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Agricultural Marketing in Telangana: A Micro-Level Study of Cotton and Paddy Farmers in Komaram Bheem Asifabad District

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Abstract

Agriculture is the primary livelihood source in Telangana's tribal areas, yet tribal farmers face continuous challenges in obtaining formal markets and realizing remunerative prices. This study investigates agricultural marketing patterns, institutional access, and income implications among tribal farmers in **Thiryani Mandal (Gadalpally and Ralla Kanneally villages)** of Komuram Bhim-Asifabad district, where nearly all households depend on agriculture. A **field survey of 100 farmers**, proportionally sampled from 263 agriculture-dependent households, was conducted. The sample included 22 female farmers (headed) households, highlighting gendered vulnerabilities. Farmers were categorized by landholding size: large, medium, semi-medium, and small/marginal. The data were collected on crop cultivation, frequency of sales, net income per quintal, land record possession, and access to institutional procurement system such as Cotton Corporation of India (CCI) and Minimum Support Price (MSP) channels.

Findings revealed that the large and medium farmers, cultivating mostly cotton, are able to access MSP through CCI, whereas small and marginal farmers, many of whom are tribal and female-headed, face exclusion due to lack of land records, debt obligations, and subsistence-mode of paddy cultivation. Multiple-stage selling to intermediaries increases the costs and reduces net income of the cultivators by ₹400–600 per quintal. **Correlation analysis ($r \approx -0.58$)** indicates a moderate negative relationship between frequency of sales and net income, confirming that repeated selling stages lower earnings. A **Chi-square test ($\chi^2 = 24.24$, $df = 1$, $p < 0.05$)** shows a statistically significant relationship between possession of land records and access to procurement facilities, highlighting structural barriers for tribal farmers.

The study underscores that tribal farmers challenges are multi-dimensional, encompassing structural, institutional, gendered, and economic factors. Female-headed households and small/marginal farmers are particularly vulnerable to exclusion, while distress sales are common among indebted households. Paddy cultivation remains largely subsistence-oriented, providing minimal marketable surplus, whereas cotton dominates sale crops but incurs higher transportation costs for smaller farmers.

Policy recommendations include strengthening village-level procurement infrastructure like IKP centers through self help groups (SHG), digitizing land records, and establishing facilitation counters for tribal farmers. Promotion of Farmer Producer Organisations (FPOs) and tribal women FPOs can enhance collective marketing and bargaining power. Encouraging fine paddy cultivation under MSP plus state bonus provides additional income opportunities, while mobile procurement units, transport subsidies, and timely crop insurance can mitigate distress sales and improve livelihood security.

In conclusion, this study provides empirical evidence of inequalities in agricultural marketing among tribal farmers in Telangana**.** By linking landholding, gender, sales patterns, land records, and income, it guides targeted policies to improve market access, income stability, and livelihood security for tribal communities. The findings highlight the need for inclusive, tribal-sensitive marketing policies that bridge institutional gaps, reduce income losses, and promote sustainable agricultural development in the Telangana State.

Keywords: Agricultural Marketing, MSP, CCI, Cotton, Paddy, Telangana, Small Farmers, Gender, Distress Sale.

1. Introduction

Agriculture remains the backbone of Telangana's rural economy, providing livelihood to a large proportion of the population. Efficient agricultural marketing is essential for ensuring remunerative prices and stable incomes for farmers. In recent years, the Government of Telangana has strengthened procurement mechanisms through MSP operations, Cotton Corporation of India (CCI) centres, and decentralised paddy procurement. However, field-level evidence suggests that institutional support does not equally benefit all categories of farmers.

Komaram Bheem Asifabad District is a predominantly tribal and backward region, where agriculture is characterised by small holdings, rain-fed cultivation, and limited market access. Cotton and paddy are the major crops in the region. This study attempts to examine the effectiveness of existing marketing systems and identify constraints faced by farmers at the grassroots level.

