

## Crop Outlook Reports of Andhra Pradesh

### SORGHUM (January to December, 2022)



Centre for Agriculture & Rural Development Policy Research (CARP)

ANGRAU, Lam, Guntur - 522 034.



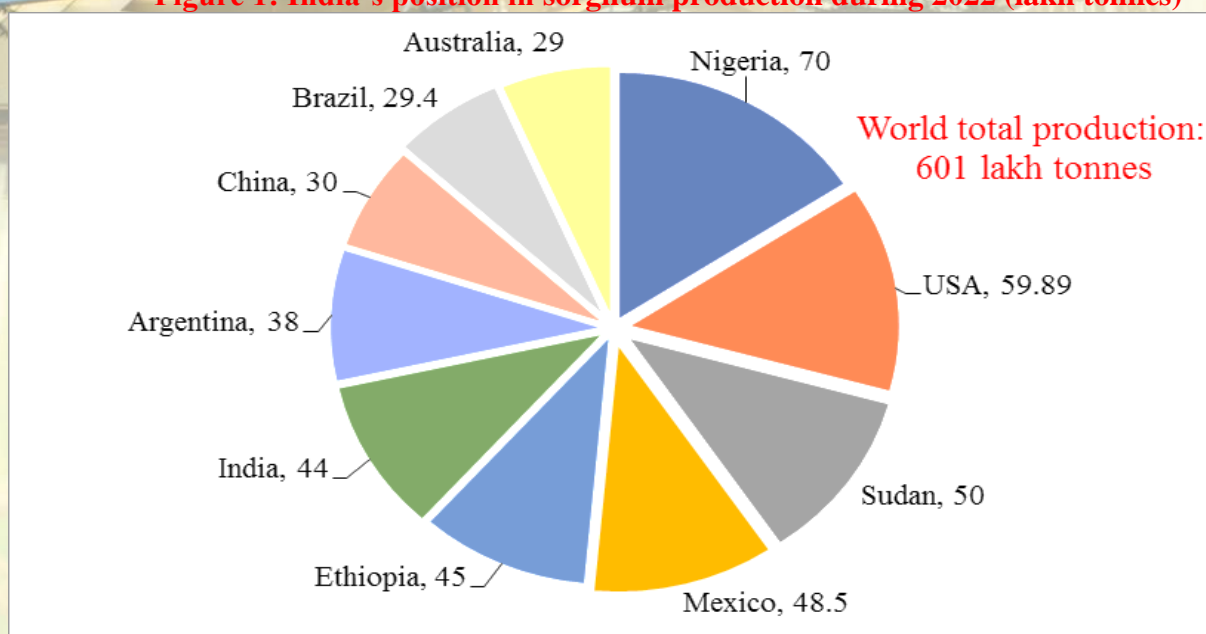
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### SORGHUM– January to December 2022

Sorghum (*Sorghum bicolor*) known to us as Jowar, originated in Africa and has spread throughout the globe. Sorghum is a genus of about 25 species of flowering plants in the grass family Poaceae. Some of these species have grown as cereals for human consumption and some in pastures for animals. Global demand for sorghum increased dramatically between 2013 and 2015 when China began purchasing US sorghum crops to use as livestock feed as a substitute for domestically grown corn. Globally, sorghum production was estimated at 60.06 million tonnes in 2021-22. The Nigeria stands first in total production with 7 million tonnes (12%), followed by United States of America, Nigeria, Sudan, Mexico (Figure 1). India ranks fifth in total sorghum production with 4.23 million tonnes grown in an area of 3.90 million hectares in 2021-22, whereas in kharif 2022-23, sorghum production was 1.69 million tonnes (1<sup>st</sup> advance estimates) in an area of 2.94 million hectares (agricoop.nic). Andhra Pradesh produced 2.43 lakh tonnes of sorghum (contributing 5.74 % to total country production) cultivated in 0.77 lakh hectares with a productivity of 3156 kg/hectare in 2021-22. According to 1<sup>st</sup> advance estimates during 2022-23, sorghum was grown in 0.06 lakh hectares with a production of 0.06 lakh tonnes and productivity was 1038 kg/ha (des.ap.gov.in).

