JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

HORTICULTURE SECTOR PERFORMANCE IN INDIA: AN OVERVIEW

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ABSTRACT

The Indian horticulture sector is a crucial part of the nation's agriculture, contributing significantly to both the economy and food security. It accounted for approximately 33% of the agriculture's Gross Value Added (GVA) and achieved a total production of about 367.72 million tonnes in the crop year 2024-25. India ranks as the second-largest global producer of overall fruit and vegetables. Between 2013-14 and 2024-25, overall horticultural production increased to an estimated 367.72 million tonnes, with fruit production at about 114.51 million tonnes and vegetable production at an estimated 219.67 million tonnes in 2024-25. Fruit productivity improved from 14.17 to 15.80 tonnes per hectare, and the area under horticulture expanded by 2.6% annually over the last decade, with production increasing by 4.8%. The sector faces challenges like infrastructure limitations, climate change impacts, and market access issues, which are being addressed through various government initiatives.

Key words: *progress of NHM, area, production & productivity of horticulture crops, progress of HMNEH.*

INTRODUCTION

The Indian horticulture sector is a vital part of the nation's agriculture, demonstrating significant growth and resilience over the last decade, contributing substantially to both the economy and food security. This sector accounted for approximately 33% of the agriculture's Gross Value Added (GVA) and achieved a production of about 367.72 million tonnes in the 2024-25 crop year. India holds the second-largest global position in overall fruit and vegetable output and is a leading producer of specific fruits like mango and banana. Despite its economic importance, the sector faces challenges such as infrastructure limitations, climate change impacts, and market access issues, which the government is addressing through initiatives like the Clean Plant Programme and the Mission for Integrated Development of Horticulture. These efforts aim to ensure food security, boost rural employment, and enhance farmer income.

Horticultural production saw significant increases between 2013-14 and 2024-25, with overall production rising to an estimated 367.72 million tonnes. Fruit production grew to about 114.51 million tonnes, and vegetable production reached an estimated 219.67 million tonnes in 2024-25. Fruit productivity improved from 14.17 to 15.80 tonnes per hectare, and the area under horticulture expanded by 2.6% annually over the last decade, with production increasing by 4.8%.

The sector faces several challenges, including pests and diseases, fragmented landholdings, insufficient irrigation, significant post-harvest losses due to inadequate infrastructure, marketing and export barriers, and climate change vulnerability. The government is addressing these issues through various initiatives and programs, such as the Clean Plant Programme, Mission for Integrated Development of Horticulture, National Horticulture Mission, Horticulture Cluster Development Programme, and support from APEDA, among others. The sector holds significant potential but requires continuous investment in research, infrastructure, and sustainable practices to ensure long-term success and meet national nutritional and economic needs.

OBJECTIVES

1. To discuss the progress under National Horticulture Mission (NHM)
2. To enumerate the performance of horticulture crop area, production and productivity under National Horticulture Mission (NHM)

3. To study the performance under Horticulture Mission for North East and Himalayan States (HMNEH)

PERFORMANCE OF NATIONAL HORTICULTURE MISSION (NHM)

National Horticulture Mission (NHM), detailing various components and their respective units, and the achieved progress values during 2024-25 (up to 31st December, 2024) is presented in table-1.

Area Expansion is significant 16,521 hectares was added, indicating a strong focus on increasing the land under horticulture cultivation. Rejuvenation is 3,386 hectares underwent rejuvenation, suggesting efforts to improve the productivity of existing plantations. Protected Cultivation is 3,701 hectares were brought under protected cultivation, highlighting initiatives for advanced farming techniques and crop protection. Integrated Pest/Nutrient Management is the highest figure in hectares, 19,587, indicates a robust implementation of sustainable practices for pest control and nutrient management. Nurseries only 3 nurseries were established, suggesting a limited focus on new nursery infrastructure development compared to other components. 655 water resource units were developed, crucial for irrigation and supporting horticulture activities. Beekeeping is a substantial 14,851 units of beekeeping were promoted, emphasizing the importance of pollination and honey production in horticulture. 1,670 units of horticulture mechanization were implemented, indicating efforts to enhance efficiency through modern equipment. Post Harvest Management is (i) 479 pack houses were established, vital for grading, sorting, and packaging produce. (ii) Zero cold storage units were developed, representing a significant gap in post-harvest infrastructure for perishable goods. (iii) Primary/mobile processing 107 units were established, contributing to value addition and reducing post-harvest losses. Zero rural markets were established, indicating a lack of direct market linkages for farmers within the reporting period.