2. Review of Literature

Previous studies have highlighted that regulated markets and MSP operations improve price stability but often exclude small farmers due to procedural and infrastructural barriers (Acharya, 2015; Reddy, 2019). Studies on cotton marketing reveal that multiple intermediaries and transport costs reduce net returns (GOI, 2021). Research on gender in agriculture indicates that female farmers face greater institutional constraints and mobility issues (FAO, 2020). However, micro-level studies in tribal districts of Telangana remain limited, justifying the present research.

3. Objectives of the Study

The main objectives of the study are:

1. To examine cropping patterns and marketing channels.
2. To identify marketing constraints faced by different farmer categories.
3. To suggest policy measures for improving market access.

4. Methodology

Study Area

The study has been conducted in Thiryani Mandal of Komaram Bheem Asifabad District, Telangana, covering Gadalpally and Rallakanneally villages for the year 2025-26 (November to January)

Sampling Design

The total number of agriculture-dependent households in the selected villages was 263. Farmers were categorised into four, based on landholding size, namely large, medium, semi-medium, and small and

marginal farmers. Proportionate stratified random sampling technique was adopted for selecting the sample. Accordingly, out of 100 sample farmers, 5 were large, 10 were medium, 18 were semi-medium, and 67 were small and marginal farmers.

Table:1 Farmer classification and sampling size.

Category	Population (263)	Sample (100)
Large	12	5 (5%)
Medium	25	10 (10%)
Semi-medium	47	18 (18%)
Small & Marginal	178	67 (67%)
Total	**263**	**100 (100%)**

Note: Figures in parentheses indicate per cent of total

Source : field survey 2025-26

Data Collection

Primary data were collected through structured interviews during field visits in 2025–26. Secondary data were obtained from government reports and statistical publications.

Limitations of the Study

The study is limited to two villages of Thiryani mandal (Gadalpally and Ralla Kanneally) and a sample size of 100 farmers. Therefore, the findings may not be fully generalised to the entire district or state. The analysis is based on self-reported data, which may be subject to recall bias. Time and resource constraints also limited the scope of the study.

Analytical Tools

- Percentage analysis
- Tabular analysis
- Comparative analysis
- Simple descriptive statistics

Socio-Economic Profile of Sample Farmers

Gender Composition

Out of 100 farmers, 22 percent are female-headed households. Among them:

- 12 due to husband's migration
- 5 due to widowhood
- 5 due to husbands' engagement in non-farm activities
- This reflects the growing responsibility of women in agricultural management.

Table-2. Age, Education and Landholding

Category	Avg Age	Avg Land (Acres)	Education
Large	48	11.5	Mostly Illiterate
Medium	45	7.5	Primary–Secondary
Semi-medium	37	4.5	Secondary–Intermediate
Small/Marginal	35	1.5	Primary–Graduate

Table-3. Cropping Pattern (mean acres)

Category	Paddy (Acres)	Cotton (Acres)
Large	2.0	9.5
Medium	1.5	6.0
Semi-medium	1.5	3.0
Small/Marginal	Mainly for self-consumption	Limited

Cotton is the dominant commercial crop, while paddy is largely cultivated for household consumption.

Marketing Channels and Practices

Cotton Marketing

Large and medium farmers mainly cultivate cotton and sell it at nearby ginning mills and CCI centres at MSP ranging from ₹7,900 to ₹8,000 per quintal. The average productivity is 8 quintals per acre.

However, cotton is generally sold in two instalments, leading to:

- Higher transport costs
- Additional labour expenses
- Reduction in effective prices

Paddy Marketing

Paddy is primarily used for self-consumption. Only surplus produce is sold at procurement centres. Small and marginal farmers face difficulties in selling second harvests due to lacking of documentation and verification problems.

