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Crop Outlook Reports of Andhra Pradesh

SORGHUM

(June, 2023 to May, 2024)

Centre for Agriculture & Rural Development Policy Research (CARP)

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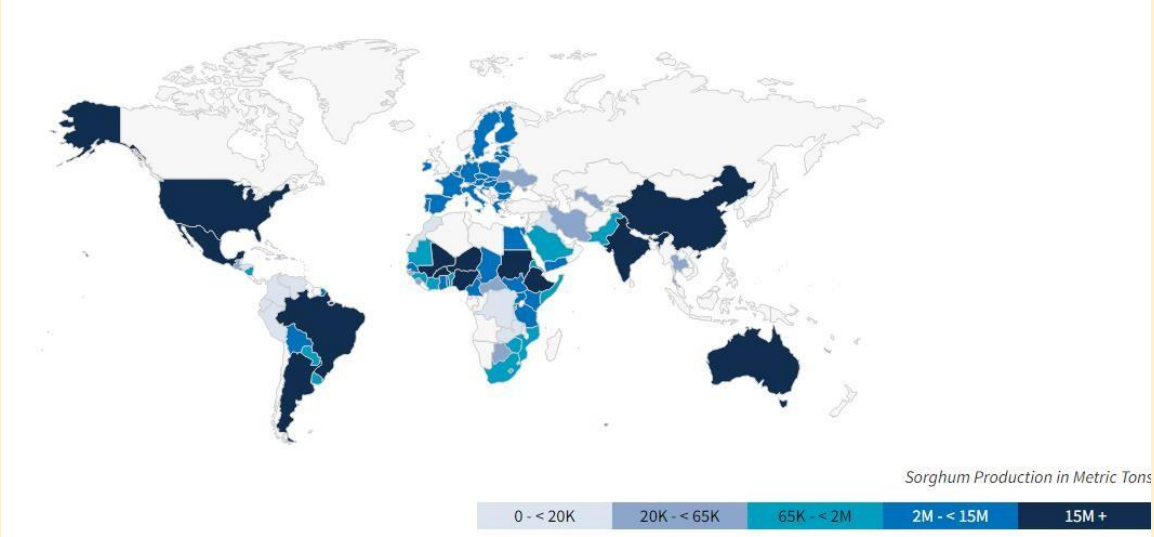
ANGRAU - Crop Outlook Reports of Andhra Pradesh
Sorghum – June to May, 2023-24

Factsheet of Sorghum:

- Globally, Sorghum produced about 52.8 million tonnes during 2023-24. United States stands top with 8.07 million tons (14%) followed by Nigeria with 6.7 million tons (11%).
- European Union (EU), China and Egypt have the highest productivity of 5 metric ton per hectare. India stands at 24th position in productivity with 1 metric ton per hectare.
- India ranks fourth in total Sorghum production with 4.4 million tonnes grown in an area of 3.97 million hectares in 2023-24.
- The kharif Sorghum (36.6%) was grown predominantly in Rajasthan (43.3%), Uttar Pradesh (15.6%), Haryana (10.1%) and Madhya Pradesh (9.8%). While rabi Sorghum (63.4%) grown in Maharashtra (63.5%), Karnataka (22%), Tamil Nadu (7.9%) and Andhra Pradesh (3.2%).
- Notable Sorghum varieties cultivated across India include Maldandi, SSG-59, CSV 15MF, Phule Vasudha, and Jawahar Jowar Hybrid-1, while in Andhra Pradesh, prominent varieties are Pusa Chari-1, HC-136, Jawahar Chari-6, UP Chari-1 (IS 4776) and CSV 15MF.
- The major Sorghum growing districts in Andhra Pradesh viz., Nandyala, Guntur, Bapatla, and Y.S.R account for 76% of the cultivation area and contribute 86% of the state's total black gram production.
- Cultivation of Sorghum costs Rs. 87,364.74 per hectare in Krishna zone of Andhra Pradesh, among which labor costs have a lion share of 44.13 percent of the total cost.
- For 2024-25, MSP for hybrid Sorghum is Rs. 3371 per quintal and for Maldandi Sorghum is Rs. 3421 per quintal.

Sorghum, *(Sorghum bicolor)*, cereal grain plant of the grass family (Poaceae) and its edible starchy seeds. The plant likely originated in Africa, where it is a major food crop, and has numerous varieties, including grain Sorghums, used for food; grass Sorghums, grown for hay and fodder; and broomcorn, used in making brooms and brushes. In India Sorghum is known as Jowar, Cholam, or Jonna, in West Africa as Guinea corn, and in China as Kaoliang. Sorghum is especially valued in hot and arid regions for its resistance to drought and heat. Globally, Sorghum produced about 52.8 million tonnes during 2023-24. United States stands top with 8.07 million tons (14%) followed by Nigeria with 6.7 million tons (11%), Brazil with 4.76 million tons (8%) and India with 4.4 million tons (8%).