**Figure 1: India's position in sorghum production during 2022 (lakh tonnes)**



Source: United States Department of Agriculture, fas.usda.gov

**Table1.Balance sheet of sorghum in India (in '000 tonnes)**

Sorghum	2019-2020	2020-2021	2021-2022*
Market Year Begins	Nov 2019	Nov 2020	Nov 2021
Beginning Stocks	153	394	584
Production	4772	4740	4600
Imports	0	0	0
Total Supply	4925	5134	5184
Exports	31	50	50
Feed and Residual	500	500	500
FSI Consumption	4000	4000	4200
Total Consumption	4500	4500	4700
Total Demand	4531	4550	4750
Ending Stocks	394	584	434
Total Distribution	4925	5134	5184

\*Forecast FSI: Food, Seed and Industrial;

Year,begins in October for all countries; 2021-22 = October 2021 - September2022.

Source: US Department of Agriculture, [fas.usda.gov](http://fas.usda.gov)

Table 1 explains the balance sheet of sorghum in India. The beginning stocks in the market year 2019 (begins in November) were 1.53 lakh tonnes, the ending stocks were 3.94 lakh tonnes, and the ending stocks in the market year 2020 (begins in November) were 5.84 lakh tonnes. In 2019-20 and 2020-21, total consumption was 45 lakh tonnes. The ending stocks in market year 2021 (begins from November) were estimated as 4.34 lakh tonnes.

**Table 2: Area and production of major Sorghum producing states (Area- lakh ha, production-lakh tonnes, Yield-kg/hectare)**

States	1990-91		2000-01		2010-2011		2020-21			2021-22		% share in India production
	A	P	A	P	A	P	A	P	A	P*	Y	
Maharashtra	63.31	59.48	50.94	39.88	40.6	34.52	19.4	17.60	15.99	14.56	911	34.42
Karnataka	21.55	13.53	17.82	15.47	12.43	14.67	7.40	8.80	7.33	8.70	1187	20.57
Rajasthan	9.31	5.18	6.74	1.35	7.27	5.09	5.60	5.90	6.39	6.74	1055	15.93
Tamil Nadu	5.41	5.49	3.31	3.06	2.44	2.47	4.10	4.50	3.24	3.55	1096	8.39
Uttar Pradesh	5.27	4.93	3.47	3.3	2.01	2.07	1.70	2.70	2.10	3.31	1578	7.83
Madhya Pradesh	16.48	14.9	6.38	4.6	4.32	6.16	1.10	1.80	1.55	2.53	1636	5.98
Andhra Pradesh	11.9	8.51	6.77	6.19	2.54	3.07	1.20	3.70	0.77	2.36	3070	5.58
Other states	10.34	4.79	3.13	1.45	2.21	1.98	1.90	6.7	1.84	0.55	-	1.30
India	143.57	116.8	98.56	75.29	73.82	70.03	42.40	47.80	39.21	42.30	1128	100

\* provisional figures, yet to be finalised (Andhra Pradesh figures from Final Advance Estimates, 2021-22)

Source: [indiastat.com](http://indiastat.com), [agricoop.nic.in](http://agricoop.nic.in).



Table 2 shows the state-wise area, production, and yield of sorghum from 1990-91 to 2021-22. Over the decades, there has been a decline in cultivated area under sorghum since farmers are shifting to more profitable cereals (rice, wheat, corn), pulses and competing crops (oilseeds and cotton). Maharashtra is the largest producer, contributing 34.42 percent of the total production of sorghum, followed by Karnataka (20.57%) and Rajasthan (15.93%). Andhra Pradesh contributes 5.58 per cent to total sorghum production. It is worth mentioning that, the productivity of sorghum is recorded very high compared to other states of India, due to the commercial ways of cultivation.