Significant results in beekeeping, integrated pest/nutrient management, and area development, suggesting a comprehensive strategy for raising output and enhancing methods. Good progress in water resources, horticulture mechanization, and pack house development, which are crucial for supporting horticultural activities and initial post-harvest handling. Zero progress in Cold Storage and Rural Market establishment represents critical infrastructure gaps that could hinder the efficient storage, marketing, and value realization of horticultural produce. Limited number of new Nurseries developed.

The analysis reveals that the National Horticulture Mission during 2024-25 (as of December 31, 2024) demonstrated strong performance in Area Expansion (16,521 Ha), Integrated Pest/Nutrient Management (19,587 Ha), and Beekeeping (14,851 units). Significant progress was also observed in Protected Cultivation (3,701 Ha), Rejuvenation (3,386 Ha), Water Resources (655 units), Horticulture Mechanization (1,670 units), and the establishment of Pack Houses (479 units) and Primary/mobile processing units (107 units). However, the mission shows critical gaps with zero progress in the establishment of Cold Storage units and Rural Markets, highlighting a need for increased focus on post-harvest infrastructure and market linkages to ensure better value realization for farmers. The establishment of new Nurseries also saw limited progress with only 3 units.

Table-1

Progress under National Horticulture Mission (NHM)

S. No.	Components	Unit	Progress during 2024-25 (as on 31st December, 2024)
1	Area Expansion	Ha.	16521
2	Rejuvenation	Ha.	3386
3	Protected Cultivation	Ha.	3701
4	Integrated Pest/ Nutrient Management	Ha.	19587
5	Nurseries	No.	3
6	Water Resources	No.	655
7	Beekeeping	No.	14851
8	Horticulture Mechanization	No.	1670
9	Post Harvest Management		
	(i) Pack House	No.	479
	(ii) Cold Storage	No.	0
	(iii)Primary/mobile processing units	No.	107
10	Rural Market	No.	0

Note: As per the data uploaded by the State Govt. on MIDH, Webportal.

Source: Annual Report 2024-25, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India

Area, Production & Productivity under National Horticulture Mission (NHM), presents data for various horticulture crops across three periods: 2004-05, 2022-23, and 2023-24 (3rd Advance Estimates). The data covers Area (in '000 Ha), Production (in '000 MT), and Productivity (in MT/Ha) is presented in table-2.

The total area under horticulture crops significantly increased from 18,445 '000 Ha in 2004-05 to 28,984 '000 Ha in 2023-24, indicating a substantial expansion of land dedicated to horticulture. Correspondingly, total production more than doubled, rising from 166,939 '000 MT in 2004-05 to 353,188 '000 MT in 2023-24. This growth outpaced the area expansion, suggesting improvements in cultivation practices and yields. Total productivity improvement also saw a notable increase, from 9.05 MT/Ha in 2004-05 to 12.19 MT/Ha in 2023-24, highlighting enhanced efficiency in horticulture farming.

The Dominance of Fruits and Vegetables consistently represent the largest share in terms of both area and production. Both categories show significant increases in area, production, and productivity from 2004-05 to 2023-24. For instance, fruit production nearly tripled, and vegetable production more than doubled during this period. Aromatic & Medicinal Crops experienced a dramatic increase in area (from 131 to 786 '000 Ha) and production (from 159 to 638 '000 MT), though their productivity remained relatively stable. Spices and Plantation Crops categories show substantial growth in area and production. Spices productivity saw a significant jump from 3.13 MT/Ha to 3.94 MT/Ha, while Plantation crops also showed an increase in productivity. While the area under flowers decreased from 2004-05 to 2022-23 before recovering slightly in 2023-24, production and productivity saw considerable increases, indicating more intensive and efficient flower cultivation. Data for Honey is only available from 2022-23 onwards, showing consistent figures for area, production, and productivity in 2022-23 and 2023-24.

