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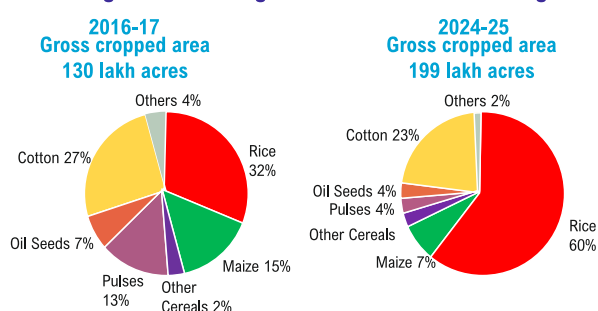
Diversify, De-risk & Decarbonize

A Framework for Transforming Telangana Agriculture for the Next Decade

1. Introduction

Agriculture in Telangana has undergone significant transformation over the past decade, primarily driven by the expansion of rice area due to increased irrigated area, specially underground water and tanks; assured procurement and state-supported price incentives. While these interventions have enhanced production and stabilized farmer incomes, they have also resulted in a pronounced cropping pattern imbalance, increasingly dominated by rice cultivation. Between 2016-17 and 2024-25, rice acreage in the state nearly tripled, from 41.6 lakh acres to 118.8 lakh acres. Over the same period, the share of rice in the gross cropped area increased from 32 percent to 60 percent. Notably, the increase in rice acreage (77 lakh acres) exceeded the total expansion in gross cropped area (69 lakh acres). In other words, not only has the entire increase in cultivated area over the past decade been absorbed by rice, but an additional 8 lakh acres have effectively shifted from other crops, specially pulses and oil seeds to rice cultivation.

Rice led growth creating structural imbalance in agriculture



Rice now occupies a disproportionately large share of the cultivated area, particularly in irrigated districts, leading to a set of inter related structural challenges. These include rising fiscal expenditure on procurement operations, increasing pressure on groundwater resources, soil health deterioration due to monocropping, and heightened exposure to climatic and market risks associated with over dependence on a single crop.

Given the socio-political importance of the existing rice procurement system, any abrupt reform is neither feasible nor desirable. Therefore, a gradual, incentive-compatible, and market-driven diversification strategy is required. This policy brief proposes a structured framework and detailed action plan to diversify 25 lakh acres of rice area over five years without altering the existing rice policy or introducing procurement mechanisms for alternative crops.

2. Policy Objective

This brief develops an action plan for gradual and voluntary diversification of approximately 10–15 percent of the current rice cultivated area (equivalent to 25 lakh acres) over a five-year horizon, while ensuring:

- Continuity of the existing rice procurement system
- Income stability and risk mitigation for farmers
- Development of sustainable and diversified agricultural systems
- Strengthening of farmer-led and community-based market institutions
- Fiscal prudence and long-term reduction in procurement-related expenditure

The guiding principle of this policy is to ensure that diversification occurs through economic incentives and institutional support rather than administrative compulsion or procurement expansion.

Rationale for Diversification

The existing agricultural system in Telangana exhibits a high degree of dependence on rice cultivation, driven primarily by assured procurement and price support mechanisms. This has led to reduced crop diversification and limited integration into broader agri-food value chains. The procurement-centric model of rice support has resulted in escalating fiscal costs related to procurement, storage, transportation, and maintenance of buffer stocks. These costs are expected to rise further in the absence of diversification. Apart from fiscal burden, continuous rice cultivation, particularly under irrigated condition, has contributed to Groundwater depletion in several districts and soil nutrient imbalance and declining soil organic matter. Overreliance on a single crop exposes farmers to systemic risks, including procurement delays, price distortions, and policy dependency. Diversification is therefore essential to enhance income resilience and reduce vulnerability.

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3. Strategic Framework

The proposed diversification strategy is based on a dual intervention model comprising:

1. Per-acre direct incentive (bonus) for crop diversification
2. Strengthening FPOs, FPCs, and SHGs to Improve Access to Local and Urban Markets for Non-Rice Crops, Including Small-Scale Value Addition

This model ensures that farmers are compensated for income risks while simultaneously building sustainable market systems.

4. Target and Phasing

The policy aims to diversify 25 lakh acres of rice area over a period of five years, implemented in a phased manner to ensure absorptive capacity of markets and institutions.

Proposed Phasing:

- Year 1: 5–10 lakh acres (pilot implementation in selected districts)
- Year 2: 10– lakh acres (expansion to high-potential clusters)
- Year 3: 10–20 lakh acres (scaling phase)
- Year 4: 20 lakh acres (consolidation phase)
- Year 5: 25 lakh acres (stabilization and full rollout)

This staggered approach allows for iterative learning, institutional strengthening, and market adjustment.

