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Crop Outlook Reports of Andhra Pradesh

Paddy

(June, 2023 to May, 2024)



Centre for Agriculture & Rural Development Policy Research (CARP)

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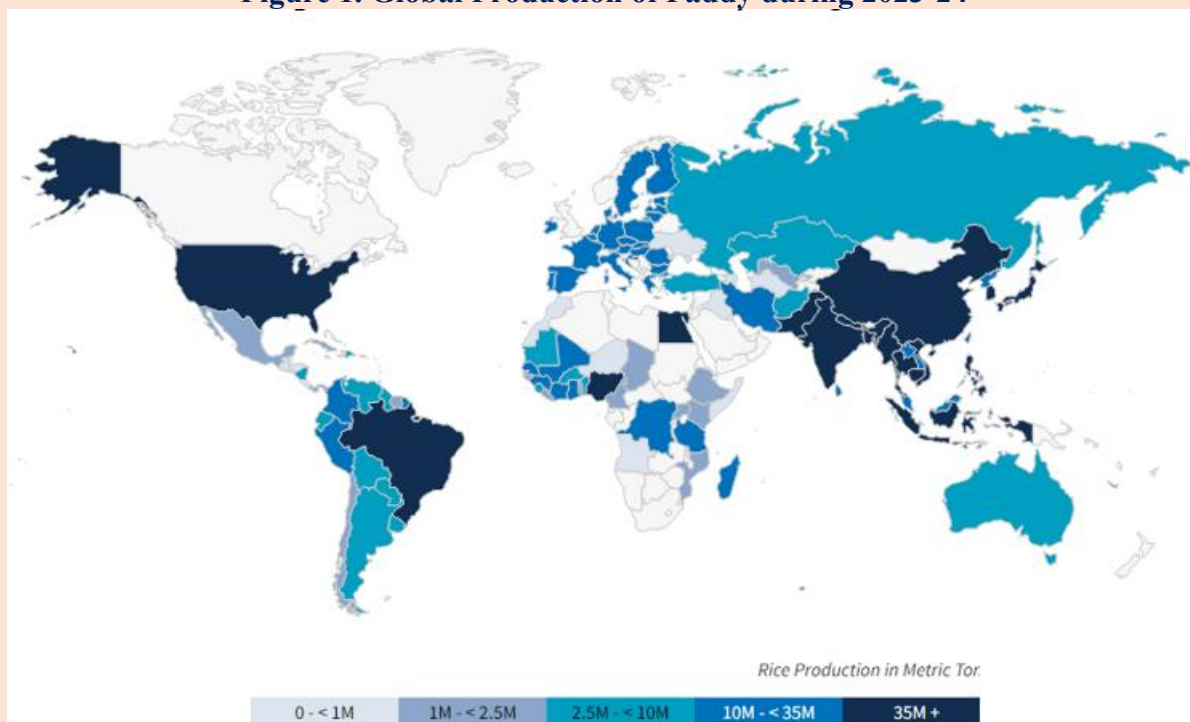
ANGRAU Crop Outlook Reports of Andhra Pradesh

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Factsheet of Paddy

- Global rice production in 2023-24 is projected to reach a record 520.5 million tons.
- India has the world's largest rice area, covering 47 million hectares, and the second highest production at 134 million tonnes, second only to China.
- In India, Uttar Pradesh stands at the top in area and production during 2023-24, followed by Telangana (2nd in area and production), Punjab (7th in area and 3rd in production), and West Bengal (3rd in area and 4th in production).
- The major rice exporting nations include India, Thailand, and Vietnam. India had the highest export volume of rice worldwide, at 16.5 million metric tons (including basmati) as of 2023-2024.
- Notable paddy varieties in India are IR8, MTU1010, BPT5204, Phalguni, Luna Shankhi, MTU7029, RNR 15048, Jaya, Pusa Basmati, while in Andhra Pradesh, prominent varieties are MTU1121, BPT5204, MTU7029, MTU1061, and MTU1064.
- According to CARP estimates, ANGRAU varieties occupy 32.24% of the total rice area in the country, contribute 33.92% of the total rice production, and generate returns of Rs. 85,682 crores annually.
- Cultivation of paddy in Andhra Pradesh costs Rs. 1,32,139.28 per hectare. The gross margin and net returns were estimated about Rs. 65,947.10 per hectare and Rs. 15,367.39 per hectare, respectively.
- AMIC, ANGRAU expects the price range of 2,200-2,350 Rs./qtl for the normal paddy type and 2,300-2,575 Rs./qtl for the Grade-A paddy type for coming kharif marketing season.

