



## Rice Cultivation with Special Reference to Odisha

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### ABSTRACT:

Rice is the most important food crop of India. It covering about one-fourth of the total cropped area and providing food to about half of the Indian population. Odisha produces 13.66 million tonnes of food grains, highest production so far for state. Despite being prone to severe weather conditions, Odisha has produced million tonnes of food grains with her scientific interventions and effective extension programmes. Mostly this article provides some ideas about the rate of production of Rice in Odisha.

### Key Words: Production, HYV, Cultivation, Paddy, Programme

Rice is the most important food crop of India. It covering about one-fourth of the total cropped area and providing food to about half of the Indian population. This is the staple food of the people living in the Southern and Eastern part of the country, mostly in the areas having over 150 cm annual rainfall. Rice is life for thousands of millions of people. Mainly 2000 million people obtain 60 to 70 % of their calories from rice and its products in Asia. In 2004 the United Nations General Assembly declared the "International Year of Rice", the theme of the IYR is "Rice is Life".

Rice is a tropical Monsoon crop, its cultivation requires high temperatures to germinate, bloom and matured sufficient rainfall. Mostly 10 degree to 21 degree c during showing period and 35 degree to 37 degree c at the time of harvest. It is still important, under 100 cm rainfall. Cultivation is done on heavy clay or clay-loams. Such soils are capable of holding water and are found in tank beds and deltaic areas. It is also grown on alluvial, red and lateritic soils. A huge supply of cheap labour is essential in preparing seed-beds, in broadcasting seeds or in transplantation of plants from nurseries to fields, in winnowing and harvesting operations.

Rice is shown in India in the three ways by, broadcast, by drill and by transplantation from a seed bed. The ways of broadcast and transplantation method of cultivation is generally followed in Odisha. Rice cultivated on an area of Odisha 4.45 million hectares, which classified into six different ecosystem: Irrigated Kharif 27.4%, Rainfed upland 19.1%, Medium land 12.4%, Shallow low land 22.5%, Semideep 7.9%, deep 3.4% and irrigated Rabi 7.4%. Rice constitutes more than 90% of total food-grain production in the state. According to Directorate of Economics and Statistics, Department of Agriculture and Farmers welfare, the rice was reported the yield rate in 2022 is 2,318.000 kg/ha. In 2021 the yield rate was 2,182.000kg/ha. So the yield rate is increased systematically.

The "Integrated Cereal Development Programme-Rice" is being implemented since 1994-1995, with the objective of increase paddy production and productivity as it is the sole major cereal crop of the state. The major factor to boost agricultural production is to improve the coverage under HYV Paddy. Govt. of Odisha launched many developmental programme for agriculture as:

- **Biju Krushak Kalyan Yojana:** This programme was launched in November 2013 for health insurance scheme for the farmers in Odisha.
- **Odisha Free Smartphone Yojana for Women Farmers:** It is launched in 9<sup>th</sup> April, 2018 and provide smartphones for women farmers to get useful agriculture information.
- **Mukhyamantri Abhinav Krushi Yantrapati Samman Yojana:** May 2018, for rewards innovation of farming tools and implements.
- **Mukhyamantri Krushi Udyog Yojana:** Launched in 17<sup>th</sup> May 2018, provide of loan subsidies to farmers.
- **KALIA Yojana:** Launched in 21<sup>ST</sup> December, 2018, KALIA stands for- "Krushak Assistance for Livelihood and Income Augmentation". This Govt. yojana has been launched by the state Govt. of Odisha for the welfare of farmers in the state.

Government of India also initiated for Rice cultivation by **National Food Security Mission (NFSM)** in 2007-2008. Its aim for restoring soil fertility and productivity: and enhancing farm-level economy. The Mission was continued during 12<sup>th</sup> Five Year Plan with new target of additional production of 25 million tonnes of food grains comprising of 10 million tonnes of rice by the end of 12<sup>th</sup> Plan.

Recently Second Indian Rice Congress 2023 was held at ICAR- National Rice Research Institute, Cuttack, Odisha, topic was Transforming Rice Research: Learning from Recent Scientific Developments and Global Food Crisis.