**Table 3: Area, production and yield of Sorghum in Andhra Pradesh**

Year	Area ('000 ha)	Production ('000 tonnes)	Yield (Kg/ha)
2010-11	254	307	1211
2015-16	174	357	2049
2018-19	135	300	2230
2019-20	115	389	2510
2020-21	120	410	3428
2021-22	77	243	3156
2022-23*	6	6	1038

\* First Advance estimates, 2022-23 Source: [www.desap.gov.in](http://www.desap.gov.in)

Table 3 shows that the sorghum acreage in Andhra Pradesh before bifurcation was 2.54 lakh hectares, which has come down to 0.77 lakh hectares in 2021-22, but productivity was increased from 1211 kg/hectare to 3156 kg/hectare in 2021-22 which can be attributed to due to hybrids that are being grown under irrigation in some areas of Guntur district of Andhra Pradesh. Sorghum cultivation is declining, with area shifting to more profitable crops. Over the years, human consumption has also declined due to the availability of fine cereals through the Public Distribution System (PDS). Sorghum production is mostly under unirrigated conditions and fluctuates yearly depending on the monsoon's performance. With rising supplies of subsidised rice and wheat through India's food security programs, consumers are shifting away from sorghum and millet, eroding these crops' profitability.

**Table 4: District wise area and production of Sorghum in Andhra Pradesh (2020-21)**

District	Area ('000 ha)	Position	Production ('000 tonnes)	Position	Yield (kg/ha)	Position
Guntur	50	1	301	1	5982	1
Kurnool	43	2	83	2	1936	3
Kadapa	8	4	7	3	931	5
Prakasam	6	5	6	4	971	4
Krishna	2	6	6	5	3926	2
Ananthapur	9	3	4	6	445	6
Other districts	2		3			
Andhra Pradesh	120		410		3428	

Source: [apagrisnet.gov.in](http://apagrisnet.gov.in)

Table 4 shows that in Andhra Pradesh, sorghum production is highest in Guntur district with 3.01 lakh tonnes in 0.5 lakh hectares, followed by Kurnool and Kadapa. The productivity of sorghum is highest in the Guntur district (grown as an ID crop) with 5982 kg/ha, followed by Krishna and Kurnool.

**Table 5: Cost-return structure of Sorghum in Krishna Zone 2021-22 (Rs./ha)**

S NO	Particulars	Sorghum
1	Labour costs (Rs/ha)	26018(27.56)
2	Material costs(Rs/ha)	29387(31.13)
3	Variable costs(Rs/ha)	55880(59.19)
4	Fixed costs(Rs/ha)	29939(31.72)
5	Total cost(Rs/ha)	94400(100)
6	Yield (Qtl/ha)	40
7	Price (Rs./qtl)	2150
8	Gross returns (Rs/ha)	86000
9	Net returns (Rs/ha)	-8400
10	Gross Margin (Rs/ha)	30120
11	Return on rupee BCR	0.911
12	Return on VC	1.539
13	Cost of Production (Rs./qtl)	2360

*Source: Survey Data, Figures in the parentheses indicate the per cent of the item to the total cost, BCR-Benefit Cost Ratio, VC – Variable Costs*

The cost-return structure of sorghum in Krishna Zone (Guntur, Prakasam and Krishna districts) of Andhra Pradesh for the year 2021-22 is presented in Table 5. Cost of Production of sorghum was Rs. 2360/quintal. Gross margin implies the returns over variable costs which is pertained to owner farmers and net returns implies returns over the total costs which is pertained to tenant owners. Gross margin and Net returns were Rs. 30120 per ha and Rs. -8400 per ha respectively. Return on rupee investment was 0.91 which is concerned to tenant farmers and return on variable costs was 1.54 which is more related to owner farmers.