Paddy is the world's second most important cereal crop following only corn. Global rice production in 2023-24 is projected to reach a record 520.5 million tons, an increase of more than 2% from the previous year (USDA). Bangladesh, the European Union, China, Pakistan, and the United States account for most of the expected increase. Traditionally, countries in Asia have the largest share in world paddy production. China was the world's leading paddy producer, followed by India and Bangladesh. Global domestic and residual use in 2023-24 is projected to reach a record 523.0 million tons, up 1.5 million from the previous year, with South Asia accounting for most of the increase. As domestic and residual use is projected to again exceed global production, global ending stocks in 2023-24 are projected to decline by 2.5 million tons to 166.7 million, marking the third consecutive year of decreasing global rice stocks and the smallest since 2017-18.

Figure 1. Global Production of Paddy during 2023-24

Source: fas.usda.gov

India has the world's largest rice area, covering 47 million hectares, and the second highest production at 134 million tonnes, second only to China (USDA). Despite holding the top position in paddy area and production, India lags behind in productivity. India ranks 40th among countries in paddy productivity, achieving only 35% of the yields reported in top countries like Australia (Table 1). Paddy cultivation in India faces several challenges, resulting in lower yields compared to other countries. Notable factors include soil-nutrient deficiencies, labor and water scarcity, the use of traditional cultivation methods, and lower mechanization.

Table 1. Global statistics of area, production and yield of milled rice for the 2023-24

Area			Production			Productivity		
Country	lakh ha	Rank	Country	lakh tons	Rank	Country	(qtl/ha)	Rank
India	470	1	China	1490	1	Australia	100	1
China	298	2	India	1340	2	Egypt	90	2
Bangladesh	118	3	Bangladesh	370	3	Morocco	90	3
Indonesia	116	4	Indonesia	344	4	Peru	90	4
Thailand	106	5	Vietnam	270	5	Turkey	90	5
						India	35	40

Source: USDA

World rice production and total supplies in 2023/24 are channelled to increases in consumption and aggregate stocks (Table 2). Lifted by 3 million tons month-over-month, global rice output in 2024-25 is pegged at a record 523 million tons (up 2%), also contributing to an upgraded prediction for combined reserves. Trade in 2025 is pegged slightly higher than in April, based on increased projections for Asian

and African buyers, with much of the month-over-month gain reflected in upward adjustments for Indian and U.S. exports.

Table 2. Global Rice Projections (in million metric tonnes)

Particulars	2021-22	2022-23 (Estimated)	2023-24 (Forecasted)	2024-25 (Projected)
Opening Stock	181.50	176.60	172.40	168.50
Production	515.60	516.50	513.70	523.00
Import	55.20	51.70	51.00	51.50
Total Availability	697.10	693.10	686.10	691.50
Exports	55.20	51.70	51.00	51.50
Total Consumption	520.50	520.80	517.60	520.50
Ending Stock	176.60	172.40	168.50	171.00

Source: International Grains Council

Total global consumption of milled rice amounted to approximately 520.4 million metric tons in 2022/23. China consumed almost 150 million metric tons of milled rice in 2023/24, making it by far the world's leading rice consumer. Following China, India ranked second with 118 million metric tons of rice consumption in the same period.

The major rice exporting nations include India, Thailand, and Vietnam. India had the highest export volume of rice worldwide, at 16.5 million metric tons (including basmati) as of 2023-2024. Thailand was the second largest rice exporter, with about 8.2 million metric tons of rice worldwide in that year. The largest rice importers were the Philippines and China. The retail price of white rice has increased in recent years. The average price per pound of long grain white rice was 99 cents in the U.S. in 2023, almost double the price in 2004.

