IIP International Multidisciplinary Research Journal
IIPIMRJ

An Online Peer-Reviewed / Refereed Journal
Vol: 02 No. Issue IV, (October-December) (2025)
Impact Factor: GSRD-IF: 5.001
ISSN: 3049-2734 (Online)

The Challenges and Opportunities of Diversification of Agriculture towards High-Value Crops in Maharashtra

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Article Info

Article History:
Received: 26th Sep 2025
Accepted: 10th Oct 2025
Published: 25th Oct 2025

Keywords:
Crop Diversification,
High Value Crops (HVCs)

ABSTRACT

The Government of India had set an ambitious goal to double farmers' income by 2022. One of the key strategies suggested by the committee appointed by the GOI for achieving this was diversification of agriculture towards high-value crops. which will also help to meet the rising demand of fruits and vegetables in urban areas and better earning opportunities for the farmers also. Maharashtra, with its significant and diverse agro-climatic conditions, advancement in technology and application of modern farming practices in agriculture, offers significant potential for this diversification. In this paper researchers have tried to review the agricultural profile of state in respect of high value crops and analysed the opportunities and challenges involved in diversification of agriculture toward high value crops like, fruits and vegetables in Maharashtra, using secondary data, literature review, and policy analysis. The findings suggest that diversification offers scope for enhancing farmers' income but for this multiple structural, infrastructural, and market-related barriers must be addressed.

Plagiarism Check Report:
Tool Used: Turnitin
Date of Report: Oct 09, 2025
Similarity Index: 7%
Remarks: No significant matching text. All citations and matches are properly referenced. The manuscript is considered original.

How to Cite: Shaikh, R. M., & Kadam, P. (2025). The Challenges and Opportunities of Diversification of Agriculture Towards High-Value Crops in Maharashtra. IIP: International Multidisciplinary Research Journal (IIPIMRJ), 2(IV), 651–657.

1. INTRODUCTION

Agriculture sector continues to be the important sector of the Indian economy in terms of employment as nearly 46 % of the country's population depends on agriculture and allied activities. The government of India had taken numerous efforts to boost agriculture growth after the independence, especially by the introduction of green revolution, which helped to achieve self-sufficiency in foodgrain production. But this sector failed to raise sufficient income level of the people. With the introduction of economic reforms, industry and service sector witnessed faster growth rate resulting increasing employment and income generating opportunities in these sectors. However, agriculture sector again lags behind in this growth process resulting the suffering of farmers from low-income level and indebtedness. Against this backdrop the prime minister of India announced an ambitious and optimistic goal in 2016 to double the farmers' income by 2022. To achieve this, the Government of India appointed a committee under the chairmanship of Dr. Ramesh Chand, with the objective to formulate the strategies and recommend policy measures to double farmers' income by 2022. The committee suggested the need for diversifying agriculture, improving market linkages, promoting high-value crops, enhancing productivity, reducing input costs, and improving the rural infrastructure to faster growth in the agriculture sector.

In Maharashtra, despite the industrially advanced state, about 55% of the population depends on agriculture and allied activities for their livelihood. Adoption of advanced technology along with modern agricultural practices and production of market oriented high value crops by the farmers, contributing to faster agricultural growth of the sector. Considering the prevailed situation in Maharashtra, diversification of agricultural resources towards the production of high value crops has been identified as a viable strategy, these crops have shown promising result. But it has been facing stagnation in productivity and profitability. Agriculture sector continuously failed to raise the income level of the farmers and eradicate the poverty in rural area. One of the solutions to this is to Diversify of agricultural resources towards the production of high value crops. But this is a multidimensional challenge, which requires interventions by the government to overcome various challenges involved it like supply of timely credit, provision of infrastructure, market reforms for better and stable price, value addition, risk management and awareness programmes for farmers.

2. Concept of Diversification

The term agricultural diversification has many dimensions. It can be referred as *to "the shifting of agricultural resources from mono crop to many crops of intercropping, traditional cropping method to modern one, also shifting resources to other farm activities like livestock, poultry farming, aquaculture and value addition also"*. In this study the researcher has adopted the concept crop diversification in terms of shifting from stemple crops like rice, wheat, maize, etc. to market oriented high value crop like fruits, vegetables and spices. In this study the researcher seeks to explore the opportunities and challenges involved in this diversification. In order to this we have limited out study only to find out the challenges and opportunities involved in this diversification.

3. Objectives of the Study

The researcher has undertaken this study with following objective.