Overall Stability/Slight Growth between 2022-23 and 2023-24, the total area and production show a slight increase, while total productivity experienced a minor dip from 12.50 MT/Ha to 12.19 MT/Ha. Mixed Performance by Crops include Fruits, Aromatic & Medicinal, Spices, and Plantation crops show continued growth in area and production. Vegetables saw a slight decrease in area and production, and a minor drop in productivity. Flowers experienced a rebound in area and production, but a slight decrease in productivity. Honey maintained stable figures.

The analysis reveals a robust and expanding horticulture sector under the National Horticulture Mission, marked by significant increases in area, production, and productivity across most crop categories from 2004-05 to 2023-24. While overall growth continued in the short term (2022-23 to 2023-24), some categories like vegetables and flowers experienced minor fluctuations in productivity during this period.

Table-2

Horticulture area, production and productivity under National Horticulture Mission (NHM)

(Area: '000 Ha, Production: '000 MT, Productivity: MT/Ha)

Crop	Area			Production			Productivity		
	2004-05	2022-23	2023-24	2004 -05	2022-23	2023-24	2004-05	2022-23	2023-24
Fruits	5155	7025	7158	50988	110207	112730	9.89	15.69	15.75
Vegetables	6744	11309	11171	101286	212548	205799	15.02	18.80	18.42
Flowers	118	85	292	659	3097	3138	5.58	10.88	10.75
Aromatic & Medicinal	131	754	786	159	608	638	1.21	0.81	0.81
Plantation	3147	4551	4637	9835	17049	18259	3.13	3.75	3.94
Spices	3150	4515	4940	4001	11830	12478	1.27	2.62	2.53
Honey	-	-	-	-	-	-	-	-	-
Total	18445	28438	28984	166939	355482	353188	9.05	12.50	12.19

Note: 2023-24, 3rd Advance Estimates of Horticulture Crops, DA & FW

Source: Annual Report 2024-25, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India

Year-wise Area, Production & Productivity of Horticulture crops, presents a comprehensive overview of the trends in horticulture crop cultivation in terms of Area (Million Ha), Production (Million Ton), and Productivity (Ton/Ha) from the financial year 2014-15 to the 3rd Advance Estimates for 2023-24 is presented table-3.

The area dedicated to horticulture crops has shown a consistent and significant increase over the decade.

During the period from 2014-15 to 2017-18 the area grew steadily from 23.41 Million Ha in 2014-15 to 25.24 Million Ha in 2017-18, indicating a continuous expansion of land under horticulture. During the period from 2018-19 to 2021-22 the growth upward trend continued, with the area reaching 25.74 Million Ha in 2018-19

and further expanding to 28.04 Million Ha by 2021-22. This represents a substantial increase, suggesting growing interest and investment in horticulture. During the year 2022-23 to 2023-24 the most recent figures, including the 3rd Advance Estimates for 2023-24, show continued growth, reaching 28.44 Million Ha in 2022-23 and an estimated 28.98 Million Ha in 2023-24. This consistent expansion highlights the increasing importance of horticulture in the agricultural sector.

Horticulture crop production has largely mirrored the increase in cultivated area, demonstrating a robust growth trajectory.

During 2014-15 to 2017-18 production growth rose from 280.99 Million Ton in 2014-15 to 310.67 Million Ton in 2017-18, reflecting the positive impact of increased area and potentially improved farming practices. From the year 2018-19 to 2021-22 the production continued its ascent, moving from 311.05 Million Ton in 2018-19 to 347.18 Million Ton in 2021-22. This period saw significant gains in overall output. During the year from 2022-23 to 2023-24): Production reached its peak at 355.48 Million Ton in 2022-23. Interestingly, the 3rd Advance Estimates for 2023-24 project a slight decrease to 353.19 Million Ton, despite an increase in area. This could be attributed to various factors such as weather conditions, pest outbreaks, or other agricultural challenges in that specific year.