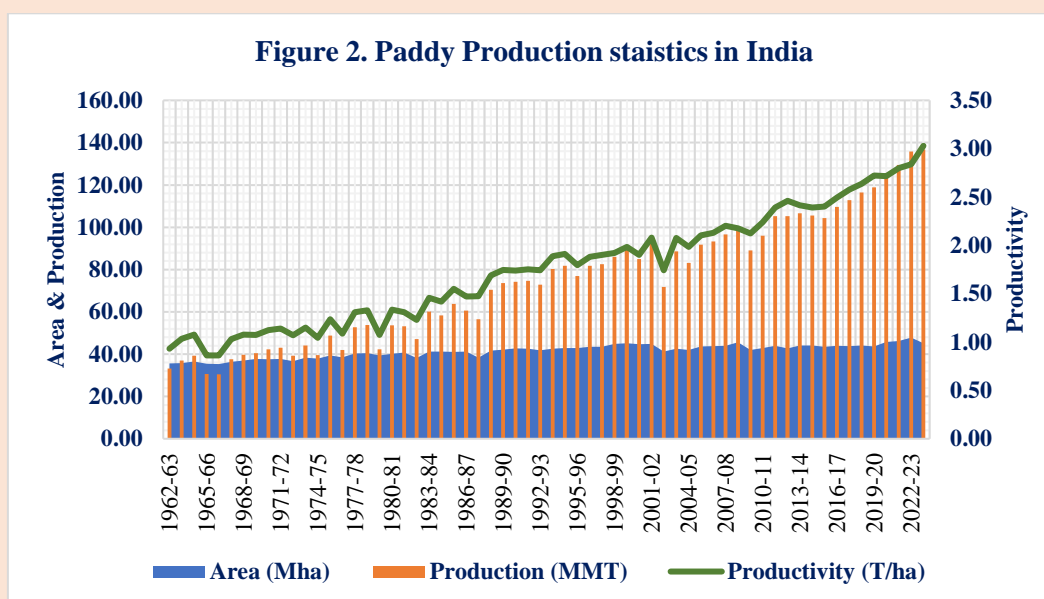
Table 3. Non-Basmati Rice exports from India (in Lakh MT)

Years	Quantity	Rs. Crore
2020-21	130.88	35448.24
2021-22	172.61	45649.74
2022-23	177.87	51088.81
2023-24	111.17	37804.42
2024-25 (April)	8.78	3484.19

Source: DGCIS

Paddy accounts for one-quarter of the total cropped area in the country, contributes roughly 40% of the total food grain production, and continues to play an important role in the national food and livelihood security system. Uttar Pradesh, Telangana, and West Bengal are the leading paddy producers, collectively accounting for 34.99% of the country's production. The paddy cultivation area in the country has increased by 26.5% since the 1960s, with a Compound Annual Growth Rate (CAGR) of 0.38%, while production has

increased by 311.5% (CAGR of 2.29%). Overall productivity has increased by 225.5% (CAGR of 1.9%), with a deviation of 0.584 T/ha.



Source: MoA&FW, GOI

Among the paddy-producing states, Uttar Pradesh stands at the top in area and production during 2023-24, followed by Telangana (2nd in area and production), Punjab (7th in area and 3rd in production), and West Bengal (3rd in area and 4th in production). Among these, Punjab ranks first in productivity (45.15 qtl/ha), followed by Andhra Pradesh (38.96 qtl/ha) and Haryana (36.83 qtl/ha). (India stat)

Table 4. Major states producing Paddy in India during 2023-24 (2nd AE)

States	Area (Lakh ha)	Rank	Production (Lakh T)	Rank	Productivity (Qtl/ha)	Rank
Uttar Pradesh	58.88	1	162.98	1	27.68	7
Telangana	45.25	2	160.25	2	35.41	4
Punjab	31.99	7	144.45	3	45.15	1
West Bengal	40.15	3	115.19	4	28.69	5
Odisha	36.77	5	89.83	5	24.43	10
India	451.52		1238.15		27.42	

