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# The Spatio Temporal Study of Fruit Farming In Solapur District (204-2025)

Dr. Mali Basavaraj Machhindra

## Abstract

This study examines the spatiotemporal changes in fruit farming across the Solapur district of Maharashtra from 2003-04 to 2024-25. Based on secondary data obtained from the Socio-Economic Abstract and district statistical records, this study analyzes tahsil-wise variations in fruit cultivation and identifies the major factors influencing these changes in the region. The results indicate a significant increase in the total area under fruit farming, from 36,720 to 50,402 ha, showing an overall rise of 13,682 ha (37.26%) over the study period. Tahsils such as Sangola, Pandharpur, and Madha recorded substantial expansion in fruit cultivation, primarily due to improved irrigation, the adoption of high-value crops such as pomegranate, banana, and dragon fruit, and the active government support. In contrast, Karmala, North Solapur, South Solapur, and Akkalkot experienced a decline in the NDI owing to water scarcity, soil degradation, and climatic constraints. The study concluded that fruit farming has emerged as a viable alternative to traditional crops, contributing to agricultural diversification and rural development in the region. However, regional disparities persist, emphasizing the need for sustainable irrigation practices, farmer training, and infrastructural development to ensure balanced growth across all districts.

**Keywords:** Fruit, Irrigation, Solapur district, Horticulture Development, Pomegranate Cultivation, Banana Farming, Dragon Fruit, Agricultural Diversification, Drought-Prone Region, Tahsil-wise Analysis, Land Use Change

## Introduction

Etymologically, agricultural geography deals with the art and science of domesticating plants and animals (M. Husain, 2002). In the modern sense, agriculture consists of the practice of cultivating crops and raising livestock, fish, pigs, goats, and poultry. The Indian economy depends directly and indirectly on agriculture. Agriculture provides livelihoods to approximately 65 per cent of the total labor force. Agriculture is the base of trade, transport, and trade. In Maharashtra, approximately 65 percent of the total workers depend on agriculture and allied activities. (Dr. M. R. Nangare and dr. Patil R.R. 2020)

Horticulture was the first culture that humans invested in human economic history. It was developed long before the art of agriculture was cultivated for human survival. Modern Horticulture is an agricultural science that focuses on the production, cultivation, and improvement of fruits, vegetables, and ornamental plants. Fruits occupy a prime position in the human diet and nutrition, as well as in the economy, because fruit crop cultivation is much more remunerative than cereal and pulse cultivation. The Solapur District is located in a drought-prone area of Maharashtra, which is primarily agricultural and rural in nature. However, agriculture in this area, despite limited irrigation facilities, low rainfall, poor and low-quality soil, and a high population density, has resulted in a variety of cropping patterns to adjust to the prevailing natural conditions. Moreover, farmers in the region have adapted to fruit farming as the best possible alternative cropping pattern (G. U. Todkari, 2012)

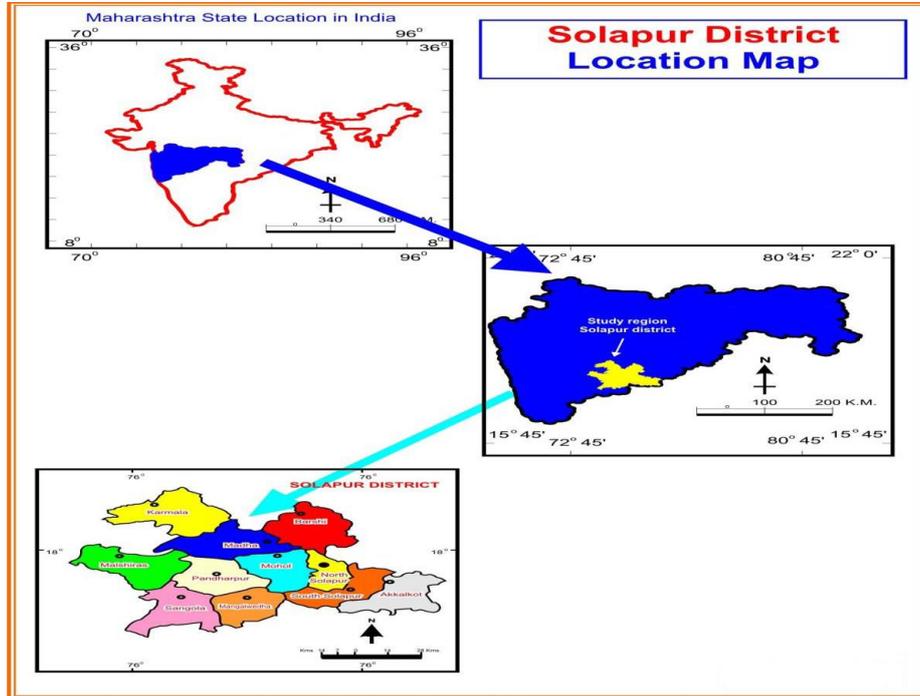
Fruits are nature's gifts to humankind. The standard of living of the people can be judged by the per-capita production and consumption of fruits. Fruit cultivation contributes to the health, happiness, and prosperity of the people. Fruit production was confined to the pleasure gardens of the kings and nobles. Fruit cultivation is a labor-intensive industry ideally suited to drought-prone areas where employment opportunities are limited. The economic productivity of fruit plants per unit area is comparable to that of other crops. Despite the fact that the Solapur district is climatically favorable for a variety of tropical, subtropical, and temperate fruits (G.U. Todkari, 2012) Hence, in the present study, we attempted has been made to conduct a spatio-temporal study of fruit farming in the Solapur district. (2004-2025)

