihar by poor rainfall patterns, temperature fluctuations, and weather events affecting crops yields. Adaptation strategies is essential to manage the climatic impact.
- **Lack of Processing Units:** Lack of processing units have negative impact in the value addition of horticulture produce in the state.
- **Fair Price:** Fair prices and market access for farmers remains a challenge before horticulture industry in Bihar.

Further the state government with the central government, wish to introduce many schemes and initiatives to promote horticulture in Bihar Again, These attempt aim to improve production quality and market accessibility of cultivators in

Bihar.

Horticulture in Bihar

Horticulture are is a sun rise sector. Which has potential to promote economy. Horticulture is the branch of plant agriculture which deal with garden products normally fruits and vegetables and also ornamental plants. This term covers all format of garden management, but in general words it refers to use of commercial production. Broadly speaking horticulture comes between domestic gardening and field agriculture by all formats of crops have close relation with agriculture. At the outset it is important to go through floriculture deals with the production of flowers (Ornamental cut flowers, pot plants, and generics). Further horticulture is a broad class which includes shrubs, trees, and vines having commercial importance. The success of horticulture crops are influenced by various. Factors. Among these forces the main are climate, terrain, and so many other variations and changes. Further the horticulture is arranged into the cultivation of plants for eating like pomology and olericulture and also plants for ornament uses like floriculture and landscape horticulture. Pomology is and nut crops. Olericulture is herbaceous plants for the use of kitchen which include carrots like edible root asparagus like edible stem lettuce such as leaf cauliflower like edible flower or buds, tomatoes like edible fruit and peas such as edible seed. Various bioactive compounds obtained from horticultural products wastage are polyphenols, which have been treated important due to their potential to prevent oxidative reactions in food. The biological basis to high light the health benefits of polyphenols focus on their well-established antioxidant properties. Further polyphenols may be grouped into two major classes. A part from the natural bioactive compounds having the source of antioxidants to replace synthetic additives is of importance for the food industry and horticulture industry. Antioxidants from mangoes, tomatoes, and pineapple by-product ants have been incorporated to juice, biscuits, ghee, cured, chips oils etc. Therefor food industries use horticultural wastage as natural ingredients for the formulation of functional foods. Horticulture is the science and arts of growing plants like fruits, vegetables and flowers. Which includes conservation, landscape, restoration, soil management, garden design, construction, and maintenance. In opposite and contrast to agriculture, horticulture do not cover large-scale crops production and animal husbandry. The state Bihar plays significant role in the production of horticulture produces in the country. With a share of the national production of 10% and 7% Bihar is largest producers of fruits and vegetables in India. In terms of production of fruits and vegetables, the state comes in 3rd and 6th place among other states, in the country.

The state of Bihar is located in the Ganges basin's plains. It has large groundwater resources and alluvial soil. The state agriculture is rich and also diverse. The main cereal crops of the state are wheat, maize, and rice. Pulses like arhar, gram urad, moong, pea, are grown in the state include potatoes, onions, and cauliflowers. In fruit production, it is 3rd largest producer of pineapple, the largest producer of lychee, and a significant producer of mango, and guava. Jute and sugarcane are two income crops in the state. The state vegetable production is increasing day by day. Near about 12 percent of the state gross area is presently covered by vegetables farming, and its percentage is increasing. Potato,

tomato onion, cauliflower and brinjal are the main vegetable crops. In yester years we have seen an early verity of cauliflower arrive on the market in Hajipur, Sonapur and Vaishali. Vegetable production is properly distributed among different districts. Sitamarhi, Vaishali, Muzaffarpur, West Champaran, Samastipur, Katihar, and Begusarai are the districts having proper shares in total vegetable output, in addition to Patna and Jehanabad, where vegetable production is top in the state. In the district of Bihar, rice is grown. All three different types of rice are grown at three different times in the year like autumn rice, aghani rice, and summer rice. Near about 6 million tonnes of rice are produced every year in the state. Wheat cultivation is largely confined to western Bihar. Following the success of the "green revolution," farmers in Bihar grew wheat on larger scale, and it is now considered the prime crop of the spring (Rabi) season.

