

# Socio-Economic Profiling of Rice Farmers in Mancherial District, Telangana: Opportunities and Problem Diagnosis

Mulkala Preethi Mizpha, Research scholar,

Royal Agricultural University, Cirencester, Gloucestershire, UK

**Abstract**—Rice serves as a primary fuel source globally, providing essential carbohydrates for human activity. This study investigates the socio-economic status, production opportunities, and challenges faced by paddy farmers in the Mancherial district of Telangana, India. Utilizing a Participatory Rural Appraisal (PRA) approach, data was collected from 75 farmers across four villages—Itikyala, Medaripet, Gudem, and Rampur. Results indicate a male-dominated agricultural structure where 90.6% of farmers fall within the active age range of 35-45 years. Despite significant participation in manual labor, women remain largely excluded from agricultural decision-making due to prevalent patriarchal systems. The study identifies irrigation scarcity and high labor costs as primary constraints, while PCA analysis reveals that farmers prioritize high grain yield and marketability in variety selection.

**Index Terms**—Rice Production, Mancherial, Socio-Economic Profiling, Telangana Agriculture, Participatory Rural Appraisal

## I. INTRODUCTION

Agricultural rice (*Oryza sativa* L.) is a semi-aquatic annual grass essential for global food security, with 95% of the harvest consumed by humans. In India, agriculture remains a key economic pillar, employing 60% of the labor force. Telangana has seen a dramatic 342% surge in paddy supply between 2015 and 2022, largely due to expanded irrigation infrastructure such as Mission Kakatiya and the Kaleshwaram project. However, the Mancherial district faces unique challenges including over-reliance on a limited crop base (cotton and rice), leading to increased production risks and pest vulnerability. This article aims to diagnose these issues through a detailed socio-economic lens.

## II. RESEARCH METHODOLOGY

The research employed a multi-stage sampling technique to represent various ecological regions of the Mancherial district. A total of 75 farmers were selected for in-person interviews and Focus Group Discussions (FGD). The study areas included Itikyala (Luxettipet Mandal), Gudem (Dandepelli Mandal), and Rampur (Jannaram Mandal). Data analysis was conducted using Microsoft Office and Principal Component Analysis (PCA) to determine farmer-preferred traits in paddy varieties.

## III. RESULTS AND DISCUSSION

### 3.1 Demographic Attributes

The demographic profile of the respondents significantly influences local farming practices.

**Gender and Decision Making:** The study reveals that most household heads are male, reflecting a patriarchal social structure. While women are integral to weeding, harvesting, and transplanting, they are often excluded from agricultural extension services and formal decision-making roles.

**Age Distribution:** A vast majority (90.6%) of surveyed farmers are in their early middle-aged years (35–45), which positively impacts the adoption of new technologies and overall productivity.

**Family Structure:** Approximately 57.3% of workers belong to large households with 1–3 children, providing a vital source of family labor for intensive tasks like weeding and transplanting that the farmers otherwise could not afford.

### 3.2 Economic Utilization of Rice

In Mancherial, paddy is cultivated for multi-purpose use:

**Food and Revenue:** Primary use includes household consumption and income generation.

**By-products:** Rice straw serves as essential animal bedding and feed, particularly critical during the dry season when alternative grazing is scarce.

**By-product Market:** Approximately 77% of Telangana's livestock dry matter (DM) supply comes from crop residues like rice straw.

### 3.3 Production Constraints and Challenges

Despite high production potential, several barriers persist:

**Irrigation Scarcity:** While the state has invested in large-scale projects, 84% of agricultural land in the study area still relies on borewells, making farmers vulnerable to groundwater depletion.

**Labor and Input Costs:** High costs of manual weeding and harvesting significantly impact the benefit-to-cost ratio. Labor-intensive tasks like transplanting are the most expensive components of the production cycle.

**Pest and Disease Pressure:** Farmers face significant yield losses (up to 35%) due to "blasting" and other pests like stem borers and leaf folders.

#### IV. FARMER PREFERENCES AND VARIETAL ADOPTION

Using PCA, the study determined that farmers choose rice varieties based on specific traits. The most preferred characteristics include:

**High Grain Yield:** The primary driver for variety selection.

**Grain Quality:** Long and thin grain shapes are preferred for marketability.

**Maturity:** Early maturity is favored to mitigate risks associated with water scarcity and late-season pests.

**Resilience:** Traits like drought and heat tolerance are becoming increasingly important due to shifting climatic patterns.

#### V. CONCLUSION AND RECOMMENDATIONS

The socio-economic profiling of Mancherial farmers highlights a community that is productive yet

vulnerable. To enhance their livelihoods, the following is recommended:

**Gender Inclusion:** Agricultural extension services should specifically target women to bridge the knowledge gap in decision-making.

**E-Extension:** Leveraging the high mobile phone usage in the region, e-extension services should be implemented to provide literate farmers with digital manuals and real-time market data.

**Seed Quality:** Encouraging the use of certified seeds over local market exchanges can significantly improve yields and profit margins.

**Mechanization:** To combat high labor costs, the government should facilitate access to affordable farm equipment for small-scale holders.

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