## Study Region:

The Solapur district was selected as the study area. Geographically, the Solapur district is located between 1710' North to 1832' North latitude and 7442' East to 7615' East longitude. It covers an area of 14,895 sq. km.

The district is situated on the southeastern fringes of Maharashtra and is bounded on the north by Ahmednagar and Osmanabad districts, on the east by the Osmanabad and Gulbarga districts of Karnataka, on the south by the Sangli and Bijapur districts, and on the west by the Pune and Satara districts.

The shape of the district resembles that of an eagle flying. The proportion of the area of Solapur district compared to Maharashtra is approximately five (5%) percent. It is administratively subdivided into 11 tahsils. The soils in the district can be classified into three main types: black, coarse gray, and red. Agro-climatically, the entire district is in a rain shadow region. Rainfall is uncertain and scarce in this region. The average annual rainfall in the district is 545.4 mm.



**Fig. No. 01**

**Objective:**

The main objectives of this paper are as following,

- To study the changes in fruit farming in the Solapur district.
- To study the factors responsible for area changes in fruit farming in the Solapur district.

**Database and Methodology:**

This study was conducted in the Solapur district of Maharashtra, India. For this study, only secondary information was collected from various sources. Secondary data, such as information related to fruit farming and geographical information, were collected through the Agriculture Department and Socio-Economic Review and District Statistical Abstract of Pune District from the year 2034 and 2024-25 used.

**Result and Discussion:**

Fruit farming in the study region presents a dynamic and evolving landscape, characterized by a shift from traditional food grains to high-value, climate-resilient horticultural crops, such as pomegranate, banana, and more recently, dragon fruit. The sector is driven by the potential for high profitability and is supported by government initiatives; however, it faces significant challenges related to water scarcity and climate change. This research included mango, grape, orange, citrus, and banana fruits, as well as other orchard crops such as borax, guava, papaya, and chiku. The following table no. 01 shows tahsil-wise area under fruit farming in Solapur districts.

Table No.1

Tahsil wise Area under Fruit Farming in Solapur District-(204-2025)

Sr. No	Tahsils	Fruit farming Area in Hectare		
		2003-04	2024-25	Volume of changes
1	Karmala	3721	1002.6	-2718.4
2	Madha	2905	5957.5	3052.5
3	Barshi	3632	2016.1	-1615.9
4	North Solapur	2799	519	-2280
5	Mohol	2131	4002.1	1871.1
6	Pandharpur	4488	9539	5051
7	Malshiras	5451	5119	-332
8	Sangola	3632	17917.9	14285.9
9	Mangalwedha	3317	2694.7	-622.3
10	South Solapur	2994	1081.9	-1912.1
11	Akkalkot	1650	552.5	-1097.5
12	District	36720	50402	13682

(Source: Compiled by researcher on the basis of Socio-economic Abstract of Solapur District 2003-04 and 2024-25)