5. Constraints in Agricultural Marketing

The major problems identified are:

1. Lack of updated land records
2. High transport and labour costs
3. Delays in procurement
4. Debt-induced distress sale
5. Lacking the storage facilities
6. Inadequate market information resource support
7. Semi-medium and small farmers are the most affected.

6. Findings of the Study

The findings of the study are based on primary data collected from 100 sample farmers in Gadalpally and Rallakanneally villages of Thiryani mandal. The data were analysed using descriptive statistics, percentage analysis, cross-tabulation, correlation analysis, chi-square test, and multiple regression techniques.

1. Relationship between Farm Size and Access to CCI Procurement

The (Table-4) analysis indicates a strong positive relationship between farm size and access to CCI procurement facilities. Percentage analysis shows that more than 75 per cent of large and medium farmers were able to sell their cotton produce through CCI centres, whereas less than 45 per cent of small and marginal farmers could access institutional markets. Cross-tabulation results reveal that farmers with larger landholdings had significantly higher participation rates in MSP procurement. The

regression coefficient of farm size was positive and statistically significant, indicating that an increase in landholding leads to higher net income through better market access.

Table-4. Relationship between Farm Size and Access to CCI Procurement

Farm Size Category	Participated in MSP/CCI	Did Not Participate	Total	Participation Rate (%)
Large (5)	4	1	5	80.0
Medium (10)	8	2	10	80.0
Semi-medium (18)	10	8	18	55.6
Small & Marginal (67)	28	39	67	41.8
Total	**50**	**50**	**100**	**50.0**

$$Yi=\beta+\beta_1 FSi+\beta_2 TCi+\beta_3 LRi+\beta_4 DEi+\beta_5 FHi+ui$$

Where:

- Y_i = Net income from crop sales (₹/acre)
- FS_i = Farm size (acres)
- TC_i = Transportation cost (₹)
- LR_i = Land record status (1 = available, 0 = not available)
- DE_i = Outstanding debt (₹)
- FH_i = Female-headed household (1 = yes, 0 = no)
- ui = Error term

The model was estimated using the Ordinary Least Squares (OLS) method.

2. Effect of Multiple-Stage Selling on Farmers' Net Income

The study **(Table-5)** finds that most large and medium farmers were compelled to sell cotton in two instalments due to limited procurement capacity and administrative delays. This resulted in repeated transportation and labour costs. Descriptive statistics show that farmers incurred additional expenses ranging between ₹400 and ₹600 per quintal due to multiple-stage selling.

Table-5. Effect of Multiple-Stage Selling on Farmers' Net Income

Farm Size Category	No. of Farmers	Avg. Transport & Labour Cost per Quintal (₹)	Range of Expenses (₹/qtl)
Large (5)	5	500	450 – 600
Medium (10)	10	520	400 – 600
Semi-medium (18)	18	480	400 – 550
Small & Marginal (67)	67	450	400 – 500

Table-6 : Frequency of Sales v/s Net Income

Farm Size Category	No. of Farmers (N)	Frequency of Sales (X)	Avg Net Income/qtl (Y, ₹)	X–X̄	Y–Ȳ	(X–X̄)(Y–Ȳ)	Weighted (X–X̄)(Y–Ȳ)	Weighted (X–X̄)²	Weighted (Y–Ȳ)²
Large	5	2	7450	0.76	–236	–179.36	–896.8	2.888	278,480
Medium	10	2	7500	0.76	–186	–141.36	–1413.6	5.776	345,960
Semi-medium	18	1.5	7800	0.26	114	29.64	533.52	1.216	233,928
Small & Marginal	67	1	7700	–0.24	14	–3.36	–225.12	3.859	13,132
Total / Weighted Sum	100	–	–	–	–	–	–2,002	13.739	871,500

Weighted Correlation Coefficient

[r = \frac{\sum \text{Weighted} (X–X̄)(Y–Ȳ)}{\sqrt{\sum \text{Weighted }(X–X̄)^2 * \sum \text{Weighted }(Y–Ȳ)^2}}]

[r = \frac{-2002}{\sqrt{13.739 * 871,500}} = \frac{-2002}{3,459.5} \approx –0.58]

The weighted correlation coefficient **r ≈ –0.58** indicates a **moderate negative relationship** between frequency of sales and net income per quintal. Farmers compelled to sell in multiple stages incur extra transport and labour costs (₹400–₹600/qtl), which reduces net income, particularly affecting medium and small/marginal farmers.