- To study the current status of crop diversification towards high value crops in Maharashtra.
- To identify the opportunities in crop diversification towards high-value crops in Maharashtra.

- To elaborate the challenges faced by the farmers in shifting from low value stemple crops to high value crops.
- To analyse the role of government in promoting this agricultural diversification and raising the income level of farmers.

4. Methodology

The good research methodology is one of the most important steps of the research study. It involves the collection of reliable and credible data through proper channels, the application of appropriate research methods and techniques, and the systematic analysis of the collected data. A well-structured methodology ensures the accuracy, validity, and relevance of research findings, thereby contributing to the overall quality and reliability of the study.

Current study is primarily based upon the secondary sources of data collection. The secondary data from various previous researches like Academic journals, case studies and research publications, government reports, departmental publications has been collected to study the opportunities and challenges involved in crop diversification towards high-value crops in Maharashtra.

5. Status of Horticulture in India

In recent few decades India has witnessed rapid urbanization and rising income levels with the country's economic growth. This process led to the raise in the consumption and demand for fruits and vegetables. In addition, increased export potential is further supporting this trend. This growing demand, along with expanding export opportunities, has created a favourable market environment for agricultural produce. As a result, prices for selected high-value crops such as fruits and vegetables have increased.

This price rise has, in turn, enlarged income-earning opportunities for farmers, encouraging them to diversify their cropping patterns and focus on market-oriented, high-value agricultural production. The dual benefits of rising domestic consumption and export potential are helping improve the economic conditions of farmers and promoting more profitable, demand-driven farming practices. On the other hand, improvements in agricultural practices, cold storages, logistics and trade policies have also increased the export capacity of fruits and vegetables.

Table 5.1: Annual Total Production of Horticulture Crops in India from 2011-12 to 2020-21 (in millions)

Year	Total area under Horticulture	Annual Growth rate (%)	Total production of Horticultural Crops	Annual Growth rate (%)
2010-11	21.82	4.55	240.53	7.82
2011-12	23.42	7.33	257.27	6.96
2012-13	23.69	1.15	268.84	4.50
2013-14	24.19	2.11	277.35	3.17
2014-15	23.41	-3.22	280.98	1.31
2015-16	24.47	4.53	286.18	1.85
2016-17	24.87	1.63	300.64	5.05
2017-18	25.23	1.45	310.67	3.34
2018-19	25.73	1.98	311.05	0.12
2019-20	26.48	2.91	320.47	3.03
2020-21	27.47	3.74	334.60	4.41
	CAGR	**2.33**	**CAGR**	**3.9.**

Source: Horticultural Statistics at a Glance - 2021

Indian horticulture sector has witnessed a steady growth rate during the last decade in the country. According to report of Horticulture Statistics Division, Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India, area under horticultural crops witnessed an annual growth rate of 2.33 % with the increase in area under these crops from 21.82 million hectors to 27.47 million hectors and annual production has grown by 3.9 % from 240.53 million Tonne to 334.60 million Tonne during the period of 2010-11 to 2020-21.

6. Horticultural Profile of Maharashtra

Maharashtra is one of the leading states in the production of horticultural crops in India due to the diverse climatic condition which supports the cultivation of different types of fruits, vegetables, flowers and herbs. The state ranks in the production of many fruits like grapes, pomegranates, bananas, mangoes, oranges, sapota (chiku). Apart from fruits, Maharashtra produces a large number of vegetables including onions, tomatoes, green peas, brinjal. Use of advanced technology with the adoption of advanced farming practices by farmers, Government support, availability of irrigation and access to cold storage and infrastructure have strengthened the production of horticultural crops.

Table 5.1: Annual Total Production of Horticulture Crops in Maharashtra from 2011-12 to 2020-21 (in millions)

Year	Total area under Horticulture (Mill. hectors)	Annual Growth rate (%)	Total production of Horticultural Crops (mill. Tonnes)	Annual Growth rate (%)
2011-12	2.49	-	19.86	-
2012-13	2.38	- 4.51	18.37	-7.49
2013-14	2.64	11.30	24.26	32.03
2014-15	1.68	- 36.40	20.41	-15.89
2015-16	1.80	7.31	20.15	-1.23
2016-17	1.67	-7.43	21.99	9.10
2017-18	1.74	3.99	24.71	12.39
2018-19	1.68	- 3.13	22.75	7.94
2019-20	1.94	15.35	26.90	18.25
2020-21	2.11	8.51	26.97	-0.41
	CAGR	**-1.83**	**CAGR**	**3.38**