5. Policy Instruments

Per-Acre Diversification Incentive: A Direct Benefit Transfer (DBT)-based Rs. 8,000 per-acre incentive shall be provided to farmers who shift from rice cultivation to notified alternative crops in designated regions. The incentive is designed to bridge the income gap arising from the absence of procurement support for non-rice crops. The payment will be made after verification through remote sensing and field validation.

Table 1: Profitability of Rabi Rice and Non-Rice Crops in Rs/Ac (With and Without Incentive)

	Paddy	Maize	Redgram	Greengram	Sunflower	Bengal Gram	Groundnut	Jowar
Cost of Cultivation	29,604	27,615	19,442	18,951	23,618	21,141	42,184	17,643
Gross Returns	50,521	50,059	29,818	33,092	27,006	35,634	48,089	27,258
Net Returns	20,917	22,444	10,376	14,142	3,389	14,493	5,905	9,615
Returns per Rupee Invested	1.70	1.81	1.53	1.75	1.14	1.69	1.14	1.54

Net Returns After Diversification Incentive

Incentive			8,000	8,000	8,000	8,000	8,000	8,000
Net Returns	20,917	22,444	18,376	22,142	11,389	22,493	13,905	17,615
Returns per Rupee Invested	1.71	1.81	1.95	2.17	1.48	2.06	1.33	2.00

Table 2: Profitability of Kharif Rice and Non-Rice Crops in Rs/Ac (With and Without Incentive)

	Paddy	Maize	Redgram	Greengram	Soybean
Cost of Cultivation	30,432	28,174	21,061	18,269	23,964
Gross Returns	49,766	47,877	36,911	26,838	35,503
Net Returns	19,335	19,703	15,850	8,569	11,538
Returns per Rupee Invested	1.64	1.70	1.75	1.47	1.48

Net Returns after Diversification Incentive

Incentive			8,000	8,000	8,000
Net Returns	19,335	19,703	23,850	16,569	19,538
Returns per Rupee Invested	1.64	1.70	2.13	1.91	1.82

Absence of Procurement for Non-Rice Crops: A fundamental feature of this policy is the explicit non-intervention of the state in procurement of alternative crops. This ensures:

- Avoidance of fiscal expansion beyond rice procurement
- Preservation of market price discovery mechanisms
- Prevention of procurement-induced distortions in crop selection

Farmers are thus incentivized through income support rather than guaranteed procurement prices.

6. Market Institutional Framework

A critical determinant of success is the development of efficient, decentralized, and farmer-led market systems. The policy places strong emphasis on institutional strengthening through three key pillars:

6.1 Farmer Producer Organizations (FPOs): It will function as the primary aggregation and marketing entities and serves as a bridge between farmers and bulk buyers and processors. It will be responsible for quality standardization and grading and reduction of transaction costs.

6.2 Farmer Producer Cooperatives (FPCs): FPCs will facilitate value addition and market integration and link them to higher-value domestic and export markets.

6.3 Women Self-Help Groups (SHGs): Women SHGs will play a critical role in grassroots-level aggregation and enterprise development. It will operate micro-processing units and participate in local retail and nutrition-linked value chains.

This institutional architecture ensures that diversification is not merely production-driven but is embedded within a complete value chain transformation framework. Their role will be expanded from aggregation and marketing to a full-spectrum agricultural service ecosystem, with a strong emphasis on quality input assurance systems.

7. Crop Diversification Strategy

Crop selection will be based on agro-climatic suitability, water efficiency, and market demand.

Table 3: District-wise Targets for Rice Area Reduction and Recommended Alternative Crops