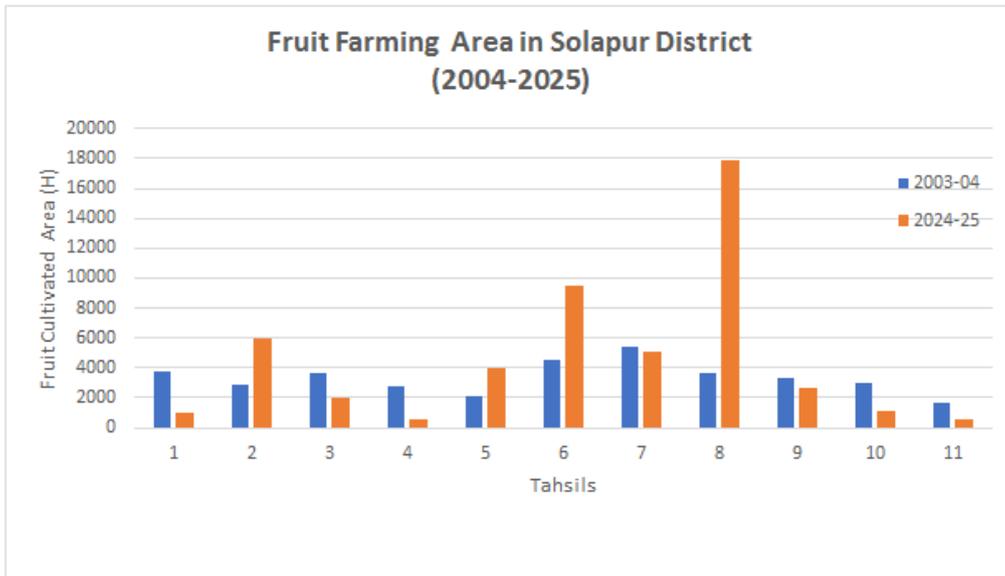


Fig. No 01

Table 1 and Fig no. 01 shows the detailed tahsil-wise distribution of the fruit farming area in the Solapur district during the period 2003-04 to 2024-25. It also shows the change in the fruit farming area across various tahsils of the Solapur district between 2003 and 04 and 2024–25. According to the above table, the area under fruit farming was 36720 hectares in 2003-04 and 50402 hectares in the Solapur district. Tahsil Malshiras and Pandharpur occupy the largest area in 2003-04 and Sangola and Pandharpur in 2024-25. The data revealed both positive and negative trends, indicating spatial variations in agricultural development and crop patterns.

**High Growth Area:**

Tahsil Sangola (+14,285.9 ha) showed the highest growth, becoming the leading tahsil for pomegranate and dragon fruit cultivation in Maharashtra. This rapid increase could be due to improved irrigation facilities, the adoption of horticultural crops, and favorable climatic and economic conditions in the region. Pandharpur (+5,051 ha) and Madha (+3,052.5 ha) also showed significant expansion in fruit farming, likely due to increased farmer awareness and government support for fruit farming.

**Moderate Growth Area:**

The tahsil Mohol (+1,871.1 ha) experienced moderate growth, suggesting a steady shift toward fruit-based farming in this area. Malshiras (-332 ha) showed a minor decline, indicating relative stability with only slight changes in land use patterns.

### **Low or Negative Growth Area:**

Karmala (-2,718.4 ha), Barshi (-1,615.9 ha), North Solapur (-2,280 ha), South Solapur (-1,912.1 ha), Akkalkot (-1,097.5 ha), and Mangalwedwa (-622.3 ha) witnessed significant decreases in fruit farming areas. This decline might be attributed to water scarcity, soil degradation, or a shift to other crops such as sugarcane, cereals, or pulses.

The total area under fruit farming increased from 36,720 ha in 2003–04 to 50,402 ha in 2024–25, marking a net gain of 13,682 ha (37.26%) over the period. This overall growth indicates a district-wide trend toward diversified and high-value agriculture, although it is unevenly distributed among the tahsils.

### **Conclusion:**

The study revealed that fruit farming in the Solapur district underwent a remarkable transformation from 2003–04 to 2024–25. The total area under fruit cultivation increased by 13,682 ha (37.26%), indicating a significant shift from traditional food crops to high-value horticultural crops in the region. However, the growth pattern is uneven across tahsils, highlighting regional disparities. Sangola, Pandharpur, and Madha tahsils have emerged as major centers for fruit cultivation owing to better irrigation facilities, favorable climatic conditions, and active farmer participation in horticulture-based schemes in the region. Here, the area under Pomegranate, Banana, and other fruits, such as borax, guava, papaya, and chiku, has increased. In contrast, tahsils such as Karmala, North Solapur, South Solapur, and Akkalkot recorded a decline in the fruit farming area, largely because of water scarcity, poor soil fertility, and inadequate infrastructure. Overall, the district shows a positive trend toward diversification and sustainable agricultural practices; however, challenges related to resource availability and climatic variability remain significant barriers to equitable development in the region and require urgent attention from policymakers.

The empirical results suggest that farmer training, crop insurance, and financial incentives through horticulture development programs must be strengthened to sustain fruit farming growth. It is also necessary to promote the use of drip and sprinkler irrigation systems to efficiently utilize limited water resources, especially in drought-prone tahsils. Develop tahsil-level fruit clusters (especially in Sangola and Pandharpur) to boost productivity, branding, and the export potential of Solapur's fruit sector.

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Nil.

### **Conflicts of interest**

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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