Growth of Horticulture in Bihar

In yester years, Bihar has witnessed a proper increase in the production and also export of horticultural produces. Horticulture industry is growing slowly in Bihar over the last decades. The Bihar's agro-climatic conditions and fertile soil make it suitable for growing wide range of horticultural products. The state initiatives to promote horticulture related activities have also contributed to much to the growth of the horticulture. However this sector faces challenges that need to be located like inadequate infrastructure, lack of market connectivity and limited access of credit to the producers. Horticulture has been important sector in the state to the state economy. The Bihar favorable agro-climatic conditions and fertile land make it productive for a wide range of horticultural produces. The state is known for its production of fruits like to litchi mango, guava, and banana, as well as vegetables such as cauliflower, cabbage, tomato, and brinjal. The state is also a good producer of flowers like marigold, rose, and jasmine. Further horticulture has a good potential in Bihar and has right policies and investments it may contine to grow and contribute to the state economy.

Government Initiatives

In Bihar government has taken many initiatives to promote horticulture. Further the government has established various horticulture centers, nurseries, and research points to support technical assistance for the farmers. The government has started many initiatives to promote horticulture in Bihar these initiatives are as follows.

- **Integrated Horticulture Development Scheme:** The scheme aims to give financial assistance to farmers for horticulture farms, purchasing equipment and promoting machines. In this scheme, the state government provides subsidies from 40 percent to 70 percent for various works.
- **National Horticulture Mission:** The National Horticulture Mission aims to promote horticulture productivity improve production and increase the income of producers. It provides financial support to producers for erecting horticulture lands, improving infrastructure and providing research and development works.
- **Bihar State Horticulture Development Society:** The Bihar State Horticulture Development Society has been established to provide horticulture works in Bihar. It

supports technical assistance to producers provides training programs and arrange exhibitions fairs to develop horticulture.

- **Horticulture Parks:** The state government has set up many horticulture parks in the state to develop horticulture works. Further these parks gives a platform to producers to develop their product and attract market.
- **Research and Development Centers:** For the promoting horticulture government has set-up many research and development points to develop horticulture research and development activities. These centers conduct and control research on technologies, product management and pest control techniques.

The government of Bihar has implemented several schemes and initiatives to promote horticulture and address the challenges faced by farmers.

Government of Bihar launched Various Schemes in This Regard which are follows:

- **Bihar Horticulture Development Society:** It works towards developing and promoting horticulture and enhancing the livelihoods of produce.
- **Horticulture Mission:** This initiative aims to promote holistic growth of the horticulture in the state.
- **Krishi Vigyan Kendras:** These centers provide technical support to farmers for improving horticultural practices. KVKs promotes horticulture in the state.

This state also has a small scale industrial sector. As of 2022 agriculture accounts for 28% industry 17% and service 62% of the economy of the state. Bihar is located in the eastern part of the country having very good benefits for its location and proximity of market. It is also connectivity to culcutta and haldia ports. It has availability of raw materials like iron and coal from neighbouring state. The economy of the state is fastest growing, which is mainly service based. Apart from this agriculture and industrial sectors are also promoting economy of the state. Transportation has been instrumental in promoting economic development for the state the road construction department has decided roads across the Bihar to about 260 urban locations in March 2023. The aim has been to distribute heavy load of traffic as per Saat Nischay (Part-II) programme. The road is to be measured at 910 kilometers with an estimated cost of Rs. 5643 crore. The Bihar economic survey 2022 the Koilwar Bridge which measured near about 1.6 km long was inaugurated for Road Transport and Highways. By end of the year 2023 the Koshi Bridge of four lanes has been constructed. Horticulture plays important role in uplifting socio-economic development of the state it empowers women by providing the opportunities for income generation and decision-making in households and communities. Further the horticultural produces and their production are the finest options for farmers because they can earn more money by exporting their produce in various nations of the world. Analysing the fact that in spite an agricultural economy the state people have not enough farmlands, hence various industries have source of livelihood for these landless. People. For minimizing the dependence on agriculture we should give focus on agriculture for promoting the economy of Bihar. It is appears that horticulture can improve the state position in international food trade and ultimately improve the