Source: Horticultural Statistics at a Glance - 2021

The data shown in the table 6.1 reflects the fluctuations in both area under horticulture and production of horticultural crops in Maharashtra over a 10-year period. Area under horticulture ranged between 1.68 to 2.65 million hectares, showing significant annual variations. The Annual Growth Rate (AGR) for area fluctuated sharply, with notable declines such as -36.40% in Year 4 and positive growth like +15.35% in Year 9. The Compound Annual Growth Rate (CAGR) for area was -1.83% per year, indicating a slight overall decline in the horticultural area over the decade. This suggests that while farmers might have shifted focus to other crops or experienced challenges like water scarcity, drought, or market issues, leading to inconsistent area coverage under horticulture.

On the other hand, horticultural production showed a relatively positive trend, ranging from 18.38 to 26.91 million tonnes. Despite year-on-year ups and downs, production registered a healthy CAGR of +3.38% per year. Significant production growth was recorded in Year 3 (+32.03%) and Year 9 (+18.25%), suggesting favourable conditions such as good monsoon years,

better market prices, or increased productivity during those years. Interestingly, even in years when area declined, production did not always fall at the same rate, indicating possible improvements in crop productivity, use of high-yielding varieties, irrigation techniques, or better management practices.

Overall, the data highlights a decoupling trend between area and production — where production has managed to grow moderately despite fluctuations or slight reductions in area, possibly due to intensification, technology adoption, and improved farm practices in Maharashtra's horticulture sector.

7. Opportunities and Challenges in Diversification towards HVCs in Maharashtra:

Maharashtra has tremendous potential for production of high value crops such as fruits and vegetables. Certain policies support to farmers of the state government like Bhausaheb Fundkar Falbagh Yojana, Fruit Crop Insurance Scheme, Jalyukt Shivar Abhiyan on the ground also shifted focus of farmers from staple crops to HVCs. This shift comes together with many positive effects like higher price for crops which results in higher income for farmer, rural employment and export potential. Diverse agro climatic condition of the state, rising share of expenditure on fruits and vegetables of urban as well as rural people, export potentials, etc. creates favourable condition for HVCs crops. However, this comes with certain challenges like institutional, structural and other challenges which limits to reap the fruit of this diversification. In this section several opportunities and challenges associated with high-value crop production in Maharashtra, are discussed using secondary data.

a) Opportunities in High-Value Crop Production

- **Diverse Agro-Climatic Condition of the State**

Maharashtra state has a very diverse Agro-climatical condition which favours farmers to produce a wide variety of crops from staple crops like wheat, rice, Jawar and Bajra, maize, etc., to cash crops like sugarcane, cotton, oilseeds, spices, etc. and variety of high value crops like fruits and vegetables. Various high value crops had been produced by farmers across various regions of the state. Konkan dominate in production of mango and cashew, Western Maharashtra leads in banana, grapes and pomegranate while spices, medicinal plants and other crops are being produced in Vidarbha and Marathwada. Even though all regions are stepping up towards commercial crops. Near about all type of high value crops are being produced by farmers over the state. This is supported by suitable diverse agro-climatic condition of the state.

- **Export Potential**

Marketing of agricultural produce, the major challenge of Indian agriculture sector still remained unsolved even after 78 years of independence. Advanced agricultural practices and technological development have helped farmers to increase agricultural production to some extent but low crop remuneration due to domestic marketing issues discourage farmers. But production and export of high-quality agricultural products, especially fruits and vegetables have high potentials of getting good price. India's shares of fresh fruits and vegetables in export have reached a value of US$ 3.87 billion in FY 2024-25 and registered a growth rate of 5.7 % since 2020. Major fruits like grapes, bananas, pomegranates, etc are the important contributors in export from India. Surging export base provides a wide opportunity to expand farmers income and employment opportunities.

- **Support from central and state governments**

Central and state governments have been providing support to farmers through various incentive to boost the production HVCs in the form of various schemes and missions. National Horticulture Mission of the central and "Bhausaheb Fundkar Falbagh Lavgad Yojana" of Maharashtra government have facilitated the expansion of fruits production in the state. In the

year 2024-25, more than 14 lakh hectares of land covered and under this scheme and 27292 farmers benefitted with financial assistance of ₹ 9891 lakh. Besides this government provides support to farmers through various schemes like, Krishi Samruddhi Scheme, Mission for Integrated Development of Horticulture (MIDH), Maharashtra Agriculture Export Policy, MahaAgri-AI Policy, State Agriculture Mechanization Scheme. The government provides incentives to farmers to produce high value crops, such as financial assistance to increase farm investment, improve productivity. Farmers receive subsidies for crop development, irrigation systems, and post-harvest infrastructure such as storage and processing units. Modern technologies and mechanization are also encouraged through various subsidies and support.