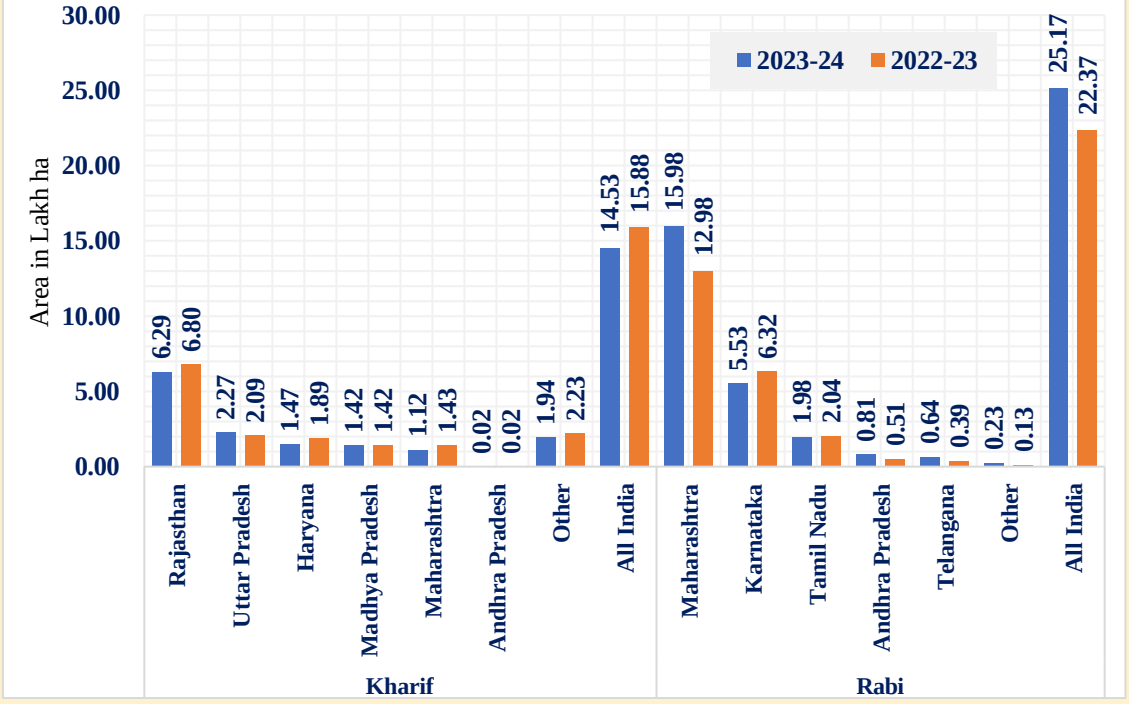
Figure 1. Global Production of Sorghum during 2023-24



Source: *fas.usda.gov*

India ranks fourth in total Sorghum production with 4.4 million tonnes grown in an area of 3.97 million hectares in 2023-24, where majority of Sorghum was produced during rabi season (Figure 2). The kharif Sorghum (36.6%) was grown predominantly in Rajasthan (43.3%), Uttar Pradesh (15.6%), Haryana (10.1%) and Madhya Pradesh (9.8%), while rabi Sorghum (63.4%) grown in Maharashtra (63.5%), Karnataka (22%), Tamil Nadu (7.9%) and Andhra Pradesh (3.2%). According to the 3rd advance estimates for 2023-24 by the Government of India, the Sorghum crop was estimated at 47.42 lakh tonnes, compared to 38.14 lakh tonnes in 2022-23.

Figure 2. Season wise major Sorghum growing states in India



Among the Sorghum producing states, Andhra Pradesh ranks 7th in cultivation area with 1.03 lakh hectares and is estimated to produce 4.30 lakh tonnes, contributing 9.07% to India's total production, with a productivity of 4175 kg/hectare in 2023-24 (3rd AE, DESAP). Over the last three decades, the Sorghum cultivation area in Andhra Pradesh decreased by 60.38 percent, with a Compound Annual Growth Rate (CAGR) of -2.59% (Figure 3), and production increased by 72% (CAGR of 1.82%). The annual average productivity increased by 335.8%, with a CAGR of 4.53%.