### **Sorghum Price Outlook:**

Seasonal indices measure the monthly per cent deviation from the average arrivals and prices for 2021-22. For calculating seasonal indices, modal prices of sorghum from major markets in Kurnool district were taken.

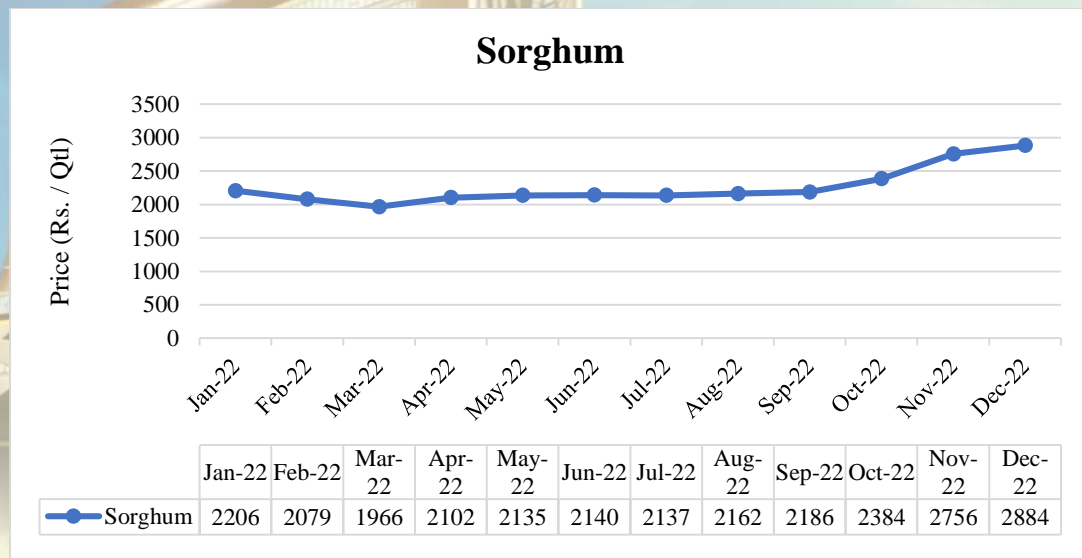
The seasonal indices of sorghum arrivals and prices from major markets in Kurnool district (Allagadda, Alur, Banaganapalli, Koilkunta, Nandyala) presented in Table 6 show that the arrivals are highest in the months of August and October, and the prices are highest in the months of November & December. The figure 2 shows the monthly average prices of sorghum in Andhra Pradesh.

**Table 6: Seasonal indices of Sorghum arrivals and prices in major markets of Kurnool district in 2022**

Months	Arrivals	Price
January	102.86	97.55
February	92.50	91.93
March	99.09	86.94
April	102.86	92.95
May	102.86	94.41
June	89.31	94.63
July	89.28	94.50
August	106.32	95.60
September	102.82	96.67
October	106.32	105.42
November	99.50	121.87
December	106.29	127.53

Source: Data obtained from AMCs of major markets of Kurnool district

**Figure 2: Average monthly prices of Sorghum in Andhra Pradesh**



Source: Data obtained from [agmarknet.gov.in](http://agmarknet.gov.in)



As on 16<sup>th</sup> December 2022, 34.26 lakh hectares of sorghum was sown compared to 35.49 lakh hectares last year in India (agricoop.nic.in). In Andhra Pradesh as on 28<sup>th</sup> December 2022, 0.44 lakh hectares of sorghum was sown compared to 0.46 lakh hectares last year (apagrisnet.gov.in).

Under these circumstances, the Agricultural Marketing Intelligence Centre (AMIC), ANGRAU is here with providing the latest information with regard to the forecast price range of Rs. 1900-2200 per quintal for sorghum in this Rabi marketing/harvesting season 2022-23.

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