Zone	Districts	Target Shift (Acres)	Top Four Alternate Crops
North Zone	Adilabad	35,000 - 50,000	Greengram, Soybean, Blackgram and Jowar
	K.B. (Asifabad)	5,000 - 6,250	Greengram, Blackgram, Redgram and Jowar
	Mancherial	37,500 - 42,500	Blackgram, Soybean, Jowar, Redgram
	Nirmal	35,000 - 37,500	Jowar, Redgram, Greengram
	Nizamabad	1,80,000 - 1,87,500	Jowar, Greengram, Blackgram, and Redgram
	Kamareddy	1,15,000 - 1,20,000	Redgram, Bengalgram, Greengram and Jowar
	Karimnagar	97,500 - 1,02,500	Blackgram, Soybean, Redgram and Greengram
	Peddapalli	50,000 - 62,500	Redgram, Blackgram, Greengram and Bengalgram
	Jagtial	95,000 - 1,02,500	Jowar, Redgram, Greengram and Sesame
	Rajanna Sircilla	37,500 - 42,500	Jowar, Redgram, Blackgram and Greengram
Central Zone	Medak	1,05,000 - 1,15,000	Jowar, Greengram, Blackgram and Soybean
	Sangareddy	25,000 - 30,000	Jowar, Greengram, Blackgram and Soybean
	Siddipet	1,37,500 - 1,50,000	Jowar, Redgram, Greengram and Bengalgram
	Warangal	20,000 - 25,000	Jowar, Redgram, Blackgram and Bengalgram
	Hanmakonda	30,000 - 37,500	Soybean, Redgram, Blackgram and Greengram
	Mahabubabad	50,000 - 60,000	Redgram, Bengalgram, Greengram
	Mulugu	7,500 - 8,750	Redgram, Bengalgram and Greengram
	Jayashankar Bhupalpalli	15,000 - 20,000	Redgram, Bengalgram, Greengram and Blackgram
	Jangoan	62,500 - 67,500	Redgram, Bengalgram, Greengram and Blackgram
	Khammam	1,12,500 - 1,25,000	Soybean, Redgram, Greengram and Blackgram
	Bhadradi Kothagudem	30,000 - 37,500	Soybean, Redgram, Greengram and Blackgram
South Zone	Rangareddy	27,500 - 32,500	Jowar, Bajra, Greengram, Redgram and Jowar
	Vikarabad	20,000 - 25,000	Bajra, Greengram, Redgram and Jowar
	Medchal-Malkajigiri	250 - 375	Redgram and Bajra
	Mahabubnagar	37,500 - 45,000	Soybean, Blackgram, Greengram and Ragi
	Narayanpet	45,000 - 50,000	Bajra, Greengram, Redgram and Blackgram
	Nagarkurnool	45,000 - 50,000	Bajra, Greengram, Redgram and Blackgram
	Wanaparthy	25,000 - 30,000	Bajra, Greengram, Redgram, Blackgram
	Jogulamba Gadwal	15,000 - 22,500	Jowar, Bajra, Greengram and Blackgram
	Nalgonda	3,60,000 - 3,70,000	Jowar, Bajra, Redgram and Blackgram
	Suryapet	2,25,000 - 2,35,000	Jowar, Bajra, Greengram and Redgram
	Yadadri Bhuvanagiri	87,500 - 95,000	Jowar, Greengram, Redgram

8. Financial Implications

Fiscal Saving and Environmental Benefits

Fiscal saving will be conditional on different combinations of procurement substitution (30%, 40%, and 50%) and per-acre savings (₹15,000, ₹17,500, and ₹20,000). At lower substitution levels (30%), the programme results in a net fiscal cost ranging from ₹500 crore to ₹875

Estimated Cost

Year	Diversified Area	Incentive Cost
Year 1	5–10 lakh acres	₹400–800 crore
Year 2	10 lakh acres	₹800 crore
Year 3	10–20 lakh acres	₹800–1,600 crore
Year 4	20 lakh acres	₹1,600 crore
Year 5	25 lakh acres	₹2,000 crore

crore annually. At 40% substitution, the system approaches break-even, becoming fiscally neutral at ₹20,000 savings per acre. At 50% substitution, the programme turns fiscally positive, generating a surplus

ranging from ₹187.5 crore to ₹500 crore depending on savings per acre. Overall, the analysis indicates that the fiscal viability threshold lies around 40–50% procurement substitution, with higher savings per acre significantly improving the fiscal outcome. The economic effects on the farmers will include diversified and stabilized farm incomes, reduced dependence on procurement-driven systems and strengthened agricultural value chains

Apart from fiscal and economic outcomes, the targeted diversification will have several environmental benefits including Reduced groundwater extraction, improved soil health and crop rotation systems and enhanced climate resilience.

Conclusion

The proposed strategy offers a pragmatic, fiscally responsible, and politically feasible pathway for agricultural diversification in Telangana. By targeting the diversification of 25 lakh acres of rice area over five years, the policy balances the need for structural transformation with the realities of existing procurement systems. The combination of a per-acre income incentive and a robust institutional market framework led by FPOs, FPCs, and Women SHGs ensures that diversification is economically viable, socially inclusive, and environmentally sustainable.

This model provides a scalable framework that can serve as a reference for other rice-dependent regions seeking to transition towards more diversified and resilient agricultural systems without disrupting established policy.



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