## YEAR WISE AREA, YIELD RATE &amp; PRODUCTION OF RICE

FROM 1990-91 TO 2018-19 OF STATE ODISHA

*A=Area in '000ha.**Y=Yield in Kg./ha.**P=Production in '000MT*

YEAR	KHARIF			RABI			TOTAL			
	A	Y	P	A	Y	P	A	Y	P(RICE)	P(PADDY)
1990-91	4189	1156	4842	215	2019	433	4404	1198	5275	7992
1991-92	4258	1416	6030	290	2176	630	4548	1464	6660	10091
1992-93	4231	1176	4976	212	1939	412	4443	1213	5388	8164
1993-94	4311	1415	6102	244	2109	515	4555	1453	6617	10026
1994-95	4187	1393	5831	269	1944	522	4456	1426	6353	9626
1995-96	4254	1327	5648	275	2103	578	4529	1375	6226	9433
1996-97	4198	912	3827	269	2267	610	4467	993	4437	6723
1997-98	4261	1350	5751	236	1924	454	4497	1380	6205	9402
1998-99	4179	1169	4885	268	1886	505	4447	1212	5390	8167
1999-00	4220	1013	4275	382	2389	912	4602	1127	5187	7859
2000-01	4227	987	4172	207	2136	442	4434	1041	4614	6991
2001-02	4228	1554	6571	272	2127	578	4500	1589	7149	10832
2002-03	4096	690	2826	178	2352	418	4274	759	3244	4915
2003-04	4248	1459	6199	253	2112	535	4501	1496	6734	10203
2004-05	4199	1401	5884	293	2230	653	4492	1455	6537	9757
2005-06	4154	1504	6249	325	2193	714	4479	1554	6963	10393
2006-07	4136	1498	6196	314	2328	732	4450	1557	6928	10340
2007-08	4118	1658	6826	334	2484	829	4452	1720	7655	11425
2008-09	4124	1477	6092	331	2488	824	4455	1553	6916	10322
2009-10	4100	1535	6293	265	2754	729	4365	1609	7022	10481
2010-11	3933	1539	6051	293	3004	880	4226	1640	6931	10345
2011-12	3769	1360	5127	235	3262	768	4004	1472	5895	8932
2012-13	3749	2302	8629	274	3165	868	4023	2361	9497	14389
2013-14	3880	1697	6585	300	3422	1028	4180	1821	7613	11535
2014-15	3865	2287	8838	301	3342	1007	4166	2363	9845	14916
2015-16	3708	1373	5092	233	3356	783	3941	1491	5875	8902
2016-17	3738	2408	9000	225	3531	794	3963	2472	9794	14840
2017-18	3544	1652	5856	222	3133	695	3766	1739	6551	9926
2018-19	3585	1899	6808	274	3376	926	3859	2004	7734	11718

Source: ODISHA AGRICULTURE STATISTICS 2018-19

Year wise Area, Yield Rate & Production of Rice from 1990-91 to 2018-19 of Odisha was increased systematically. In 1990-1991 the area of Kharif crop 4189ha cultivated, but in 2018-19 the area is 3585ha lowest than 1990-91. But the Yield and rate of Production of Rice in 1990-91 was 1156 kg/ha and 4842 MT, this rate was being increased smoothly in 2018-19 as the Yield rate of Kharif crop was 1899 kg/ha and the rate of production is 6808MT. In 1990-91 the area of Rabi crop was 215ha cultivated, but 2018-19 the area is improving as 274ha. But the yield and rate of production of Rice in 1990-91 was 2019 kg/ha and 433 MT, in 2018-19 the rate of yield is 3376kg/ha and production rate is 926 MT. So here the above table and graph is providing knowledge that the yield rate and rate of production of rice in both the Kharif and Rabi season was being developed subsequently.