economy. The department of It and communication in 2021 has focus on that more than 45000 villages of the state of Bihar must be connected with optical fibre network with a year 45 per 2020 Bihar economic survey during yester years from 2017-2022 the economics of Bihar grow at the highest rate of 2.4% in the primary sector and 4.9% in the secondary and 8.6% in the tertiary sector in the state. In the yester five years agriculture sector and other allied sector has grown by 2.2% the fisheries and livestock grow at 7% and 10% major part of the economy of Bihar largely depend on farming and the population has pushed farming at maximum limit 6% of area of Bihar is covered under the farming of sugarcane production in the state more than 12 Sugar mile has started and in 2020-2022 near about 225 lakh MT has been produced. The total production of horticulture sector in 2020-21 has been 20,842.34 thousand MT and 1781.78 thousand hectare in the Bihar in 2021-22. The total production of fruits and vegetables has been 17,417.64 thousand MT from yester decades the government has given much focus on urbanization which 12% in 2021, which was increased to 16% at present. Bihar economy rose with 700 MV units of thermal power plant in the state of Bihar which was synchronized with the grid of NTPC Ltd. Which can provide the commercial electricity generation. The Bihar government announced in May 2021 that it aims to complete wheat procurement with the minimum support price (MSP).

Impact of Horticulture on Socio Economic Development

In Bihar the impact of horticulture on socio-economic conditions has been multifaceted which requires a comprehensive analysis. In yester years horticulture has emerged as an important sector in the economy of Bihar contributing to agricultural growth and socio-economic development. Bihar located in the eastern part of India, is predominantly an agrarian state when agriculture become the primary source of livelihood for most of the population. Horticulture, which includes the cultivation of fruits, flowers vegetables, and medicinal plants has gained important in the resources. The state ecological zones provide proper conditions for the cultivation of horticultural crops, making its one of the leading producers of fruits and vegetables. The significant impacts of horticulture and its product on socio-economic conditions in Bihar is its role in enhancing agricultural productivity. Horticultural crops have higher value addition potential and have less price fluctuations. By diversifying cropping patterns and practicing latest horticultural system farmers have become able to get more yields and better returns on investments. Further the cultivation of high-value horticultural crops like vegetable and fruits has enabled farmers to get higher prices in the market therefore by improving their income levels and standard of living.

Income Generation and Employment

Horticulture has become a major source of income generation and employment provider in the state mainly in rural part where agriculture is the main occupation. The harvesting, processing and cultivation of horticultural products require a proper amount of manpower by creating employment opportunities for a great number of people, including farmers. Further the value addition activities associated with horticulture like food processing and marketing have the great potential to create income for

farmers.

Rural Livelihoods

The expansion of horticulture in Bihar has had great implications for rural livelihoods, contributing poverty and socio-economic empowerment. Who constitute a large portion of the rural population in Bihar have benefited from the farmers of horticultural due to more income-generating potential. By diversifying horticulture cultivators have become able to reduce dependence on traditional crops. Further the cultivation of horticultural crops has empowered female farmers by providing another sources of income.

Poverty and Improving Food Security

Horticulture has played significant role in reducing poverty and improving food in the state by increasing agricultural producing, increasing income. The cultivation of fruits and vegetables not only provides nutritious food for peoples consumption but also generates income. horticulture through government schemes and initiatives has helped in targeting vulnerable groups like farmers, women and landless people hence contributing to growth and development of the state. Horticulture has a significant and proper impact on socio-economic conditions of Bihar where it plays a crucial role in the livelihoods of many people.

Conclusion

Further when horticulture has made proper contributions to socio-economic development in Bihar several challenges need to be addressed to realize its full potential. These include inadequate infrastructure and market linkages, lack of access to credit and technology post-harvest losses and climate change-induced risks. To overcome these challenges, there is a need for concerted efforts from the government private sector and civil society organizations to invest in infrastructure development promote research and extension services facilitate access to credit and inputs strengthen market linkages and promote climate-resilient horticultural practices. Additionally there is a need for policy reforms and institutional support to create an enabling environment for the sustainable growth of the horticulture sector in Bihar. Horticulture has emerged as a key driver of socio-economic condition in Bihar with its significant contributions to agricultural production income generation employment creation poverty reduction and also food security. By promoting the potential of horticulture and addressing the challenges, the state can achieve growth, improve the livelihoods and contribute to the overall development of Bihar.

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