3. Partial Exclusion of Small and Marginal Farmers from Institutional Markets

The results reveal that small and marginal farmers face systematic exclusion from institutional procurement mechanisms. Nearly 60 per cent of these farmers could not dispose of their entire produce through CCI, particularly during the second round of procurement. Chi-square test results show a statistically significant association between possession of land records and access to procurement facilities. Lack of proper documentation and procedural delays were identified as major constraints forcing farmers to depend on private traders.

7. Chi-Square Test: Land Records vs Access to Procurement

1. Context from Field Survey

- Small and marginal farmers often lack complete land records (patta).
- These farmers face difficulty accessing institutional procurement centers like CCI or MSP points.
- Large and medium farmers generally have proper land records, so they can sell directly to CCI without obstacles.

2. Contingency Table

Access to Procurement	Complete Land Records	Incomplete / No Records	Total
Yes	30	10	40
No	15	45	60
Total	45	55	100

3. Chi-Square Calculation

[\chi^2 = \sum \frac{(O - E)^2}{E}]

Where:

- Observed frequency
- E = Expected frequency = (Row Total * Column Total) / Grand Total
- Step 1: Compute expected frequencies (E):
- E11 (Yes & Complete) = (40*45)/100 = 18
- E12 (Yes & Incomplete) = (40*55)/100 = 22
- E21 (No & Complete) = (60*45)/100 = 27
- E22 (No & Incomplete) = (60*55)/100 = 33
- Step 2: Compute χ^2

[\chi^2 = \frac{(30-18)^2}{18} + \frac{(10-22)^2}{22} + \frac{(15-27)^2}{27} + \frac{(45-33)^2}{33}]

[\chi^2 = \frac{144}{18} + \frac{144}{22} + \frac{144}{27} + \frac{144}{33}]

[\chi^2 = 8 + 6.55 + 5.33 + 4.36 = 24.24]

8. Interpretation

- Degrees of freedom: (Rows–1)(Columns–1) = (2–1)(2–1) = 1
- Critical value at $\alpha = 0.05 \rightarrow 3.84$
- **Observed $\chi^2 = 24.24 > 3.84$** → statistically significant

There is a significant relationship between possession of land records and access to procurement facilities. Farmers without proper land records are systematically excluded from institutional markets.

Chi-square test results show a statistically significant association ($\chi^2 = 24.24$, df = 1, $p < 0.05$) between possession of land records and access to procurement facilities. This confirms that incomplete land documentation prevents small and marginal tribal farmers from benefiting from M.S.P and C.C.I procurement.

1. Marketing Constraints of Female-Headed Households

Female-headed households constituted about 22 per cent of the total sample. Comparative analysis shows that their average market participation rate was lower than that of male-headed households. These farmers faced constraints related to labour availability, mobility, and market information. It is observed that female-headed households earned relatively lower net income from crop marketing.

2. Subsistence Orientation of Paddy Cultivation

The study reveals that paddy cultivation in the study area is largely subsistence-oriented. Descriptive statistics show that more than 70 per cent of small and marginal farmers retained a major share of their paddy production for household consumption. Only surplus quantities were marketed. The inadequate ir-

rigation facilities significantly influence this production behaviour.

3. Influence of Indebtedness on Distress Sales

Indebtedness emerged as a major determinant of farmers' marketing decisions; about 55 per cent of the sample farmers had outstanding loans from informal sources. The distressed sales, forcing farmers to sell immediately after harvest at prices below M.S.P.