Source: Indiatat

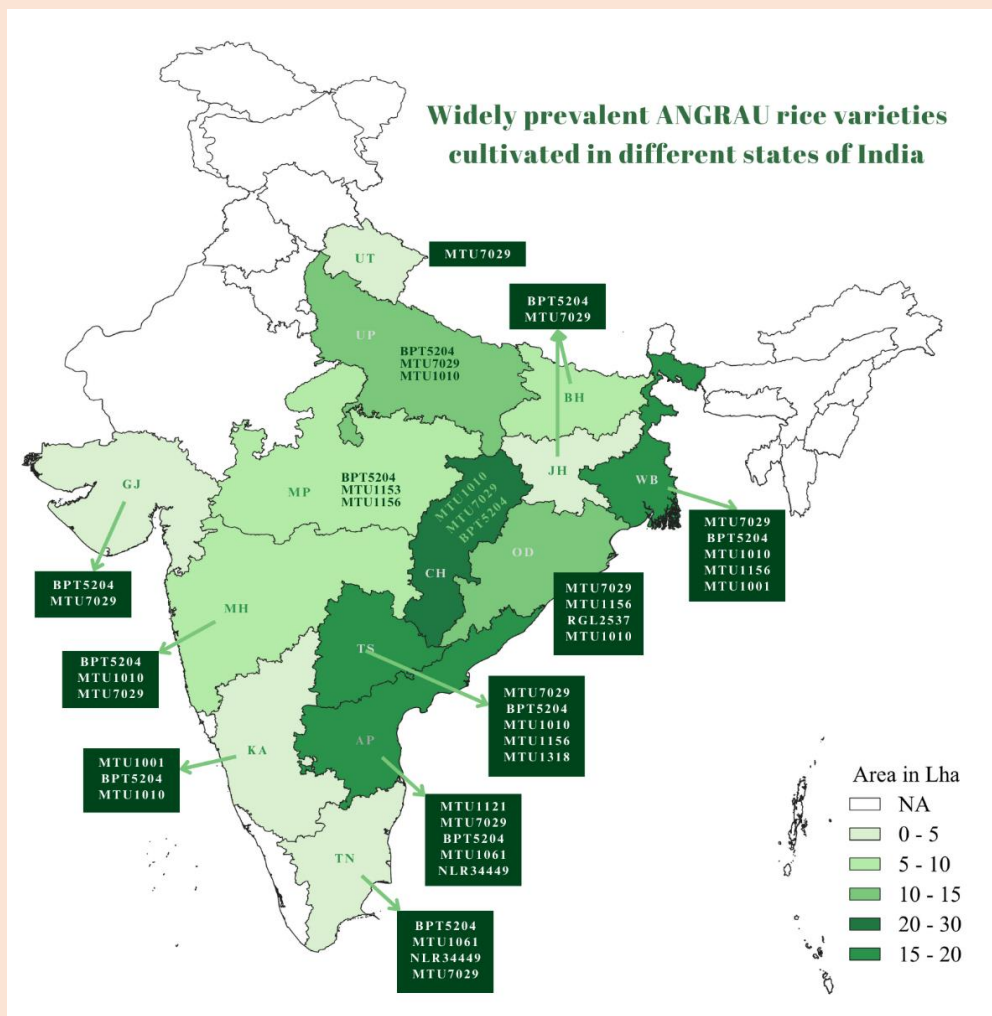
In India, more than 6,000 different varieties of rice have been developed in the last 60 years and released across the country. Nevertheless, Indian rice varieties are the most diverse globally, ranging from aromatic and fragrant long-grain basmati varieties grown in the northern part of the country to round medium grains and greasy rice in the southern coastal areas. In the mid-20th century, India experienced a major agricultural transformation known as the Green Revolution. This period witnessed the introduction of high-yielding rice varieties, developed through scientific research and hybridization techniques. These

varieties, including IR8, MTU1010, BPT5204, Phalguni, Luna Shankhi, MTU7029, RNR 15048, Jaya, Pusa Basmati, and many others, helped increase food production and alleviate hunger.

The Centre for Agriculture and Rural Development Policy Research (CARP), ANGRU, has estimated the extension of ANGRAU-developed rice varieties in India using breeder seed indent statistics. The results show ANGRAU varieties occupy 32.24% of the total rice area in the country, contribute 33.92% of the total rice production, and generate returns of Rs. 85,682 crores annually.

The major ANGRAU varieties, BPT5204 and MTU7029, have the highest average annual cultivation areas in the country (2.66 and 1.91 Mha, respectively), collectively generates Rs. 25,695 crores revenue and Rs. 1,285 crores of additional income. The other prominent varieties like MTU1010, NLR34449 and MTU1001 are grown predominantly in the country.

Figure 3. Spread of ANGRAU developed Rice varieties in India



Source: CARP; *Note:* Calculation based on the average of 2020-21 to 2022-23.

Andhra Pradesh, widely known as "India's rice bowl," had 19.7 lakh hectares under paddy cultivation in 2023-24, ranking 9th among the states. In Andhra Pradesh, paddy is predominantly irrigated and grown in both the Kharif and Rabi seasons across all districts. It accounts for 34.45% of the total

cropped area in the state, with a production of 113.4 lakh tonnes, contributing 9.2% to the country's total production (3rd AE, DESAP).