Productivity, measured as Ton/Ha, provides insight into the efficiency of horticulture crop cultivation. During the period from 2014-15 to 2017-18 productivity started at 12.00 Ton/Ha in 2014-15, experienced a dip to 11.69 Ton/Ha in 2015-16, and then recovered to 12.31 Ton/Ha by 2017-18. This suggests some variability in yield per unit area during these early years. During the Mid-Period from 2018-19 to 2021-22 productivity remained relatively stable around 12 Ton/Ha during this period, with values like 12.09 Ton/Ha in 2018-19 and 12.18 Ton/Ha in 2021-22. The latest years from 2022-23 to 2023-24 productivity saw an increase to 12.50 Ton/Ha in 2022-23, indicating improved efficiency. However, similar to production, the 3rd Advance Estimates for 2023-24 project a slight decrease to 12.19 Ton/Ha. This mirrors the slight dip in overall production, suggesting that the factors affecting production in 2023-24 might have also impacted the yield per hectare.

Table-3

Year-wise Area, Production & Productivity of Horticulture crops

Area: Million Ha, Production: Million Ton, Productivity Ton/Ha

Year	Area	Production	Productivity
2014-15	23.41	280.99	12.00
2015-16	24.47	286.19	11.69
2016-17	24.85	300.64	12.10
2017-18	25.24	310.67	12.31
2018-19	25.74	311.05	12.09
2019-20	26.48	320.47	12.10
2020-21	27.48	334.60	12.18
2021-22	28.04	347.18	12.38
2022-23	28.44	355.48	12.50
2023-24	28.98	353.19	12.19

Note: 2023-24 3rd advance estimates

Source: Annual Report 2024-25, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India

The continuous increase in the area under horticulture crops signifies a growing focus on this sector, potentially driven by factors such as government policies, market demand, or farmer preferences. The substantial increase in production over the decade highlights the success in meeting the rising demand for horticulture products. While there has been an overall improvement in productivity, the fluctuations, particularly the projected dip in 2023-24, suggest the need for ongoing research and interventions to ensure stable and increasing yields per unit area. Generally, production trends closely follow area expansion, indicating that increasing the cultivated land directly contributes to higher output. The slight decline in both production and productivity in the 2023-24 estimates, despite an increased area, warrants further investigation to identify and address the underlying causes.

The table demonstrates a clear and consistent increase in the Area under horticulture crops, growing from 23.41 Million Ha in 2014-15 to an estimated 28.98 Million Ha in 2023-24. Correspondingly, Production of horticulture crops also showed a strong upward trend, increasing from 280.99 Million Ton in 2014-15 to a peak of 355.48 Million Ton in 2022-23, with a slight estimated decrease to 353.19 Million Ton in 2023-

24. Productivity (Ton/Ha) generally improved over the period, starting at 12.00 Ton/Ha in 2014-15 and reaching 12.50 Ton/Ha in 2022-23, before an estimated drop to 12.19 Ton/Ha in 2023-24. This indicates a sustained expansion of horticulture cultivation and generally improved efficiency, though the projected dip in production and productivity in 2023-24 warrants attention.

Progress under Horticulture Mission for North East and Himalayan States (HMNEH), outlines the achievements of various components under this mission during the 2024-25 fiscal year, specifically as of December 31, 2024 is presented in table-4. The analysis below details the progress for each component:

Area expansion focuses on increasing the total land area dedicated to horticulture. As of December 31, 2024, an impressive 190.00 hectares of land have been brought under horticultural cultivation, indicating a significant push towards expanding the base of horticultural crops in the North East and Himalayan States. Rejuvenation addresses the revitalization of existing, old, or unproductive horticultural plantations. The reported progress shows that 6.00 hectares have undergone rejuvenation efforts, aiming to improve the yield and quality of produce from established orchards or gardens. Protected cultivation refers to the practice of growing crops in a controlled environment, such as greenhouses or polyhouses, to protect them from adverse weather conditions and pests, thereby enhancing productivity and quality. The table indicates that 1 hectare has been brought under protected cultivation, suggesting a nascent but important step towards climate-resilient horticulture. Integrated Pest/Nutrient Management focuses on sustainable practices to manage pests and diseases and optimize nutrient application in horticultural crops. Progress is reported for 1 hectare, highlighting the adoption of environmentally friendly and efficient farming methods. Nurseries are crucial for providing quality planting material for horticultural crops. The table shows that zero nurseries have been established or upgraded during this period, which suggests that either existing nurseries are sufficient or this area requires more attention in future efforts. Water resources pertain to the development and management of water resources for irrigation in horticulture.

A notable achievement is the development or enhancement of 62 water resources, which is vital for ensuring consistent water supply to horticultural farms, especially in water-scarce or undulating terrains of the Himalayan region. Beekeeping plays a crucial role in pollination of horticultural crops and provides an additional source of income for farmers. The reported progress of zero indicates that no new beekeeping units or significant expansion in beekeeping activities have been recorded under the mission during this specific period. Horticulture Mechanization involves the introduction and promotion of machinery and equipment to streamline horticultural operations, improve efficiency, and reduce labor costs. The progress shows that 21 units of horticulture mechanization have been implemented, indicating a move towards modernizing farming practices. Post Harvest Management critical aims to reduce post-harvest losses and enhance the value of horticultural produce.

Table-4

Progress under Horticulture Mission for North East and Himalayan States (HMNEH)

S. No.	Components	Unit	Progress during 2024 -25 (as on 31stDecember, 2024)
1	Area Expansion	Ha.	190.00
2	Rejuvenation	Ha.	6.00
3	Protected Cultivation	Ha.	1
4	Integrated Pest/Nutrient Management	Ha.	1
5	Nurseries	No.	0
6	Water Resources	No.	62
7	Beekeeping	No.	0
8	Horticulture Mechanization	No.	21
9	Post Harvest Management		
	(i) Pack House	No.	114
	(ii) Cold Storage	No.	0
	(iii) Primary/Mobile Processing Units	No.	2
10	Rural Market	No.	0

Note: As per the data uploaded by State Govt. on MIDH, webportal.

Source: Annual Report 2024-25, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India

It includes: (i) 114 pack houses have been established or supported, which are essential facilities for cleaning, grading, sorting, and packaging produce, thereby improving marketability and shelf life. (ii) Cold Storage

progress shows 0 cold storage units, which is a significant gap as cold storage is vital for preserving perishable horticultural produce and ensuring year-round availability. (iii) Primary/Mobile Processing 2 units have been established, which are crucial for initial processing of produce, adding value, and reducing spoilage, particularly in remote areas. Rural Market focuses on developing infrastructure for marketing horticultural produce in rural areas. The table indicates zero rural markets developed, suggesting a need for more focus on market linkages and infrastructure to support the increased production.

In summary, the progress report highlights strong performance in area expansion, water resource development, and the establishment of pack houses. However, areas like nurseries, beekeeping, cold storage, and rural market development show limited or no progress during this specific period, indicating potential areas for future strategic interventions within the HMNEH.

CONCLUSION

The Indian horticulture sector is a vital and rapidly growing segment of the nation's agriculture, significantly contributing to both the economy (accounting for approximately 33% of the agriculture's Gross Value Added) and food security, with India being the second-largest global producer of fruits and vegetables. While demonstrating impressive growth in production and productivity over the last decade, the sector faces critical challenges including infrastructure deficits, climate change vulnerability, and market access issues. The government is actively implementing initiatives like the Clean Plant Programme and Mission for Integrated Development of Horticulture to address these problems, but continued and targeted investment in research, infrastructure, and sustainable practices is essential to fully realize the sector's immense potential for boosting rural employment, enhancing farmer income, and ensuring long-term food and nutritional security.

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