4. Tribal-Specific Structural Constraints

The study highlights that tribal farmers face additional structural constraints such as remoteness, inadequate road connectivity, limited market information, and weak institutional presence. These factors significantly reduce effective market participation and contribute to income instability among tribal households.

9. Crop Choice and Income Stability

The analysis shows that large and medium farmers mainly cultivated cotton, while small and marginal farmers cultivated relatively more land to paddy for subsistence purposes. During field survey I observed that the farmers cultivating fine paddy under state procurement schemes experienced relatively more stable income than cotton growers dependent on CCI. However, lack of extension support. Lack of land records and awareness constrained wider adoption among tribal farmers.

10. Policy Recommendations

1. Strengthening Procurement Infrastructure in Tribal Areas

The study area is predominantly inhabited by tribal farmers who face serious difficulties in accessing procurement centres located at distant places. There is a need to establish more CCI and paddy procurement centres at the village and mandal levels in tribal regions. Single-point and doorstep procurement facilities should be introduced to reduce repeated transportation, labour costs, and physical hardship faced by tribal farmers. Mobile procurement units can be particularly useful in remote tribal habitations.

2. Simplification of Land Records for Tribal Farmers

Many tribal farmers lack clear and updated land records due to historical, administrative, and legal constraints. This restricts their access to institutional procurement and government support schemes. Special land record regularisation drives should be conducted in tribal areas. Dedicated facilitation centres with trained staff may be established to assist tribal farmers in documentation and legal procedures. This will enhance their inclusion in formal marketing systems.

3. Targeted Support to Small and Marginal Tribal Farmers

Small and marginal farmers constitute the majority among tribal households and remain highly vulnerable to market risks. Transport subsidies, input support, and mobile marketing facilities should be provided on a priority basis in tribal regions. The promotion of tribal-based Farmer Producer Organisations (FPOs) can strengthen collective bargaining, reduce dependence on middlemen, and improve market access.

4. Gender-Sensitive Interventions among Tribal Communities

A significant proportion of tribal households are headed by women due to migration, death, or occupational shift of male members. These women farmers face multiple constraints such as labour shortage, limited mobility, and low market exposure. Special marketing assistance, leadership training,

and access to institutional credit should be extended to tribal women farmers. Formation of women-led tribal FPOs and self-help groups can promote economic empowerment.

5. Strengthening Credit and Debt Management in Tribal Areas

Tribal farmers largely depend on informal credit sources, leading to high indebtedness and distress sales. Expansion of institutional banking facilities in tribal mandals is essential. Awareness programmes on crop loans, insurance, and government schemes should be intensified. Timely settlement of crop insurance claims and introduction of low-interest credit schemes can reduce financial vulnerability.

6. Price Stabilisation and Protection from Exploitation

Tribal farmers often lack market information and bargaining power, making them vulnerable to exploitation by private traders. Timely MSP payments should be strictly ensured in tribal procurement centres. Price deficiency payment schemes may be introduced to protect farmers during price fluctuations. Regular monitoring of private traders in tribal markets is necessary to prevent unfair trade practices.

7. Promotion of Fine Paddy Cultivation among Tribal Farmers

Considering the state policy of providing MSP along with bonus for fine paddy, tribal farmers should be encouraged to cultivate fine varieties of paddy. Compared to cotton under the central CCI policy, fine paddy offers more stable and assured returns. Extension services, quality seed supply, irrigation support, and assured procurement should be strengthened to promote this shift. This will improve income security and food self-sufficiency among tribal households.

Conclusion

The study concludes that despite strong policy support, agricultural marketing in Komaram Bheem Asifabad District remains unequal and exclusionary. Institutional mechanisms benefit mainly large and medium farmers, while semi-medium and small farmers face persistent barriers. Strengthening decentralised procurement, reducing transaction costs, and promoting inclusive marketing institutions are essential for improving farm incomes and ensuring sustainable rural development.

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