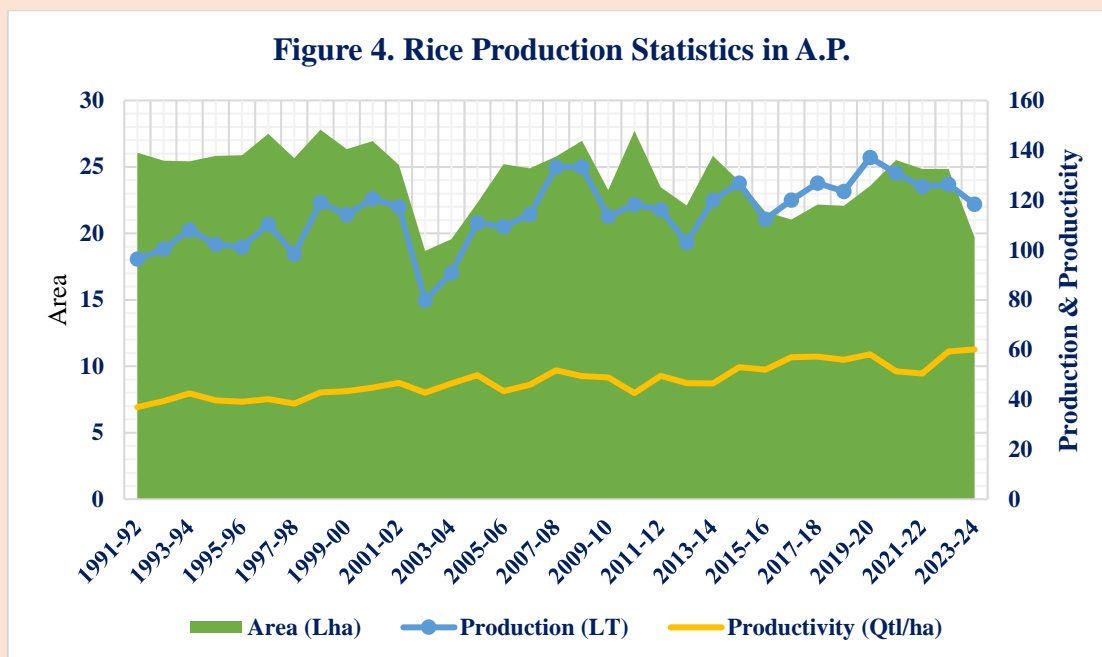


Table 5. Comparisons of Paddy Yield (q/ha) in Andhra Pradesh (2023-24) according to data source

Source	Karif	Rabi	Total
E&S Division, DA&FW	36.61	44.04	38.96
DESAP	54.92	71.3	60.1
CARP survey data	49.29	68.09	58.69

There is a significant difference in paddy yields reported by central and state sources. The CARP centre at ANGRAU reported that the paddy yield from the survey for 2023-24 was 49.29 q/ha for the kharif season and 68.09 q/ha for the rabi season.

The major paddy-growing districts in Andhra Pradesh, namely West Godavari, Krishna, Srikakulam, and Kakinada, hold 30.9% of the cultivation area and contribute 30.6% to the state's total paddy production (Table 6). However, Konaseema (69.17 qtl/ha) ranks first in productivity, followed by West Godavari (68.25 qtl/ha) and Nellore (66.19 qtl/ha). The average productivity of the state during 2022-23 was 59.32 qtl/ha.

As per the table 5 & 6 shows that even though there exists difference in the estimates given by different sources, Andhra Pradesh stood at 9th place in area under cultivation, 4th place in production, 1st place in productivity in India among the states.

Table 6. Inter-District Comparison of Paddy production in Andhra Pradesh (2022-23)

District	Area (‘000 hectares)			Rank	Production (‘000 tonnes)			Rank	Yield (Qtl/ha)
	Kharif	Rabi	Total		Kharif	Rabi	Total		
West Godavari	85	91	176	1	424	777	1201	1	68.25
Krishna	163	5	168	2	969	28	997	3	59.58
Srikakulam	151	9	160	3	710	41	751	7	47.04
Kakinada	90	65	155	4	426	489	915	4	58.98
Nellore	25	126	151	5	142	865	1007	2	66.91
East Godavari	76	56	132	6	420	452	872	6	65.97
Konaseema	56	71	127	7	260	617	877	5	69.17
Other districts	806	254	1060		4454	1556	6010		
Andhra Pradesh	1452	677	2129		7805	4825	12630		59.32

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

Over the last three decades, the paddy cultivation area in Andhra Pradesh decreased by 24.4 percent, with a Compound Annual Growth Rate (CAGR) of -0.43%, and production increased by 22.9% (CAGR of 0.76%). The annual average productivity increased by 62.6%, with a CAGR of 1.27%.

