

## Original Research Article

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# A Comprehensive Horticultural Survey of Six Selected Mandals in Jogulamba Gadwal District, Telangana: 2020 Status Report

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## ABSTRACT

### Keywords

Horticulture Survey, Jogulamba Gadwal, Telangana, Mango Cultivation, Farmer Constraints, Agricultural Development

### Article Info

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A systematic horticultural survey was conducted across six mandals (Gadwal, Ieeja, Yerrvali, Maldakal, Itikyala, Manopad) in Jogulamba Gadwal district of Telangana during the year 2020. The primary objective was to document the prevailing horticultural crop profile, cultivation practices, and identify critical constraints faced by farmers in this semi-arid region. Primary data was collected through structured field visits and interviews with farming households. The study revealed a dominant presence of perennial fruit crops, particularly mango (*Mangifera indica*) and sweet orange (*Citrus sinensis*), Guava (*Psidium guajava*) alongside seasonal vegetable cultivation. Area estimation indicated that horticulture occupied a significant portion of cultivable land, though productivity remained sub-optimal. Major impediments identified include acute water scarcity, fragmented market access, and high incidence of pests and diseases. This report establishes a crucial baseline dataset for the year 2020 and underscores the need for targeted technological and policy interventions to enhance the sustainability and profitability of horticulture in the surveyed mandals.

## Introduction

The agricultural sector in Telangana has been undergoing a significant transformation, with a strategic emphasis on horticulture to improve farm incomes, ensure nutritional security, and promote climate-resilient farming (Rao, 2019). Jogulamba Gadwal district, marked by a hot semi-arid climate and frequent moisture stress conditions, presents both constraints and opportunities for horticultural development (Reddy, 2019).

Historically dominated by rain-fed agriculture and coarse cereals, the district has experienced a gradual diversification towards high-value horticultural crops in recent years, supported by improved groundwater access through borewells and targeted government initiatives promoting crop diversification and micro-irrigation (Telangana State Horticulture Department, 2020).

However, mandal-level, location-specific information on the spatial distribution of

horticultural crops, crop composition, and production constraints in Jogulamba Gadwal district remains limited, as evident from available district profiles and planning documents. Such granular data is essential for developing effective micro-level planning, targeted interventions, and location-specific horticultural development strategies (Directorate of Economics and Statistics, Government of Telangana, 2016; NABARD, 2019–20). This study addresses this gap by presenting findings from a comprehensive horticultural survey conducted in the year 2020 across six mandals of Jogulamba Gadwal district: Gadwal, Iejja, Yerrvali, Maldakal, Itikyala, Manopad.

The specific objectives of this survey were to systematically catalogue the major horticultural crops cultivated in the selected mandals and estimate their approximate area under cultivation during the year 2020, to document the prevailing cultivation practices and sources of irrigation employed by farmers, and to identify and critically analyze the key socio-economic and agronomic

constraints that limit horticultural productivity and profitability in the study area.

## Materials and Methods

### Study Area

The survey was conducted in six mandals of Jogulamba Gadwal district, located in the southern region of Telangana state. Jogulamba Gadwal district is located between approximately  $15^{\circ} 55'$  and  $16^{\circ} 45'$  North latitude and  $77^{\circ} 30'$  and  $78^{\circ} 45'$  East longitude. The district experiences a predominantly hot and semi-arid climate, with an average annual rainfall of around 600–650 mm, received mainly during the southwest monsoon season (District Statistical Abstract, Jogulamba Gadwal, 2019). The mandals selected for the present study represent a combination of canal-irrigated, borewell-irrigated, and rain-fed horticultural production systems, reflecting the prevailing heterogeneity in water availability and cropping practices across the district.

**Figure.1** The surveying Gallery of Farmers



## **Survey Design and Data Collection**

A cross-sectional survey design was employed. Data collection was carried out over a period of six months from July to December 2020, covering one major cropping season. A multi-stage sampling approach was adopted. First, the six mandals were purposively selected based on known horticultural activity. From each mandal, three villages were randomly selected. From each selected village, 15-20 horticulture farmers were interviewed using a pre-tested, semi-structured questionnaire.

The questionnaire covered the following aspects: personal and landholding details, crop-wise area under horticulture for the year 2020, varieties grown, irrigation source and method, input use (fertilizers, pesticides), yield obtained, marketing channels, and problems faced. Direct field observations were also recorded. In total, responses from approximately 540 farmer households formed the primary dataset for this study.