Figure 3 Sorghum Area, Production and Yield Statistics in Andhra Pradesh

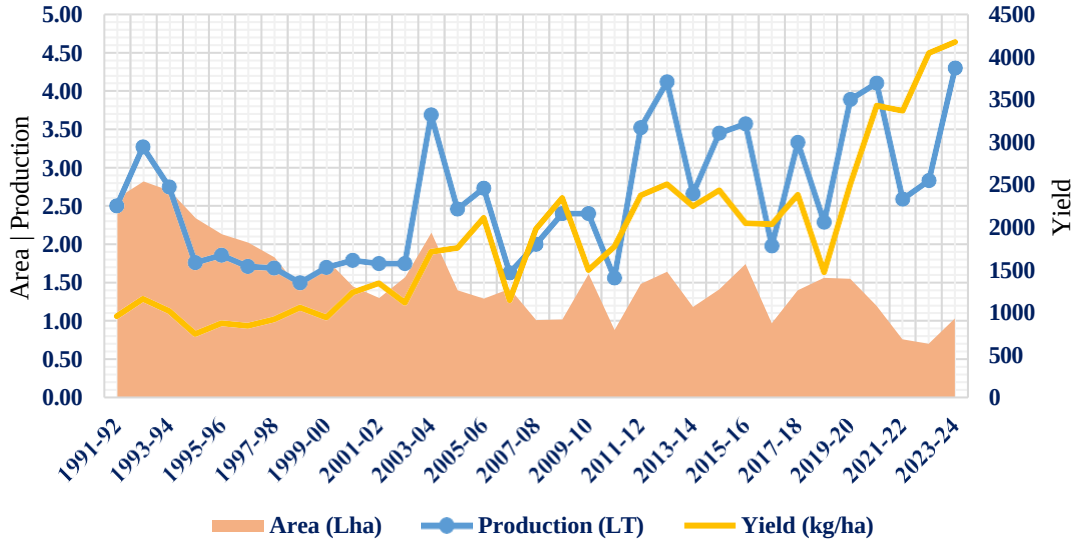


Table 1. Inter-District Comparison of Sorghum production in Andhra Pradesh (2022-23)

District	Area ('000 hectares)			Rank	Production ('000 tonnes)			Rank	Yield (Kg/ha)
	Kharif	Rabi	Total		Kharif	Rabi	Total		
Nandyal	2	25	27	1	2	70	72	2	2712
Guntur	-	12	12	2	-	95	95	1	7921
Bapatla	-	8	8	3	-	67	67	3	8286
Y.S.R	1	5	6	4	1	8	9	4	1717
Ananthapuramu	2	3	5	5	2	4	6	6	1096
Kurnool	-	5	5	6	-	7	7	5	1258
Other	1	6	7		1	26	27		
Andhra Pradesh	**6**	**64**	**70**		**6**	**277**	**283**		**4047**

Source: Andhra Pradesh Agricultural statistics at a glance, 2022-23.

The major kharif Sorghum growing districts in Andhra Pradesh, namely Nandyal, Ananthapuramu and Y.S.R, hold 83.3% of the cultivation area and contribute 83 percent to the state's total Sorghum production (Table 1). However, Bapatla (8286 kg/ha) ranks first in productivity, followed by Guntur

(7921 kg/ha) and Nandyala (2712 kg/ha). The average productivity of the state during 2022–23 was 4047 kg/ha.

The cost-return structure of Sorghum in Andhra Pradesh for the year 2023–24 is presented in Table 4. Cultivation of Sorghum costs Rs. 77,388.75 per hectare, among which labor costs have a lion share of 37.43 percent of the total cost. In total, the working capital share is 60.28 percent, and the fixed capital share is 39.72 percent. The cost of production for Sorghum was Rs. 3,263.28 per quintal. Gross margin refers to returns over variable costs, which pertain to owner farmers, while net returns refer to returns over total costs, which pertain to tenant farmers. The gross margin and net returns were Rs. 18,381.81 per hectare and Rs. -12,356.30 per hectare, respectively. The return on rupee investment was 0.84, which concerns tenant farmers, and the return on variable costs was 1.39, which mostly relates to owner farmers.

Table 2. Cost-return structure of Sorghum in Andhra Pradesh 2023-24 (Rs. /ha)