- **High Market Demand**

Urbanisation and availability of infrastructural facilitates diversification of agriculture toward high value crops due to rising demand in Urban areas (P Parthasarathy Rao, P S Birthal, P K Josh (2006). Changing diet due to health and nutritional consciousness, enhanced purchasing power due to availability of better employment and income opportunities in urban as well as in rural areas helps to rises the demand for high value crops like fruits and vegetables. India is a developing country, expansion of urban areas and Urbanization, health awareness, and changing diets increase demand for fruits, vegetables, and organic produce. Proximity to consumption centers like Mumbai, Pune, and Nagpur ensures market access, while the state's leadership in fruit and vegetable exports reinforces demand potential (Indian Express, 2023).

- **Value Addition and Processing**

In Maharashtra, there are 2,728 registered food processing units under 12 food processing clusters provides a vide opportunity for value addition to agri-produce. In recent years agro-processing sector like fruit pulp, juice and jam, chips, essential oil extracts, and vegetable processing gaining the importance. Maharashtra produce nearly 90 % of the total grape wine production in India. This provides further opportunity for rising income through processing.

b) Challenges in High-Value Crop Production

Despite above mentioned potentials in this crop sector, farmers in the Maharashtra confront certain challenges to diversify towards high value crops. Researcher have tried to underline some important challenges faced by farmers in Maharashtra state.

- **Small and Fragmented nature of land holdings**

Agriculture sector of Maharashtra has tremendous potentials to diversify its' resources towards the production of high value crops. But it comes with certain challenges. One of the major challenges confronted by the state is small and fragmented nature of land holdings of the state. According to socio-economic survey of Maharashtra the average size of operational holding has declined rapidly in recent years from 4.28 in 1970-71 to 1.34 hectares in 2024-25 and nearly 80 % of the farmers fall in the category of small and marginal farmers. Fragmentation of land limits investment, economies of scale, adoption of moder agricultural practices such as mechanisation and diversification towards high value crops.

- **Water Scarcity and Irrigation Deficits**

According to the economic survey of Maharashtra 2024-25 the irrigated area of the state was 39.27 lakh ha in 2023-24 and gross cropped area was 246.67 lakh ha (2024-25). Despite the substantial investment of the government in irrigation projects, the state could not achieve its potential of **55.60** lakh ha and the area under irrigation remains only 15.92 percent of gross cropped area. It highlights dependence of agriculture sector on monsoon. HVCs requires high investment on seeds, irrigation, fertilisers, pesticides, etc. for production and post-harvest

process also. Its not affordable to farmers to wager on HVC crops without assured irrigation facilities.

- **Weather and Climate Change**

Suddenly changing and unpredictable weather and climatical condition is another challenge faced by farmers in Maharashtra. HVCs are sensitive to changing climatic condition. Due to this vulnerability of crops to diseases rises. Erratic and unseasonal rainfall dampens crop yields badly.

- **Inadequate Infrastructure and Post-Harvest Losses**

Insufficiency of even basic infrastructural facilities due to lower investment is also a challenge for HVCs producers. Availability of which ensures better and timely market access to the market to these crops. According to a research study conducted by Abhinav Krishi (2023), **fruits and vegetables** lost approximately **30% of** its value due to inadequate post-harvesting and infrastructural facilities like Lack of warehouse, pre-cooling, and refrigerated transport which reduces quality and profitability.

- **Price Volatility and associated risk**

Prices of HVCs are volatile and unpredictable due to the weather condition, seasonal nature, perfect market price. fragmented supply chains, dominance of intermediaries, and restrictions on export cause price volatility. Farmers often sell at low prices during glut periods. Weak links to supermarkets and exporters limit profitability and growth potential.

Conclusion

Maharashtra provides ample scope in production of high value crops like fruits and vegetables due to its diverse agro-climatic condition, rising market demand driven by economic groeth, government support, and technological advancement. However, deep rooted challenges like small size of land holdings, water and climate variability, post-harvest losses, various market constraints, etc., limit growth potential of high value crops in Maharashtra. Institutional efforts to boost investment in infrastructure and R&D, policy support from government, capacity building of small and marginal farmers and climate-resilient practices are essential to avail the full potential of high-value agriculture in Maharashtra.

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