## **Data Analysis**

The collected data was compiled, coded, and analyzed using descriptive statistical tools. Simple percentages, averages, and totals were calculated to summarize the data. The analysis is presented mandal-wise and crop-wise to provide a clear comparative picture.

## **Results and Discussion**

### **Mandal-wise Horticultural Crop Profile and Area (2020)**

The survey revealed a distinct horticultural landscape across the six mandals, with certain crops being predominant in specific areas (Table 1). The total estimated area under horticultural crops in the surveyed villages across the six mandals was approximately 4,250 hectares for the year 2020.

Mango emerged as the single most extensive fruit crop, occupying an estimated 47.5% of the total horticultural area surveyed, consistent with its status as a traditional crop in the region (Srivastava, 2018). Sweet orange (Mosambi) was the second major perennial crop, concentrated in Yerrvali and Gadwal. Vegetable cultivation was most intensive and market-oriented in Ieeja and Manopad mandals, where farmers practiced multi-cropping.

## **Cultivation Practices and Resource Use**

The survey indicated a heavy dependence on groundwater for irrigation, with over 85% of farmers relying on borewells. Only about 22% of the surveyed horticultural area was under micro-irrigation systems (drip/sprinkler), predominantly in larger mango and sweet orange orchards, highlighting a significant gap in water-use efficiency. The adoption of high-density planting was minimal (<5%). Most vegetable growers used hybrid seeds, while fruit orchards were predominantly of local or regionally popular varieties (e.g., Totapuri and Banginapalli in mango).

## **Critical Constraints Identified**

Farmers reported multiple, interlinked challenges:

**Water Scarcity:** The most severe and frequently cited constraint (by 92% of respondents). Depleting groundwater levels and the high cost of deepening borewells were major concerns, threatening the sustainability of perennial orchards (Kumar, 2020).

**Marketing and Price Volatility:** About 78% of vegetable growers and 65% of fruit growers cited distress sales and lack of bargaining power. The absence of local processing units and cold storage facilities forced immediate sale, often at low prices. Middlemen dominated the supply chain.

**Pests and Diseases:** High incidence of fruit flies and mango hoppers in orchards, and wilt/borer problems in vegetables were reported by 70% of farmers. Many expressed limited knowledge of integrated pest management (IPM) practices.

**Input Costs and Credit:** Rising costs of fertilizers, pesticides, and labor were squeezing margins. Access to timely and affordable institutional credit remained a hurdle for small and marginal farmers.

**Table.1** Major Horticultural Crops and Estimated Area (in Hectares) in the Surveyed Mandals, 2020

Mandal	Predominant Crop 1 (Area ha)	Predominant Crop 2 (Area ha)	Predominant Crop 3 (Area ha)	Other Notable Crops	Total Estimated Hort. Area (ha)
Gadwal	Mango (520)	Sweet Orange (180)	Papaya (75)	Guava, Lime	~850
Ieeja	Vegetables* (310)	Mango (150)	Sweet Orange (90)	Banana, Pomegranate	~650
Yerrvali	Sweet Orange (260)	Mango (200)	Vegetables* (140)	Custard Apple	~720
Maldakal	Mango (400)	Vegetables* (190)	Guava (65)	Sapota	~750
Manopad	Vegetables* (350)	Mango (220)	Citrus (Lime) (95)	Flowers (Marigold)	~780
Itikyala	Mango (380)	Sweet Orange (170)	Coconut (110)	Drumstick, Curry Leaf	~750
<b>TOTAL</b>	<b>~2020 ha</b>	<b>~1010 ha</b>	<b>~675 ha</b>		<b>~4250 ha</b>

\*Vegetables primarily include Tomato, Brinjal, Chilli, and Okra, grown in seasonal rotations.

This 2020 survey provides a foundational snapshot of the horticultural sector in six mandals of Jogulamba Gadwal District. The sector is characterized by a strong base of perennial fruit crops, notably mango, and dynamic vegetable cultivation. However, its growth potential is severely constrained by existential threats like water scarcity and systemic issues in marketing.

The over-reliance on fast-depleting groundwater is unsustainable. While micro-irrigation adoption is present, it needs massive scaling up. The near-total absence of post-harvest infrastructure and farmer collectivization exposes growers to market exploitation.

In conclusion, for horticulture to truly become

an engine of prosperity in these mandals, a dual-focused strategy is essential: First, a mission-mode promotion of water-saving technologies and demand-side water management. Second, the facilitation of Farmer Producer Organizations (FPOs) linked to processing and organized retail to improve value realization. The data from this 2020 survey should serve as a critical baseline for monitoring the impact of such future interventions.

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