Farmers from all 26 districts cultivate ANGRAU varieties. ANGRAU rice varieties dominate in both cropping seasons, with an annual area of about 21.29 lakh hectares across the state. The gross area sown in Kharif 2022-23 is 14.52 lakh hectares, out of which 13.51 lakh hectares are under ANGRAU rice. Similarly, in Rabi, out of 6.77 lakh hectares, ANGRAU rice is cultivated on 4.94 lakh hectares (Table 7). The major ANGRAU varieties under cultivation in Andhra Pradesh are MTU1121, BPT5204, MTU7029, MTU1061, and MTU1064, accounting for almost 58.53% of the rice area in the state.

Table 7. Major ANGRAU Rice varieties cultivation in Andhra Pradesh during 2022-23

Varieties	Kharif		Rabi		Total	
	Area (Lha)	% share	Area (Lha)	% share	Area (Lha)	% share
MTU1121	1.14	7.85	2.16	31.91	3.30	15.50
BPT5204	2.42	16.67	0.71	10.49	3.13	14.70
MTU7029	2.61	17.98	-	-	2.61	12.26
MTU1061	2.35	16.18	-	-	2.35	11.04
MTU1064	1.07	7.37	-	-	1.07	5.03
MTU3626	-	-	0.71	10.49	0.71	3.33
NLR34449	-	-	0.58	8.57	0.58	2.72
Other ANGRAU var.	3.92	27.00	1.49	22.01	4.70	22.08
Total ANGRAU Rice	13.51	93.04	4.94	72.97	18.45	86.66
non-ANGRAU Rice	1.01	6.96	1.83	27.03	2.84	13.34
Total A.P. Rice	14.52	100.00	6.77	100.00	21.29	100.00

Source: Commissionerate of Agriculture, Govt. of AP.

The cost-return structure of paddy in Andhra Pradesh for the year 2023–24 is presented in Table 8. Cultivation of paddy costs Rs. 1,32,139.28 per hectare, among which labor costs have a lion share of 39.41 percent of the total cost. In total, the working capital share is 61.72 percent, and the fixed capital share is 38.28 percent. The cost of production for paddy was Rs. 2,079.79 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. 65,947.10 per hectare and Rs. 15,367.39 per hectare, respectively. The return on rupee investment was 1.12, which concerns tenant farmers, and the return on variable costs was 1.81, which mostly relates to owner farmers.

Table 8. Cost-return structure of Paddy in Andhra Pradesh 2023-24 (Rs. /ha)

S.No.	Particulars	Cost (Rs.)
1	Labour costs (Rs/ha)	52,074.20 (39.41%)
2	Material costs (Rs/ha)	27,987.36 (21.18%)
3	Variable costs (Rs/ha)	81,559.57 (61.72%)
4	Fixed costs (Rs/ha)	50,579.71 (38.28%)
5	Total cost (Rs/ha) Cost C2	1,32,139.28 (100%)
6	Yield (Qtl/ha)	63.54
7	Price (Rs./qtl)	2,260.91
8	Gross returns (Rs/ha)	1,47,506.67
9	Net returns (Rs/ha)	15,367.39
10	Gross Margin (Rs/ha)	65,947.10
11	Return on rupee BCR	1.12
12	Return on VC	1.81
13	COP [C2] (Rs./qtl)	2,079.79

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

The balance sheet in Table 9 shows that the demand for rice was 111.86 million tons in 2023-24, and exports decreased to 11.53 million tons in 2023/24. Total supply also decreased to 132.32 million tons in 2023-24 due to reduced production.