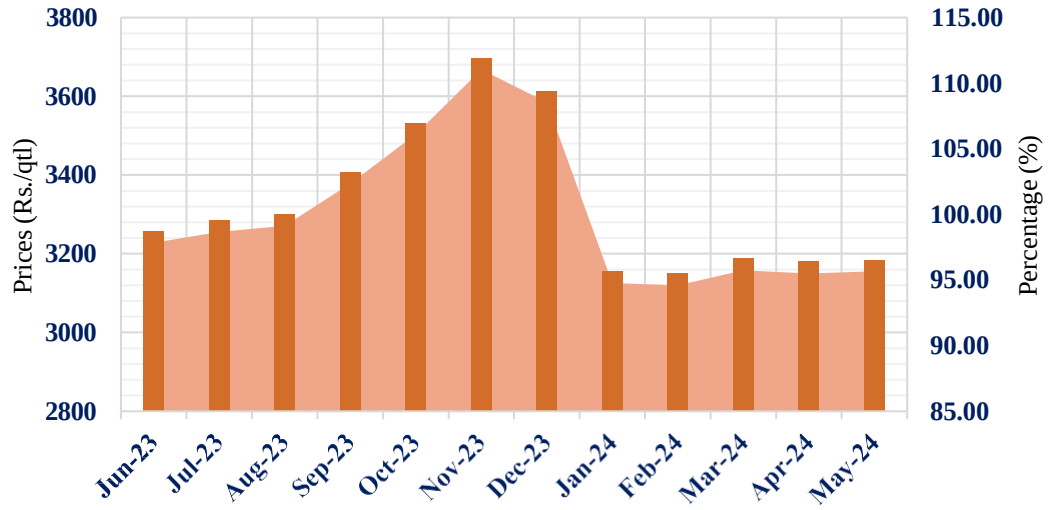
S.No.	Particulars	Cost (Rs.)
1	Labour costs (Rs/ha)	28,965.80 (37.43%)
2	Material costs (Rs/ha)	16,342.09 (21.12%)
3	Variable costs (Rs/ha)	46,650.64 (60.28%)
4	Fixed costs (Rs/ha)	30,738.11 (39.72%)
5	**Total cost (Rs/ha) | Cost C2**	**77,388.75 (100%)**
6	Yield (Qtl/ha)	23.72
7	Price (Rs./qtl)	2,946.06
8	**Gross returns (Rs/ha)**	**65,032.45**
9	Net returns (Rs/ha)	-12,356.30
10	Gross Margin (Rs/ha)	18,381.81
11	Return on rupee BCR	0.84
12	Return on VC	1.39
13	COP [C2] (Rs./qtl)	3,263.28

Source: Survey Data, BCR-Benefit Cost Ratio, VC – Variable Costs

Sorghum Prices and Production Outlook:

Percent deviations from yearly average prices were calculated for Sorghum for the year 2023–24 by using modal prices from the major market of Andhra Pradesh. The results depict Sorghum prices picking up from September to December, with the highest prices reported during the month of November (111.04%) against the yearly average of Rs. 3329 per quintal.

Figure 4. Seasonal Indices of Sorghum Prices in Andhra Pradesh (2023-24)



Source: agmarknet.gov.in

From the table 3, it shows the MSP prices for the Sorghum over the years, the major hike was occurred in the year 2018-19 with difference from the previous year of Rs. 730. Sorghum MSP prices increased in 2024-25 by Rs. 191 for hybrid variety and Rs. 196 for Maldandi variety compared to the previous year.

Table 3: Minimum Support Price for the Sorghum from 2010-11 to 2023-24.

Years	Hybrid		Maldandi	
	MSP	Difference in amount increase over preceding year	MSP	Difference in amount increase over preceding year
2010-11	880	690	900	690
2015-16	1570		1590	
2016-17	1625	55	1650	60
2017-18	1700	75	1725	75
2018-19	2430	730	2450	725
2019-20	2550	120	2570	120
2020-21	2620	70	2640	70
2021-22	2738	118	2758	118
2022-23	2970	232	2990	232
2023-24	3180	210	3225	235
2024-25	3371	191	3421	196

Table 4 shows the number of days when the market prices of Sorghum were above, equal to, or below the MSP in major markets of Andhra Pradesh during June-May, 2023-24. On average, for 236 days

from June to March, Sorghum prices were above the MSP, while for 41 days from April and May, prices were below the MSP.

Table 4. MSP vis-a-vis Market Prices of Sorghum in Andhra Pradesh during June to May, 2023-24

Crop	MSP (Rs./qtl)	Major Markets	Average days and months of trading			
			Greater than MSP		Less than MSP	
			No. of Days	Month	No. of Days	Month
Sorghum	2758 & 2758	Tadipatri	236	June to March	41	April and May

Source: **vyavasayamarketingshakha.ap.gov.in**

Based on data from the Directorate of Economics and Statistics, Andhra Pradesh (DESAP), the time series analysis shows that the area for Sorghum cultivation is expected to decrease to 6.87 thousand hectares during the kharif season and 78 thousand hectares during the rabi seasons of 2024-25. Under normal conditions, the estimated annual production is 348.72 thousand tonnes in Andhra Pradesh.

Under these circumstances, Agricultural Market Intelligence Centre, ANGRAU expects that Sorghum (hybrid) may trade within a price range of **Rs. 2800 to 3200 per quintal** during the Kharif harvest season of 2024-25.

Note: ***The predicted / forecast values given in the report were estimated using historical data analyzed by different econometric models with the assumption of prevalence of normal weather and market conditions.***

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