The total area of Paddy in 1990-91 was 4404 ha, yield rate 1198kg/ha, Production rate of Paddy 7992MT. But in 2018-2019 the total area of Paddy developed 3859ha lowering down than 1990-91. The total yield rate of paddy is 2004kg/ha and the total production rate of Paddy is 11718MT in 2018-19. Here the above table showing some ideas that the total rate of Paddy cultivation is being developed consequently.

## District-wise Estimates of Area, Production and Yield Rate of HYV Paddy 2018-2019

*A=Area in '000ha. Y=Yield in Kg./ha. P=Production in '000MTs.*

SL. NO.	DISTRICT	TOTAL KHARIF PADDY														
		AREA			YIELD RATE						PRODUCTION					
					PADDY			RICE			PADDY			RICE		
		Hyv	Local	Total	Hyv	Local	Total	Hyv	Local	Total	Hyv	Local	Total	Hyv	Local	Total
1	ANGUL	64.31	3.87	68.18	4166	1922	4038	2750	1266	2665	267.92	7.44	275.36	176.83	4.90	181.73
2	BALASORE	169	13.82	182.82	3919	1656	3748	2586	1093	2473	662.25	22.89	685.14	437.09	15.10	452.19
3	BARGARH	233.03	2	235.03	2262	1365	2254	1493	900	1488	527.09	2.73	529.82	347.88	1.80	349.68
4	BHADRAK	143.86	5.54	149.4	2801	1280	2744	1848	845	1811	402.88	7.09	409.97	265.9	4.68	270.58
5	BOLANGIR	150.34	2.35	152.69	2152	1315	2139	1420	868	1412	323.47	3.09	326.56	213.49	2.04	215.53
6	BOUDH	60.69	1.86	62.55	4351	1156	4256	2872	769	2809	264.08	2.15	266.23	174.29	1.43	175.72
7	CUTTACK	94.13	2.93	97.06	4135	2212	4077	2729	1461	2691	389.2	6.48	395.68	256.87	4.28	261.15
8	DEOGARH	55.37	0.2	55.57	2588	1600	2584	1708	1050	1706	143.28	0.32	143.6	94.56	0.21	94.77
9	DHENKANAL	84.9	4.01	88.91	4860	2556	4756	3208	1686	3139	412.64	10.25	422.89	272.35	6.76	279.11
10	GAJAPATI	40.21	0.25	40.46	1763	3320	1772	1163	2200	1170	70.88	0.83	71.71	46.78	0.55	47.33
11	GANJAM	247.98	1.28	249.26	2668		2654	1761		1752	661.56		661.56	436.63	0.00	436.63
12	JAGATSINGHPUR	77.55	1.85	79.4	3349	719	3287	2210	476	2170	259.69	1.33	261.02	171.4	0.88	172.28
13	JAJPUR	109.16	7.28	116.44	2724	1496	2647	1798	989	1747	297.36	10.89	308.25	196.25	7.20	203.45
14	JHARSUGUDA	40.39	0.39	40.78	475	77	471	314	51	311	19.19	0.03	19.22	12.67	0.02	12.69
15	KALAHANDI	171.34	1	172.34	3058	1960	3052	2019	1290	2014	524.02	1.96	525.98	345.85	1.29	347.14
16	KANDHAMAL	32.76	5.36	38.12	3146	1882	2969	2077	1243	1960	103.07	10.09	113.16	68.03	6.66	74.69
17	KENDRAPARA	107.62	17.15	124.77	2360	1106	2188	1557	731	1444	253.97	18.97	272.94	167.61	12.53	180.14
18	KEONJHAR	153.1	7.02	160.12	3532	1929	3462	2331	1272	2285	540.71	13.54	554.25	356.88	8.93	365.81
19	KHORDHA	83.52	4.39	87.91	3381	1788	3301	2231	1180	2179	282.36	7.85	290.22	186.36	5.18	191.54
20	KORAPUT	99.05	5.16	104.21	3948	2012	3852	2606	1328	2542	391.07	10.38	401.45	258.11	6.85	264.96
21	MALKANGIRI	88.59	3.76	92.35	2905	1721	2857	1917	1136	1886	257.36	6.47	263.83	169.86	4.27	174.13
22	MAYURBHANJ	311.98	20.29	332.27	3083	2595	3054	2035	1713	2015	961.93	52.66	1014.59	634.87	34.75	669.62
23	NABARANGPUR	123.19	5.21	128.4	1778	3298	1839	1173	2179	1214	218.99	17.18	236.17	144.53	11.35	155.88
24	NAYAGARH	79.48	8	87.48	3829	1643	3629	2527	1084	2395	304.35	13.14	317.49	200.87	8.67	209.54
25	NUAPADA	86.51	2.43	88.94	2259	1292	2232	1491	852	1473	195.39	3.14	198.53	128.96	2.07	131.03
26	PURI	66.06	22.92	88.98	3939	999	3182	2600	659	2100	260.23	22.9	283.13	171.75	15.11	186.86
27	RAYAGADA	45.52	1.65	47.17	3878	2152	3817	2559	1424	2520	176.52	3.55	180.07	116.5	2.35	118.85
28	SAMBALPUR	124.14	0.09	124.23	1175	556	1174	775	333	775	145.82	0.05	145.87	96.24	0.03	96.27
29	SUBARNAPUR	104.97	0.36	105.33	3917		3903	2585		2576	411.13		411.13	271.34		271.34
30	SUNDARGARH	158.99	25.03	184.02	1710	2286	1789	1129	1509	1181	271.95	57.23	329.18	179.48	37.78	217.26
	TOTAL	3407.74	177.45	3585.19	2935	1773	2877	1937	1170	1899	10000.36	314.63	10315.00	6600.23	207.67	6807.90