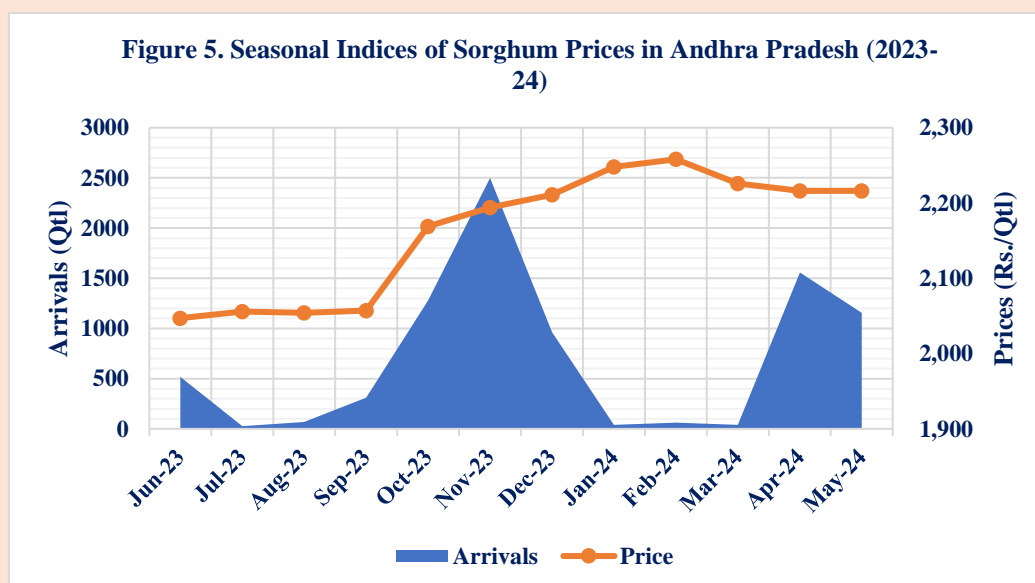
Table 9. Balance sheet of paddy for the year 2022-23 and 2023-24 (in million tonnes)

Particulars	2022-23	2023-24*
Supply		
Opening Stock	27.46	20.93
Production	114.9	111.39
Import	-	-
Total Supply	142.36	132.32
Demand		
Exports	20.43	11.46
Consumption	101	100.4
Total Demand	121.43	111.86
Ending Stock	20.94	20.46
Stock to use ratio	17.24%	18.30%

Source: Agriwatch.com

Paddy Prices and Production Outlook:

Percent deviations from yearly average prices were calculated for paddy for the year 2023–24 using modal prices from the major markets of Andhra Pradesh. The results depict paddy prices picking up from October to December and from April to June, with the highest prices reported in February (104.41%) against the yearly average of Rs. 2,163 per quintal. The market arrivals showed a 111.6% deviation from the annual average; however, prices showed lesser deviations of 3.9%.



From Table 10, it is shown that MSP prices for paddy have varied over the years. The major hike occurred in 2010-11, with a difference from the previous year of Rs. 490 for both common and grade A varieties. Another significant increase appeared during 2015-16, with an increase of Rs. 410 for common rice and Rs. 420 for grade A. Paddy MSP prices increased for 2024-25 by Rs. 117 for both common and grade A varieties, compared to the previous year.

Table 10. Minimum Support Price for the Paddy from 1980-81 to 2024-25.

Year	Common		Grade 'A'	
	MSP	Amount increase over preceding year	MSP	Amount increase over preceding year
1980-81	105	100	-	-
1990-91	205		-	-
2000-01	510	490	540	490
2010-11	1000		1030	
2015-16	1410	-	1450	-
2016-17	1470	60	1510	60
2017-18	1550	80	1590	80
2018-19	1750	200	1770	180
2019-20	1815	65	1835	65
2020-21	1868	53	1888	53
2021-22	1940	72	1960	72
2022-23	2040	100	2060	100
2023-24	2183	143	2203	143
2024-25	2300	117	2320	117

Based on data from the Directorate of Economics and Statistics, Andhra Pradesh (DESAP), the time series analysis shows that the area for paddy cultivation is expected to increase to 14.9 lakh hectares during the kharif season and 7.01 lakh hectares during the rabi seasons of 2024-25. Under normal conditions, the estimated annual production is 130.2 lakh tonnes in Andhra Pradesh.

Under these circumstances, the Agricultural Market Intelligence Centre, ANGRAU, expects the price range of Rs. 2,200-2,350 per quintal for the normal type and Rs. 2,300-2,575 per quintal for the Grade A type of paddy during the Kharif marketing / 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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