A=Area in '000ha. Y=Yield in Kg./ha. P=Production in '000MTs.

SL. NO.	DISTRICT	SUMMER PADDY														
		AREA			YIELD RATE						PRODUCTION					
		Hyv	Local	Total	PADDY			RICE			PADDY			RICE		
			Hyv	Local	Total	Hyv	Local	Total	Hyv	Local	Total	Hyv	Local	Total		
1	ANGUL	0.23		0.23	4519		4519	2982		2982	1.06		1.06	0.70		0.70
2	BALASORE	38.79		38.79	5291		5291	3492		3492	205.23		205.23	135.45		135.45
3	BARGARH	69.78		69.78	5421		5421	3578		3578	378.30		378.30	249.68		249.68
4	BHADRAK	1.71		1.71	3249		3249	2145		2145	5.54		5.54	3.66		3.66
5	BOLANGIR	0.39		0.39	3848		3848	2539		2539	1.49		1.49	0.99		0.99
6	BOUDH	1.55		1.55	4719		4719	3114		3114	7.31		7.31	4.82		4.82
7	CUTTACK	0.78		0.78	4241		4241	2799		2799	3.33		3.33	2.19		2.19
8	DEOGARH															
9	DHENKANAL	1.03		1.03	3343		3343	2206		2206	3.45		3.45	2.28		2.28
10	GAJAPATI	0.41		0.41	2568		2568	1695		1695	1.05		1.05	0.69		0.69
11	GANJAM	0.03		0.03	2532		2532	1671		1671	0.07		0.07	0.05		0.05
12	JAGATSINGHPUR	0.29		0.29	2134		2134	1409		1409	0.62		0.62	0.41		0.41
13	JAIPUR	0.45		0.45	1995		1995	1317		1317	0.90		0.90	0.60		0.60
14	JHARSUGUDA	0.68		0.68	4861		4861	3208		3208	3.33		3.33	2.20		2.20
15	KALAHANDI	39.42		39.42	4363		4363	2879		2879	171.97		171.97	113.50		113.50
16	KANDHAMAL	0.10		0.10	3190		3190	2105		2105	0.33		0.33	0.22		0.22
17	KENDRAPARA	0.07		0.07	3938		3938	2599		2599	0.27		0.27	0.18		0.18
18	KEONJHAR	0.57		0.57	4068		4068	2685		2685	2.32		2.32	1.53		1.53
19	KHORDHA	0.25		0.25	1419		1419	937		937	0.35		0.35	0.23		0.23
20	KORAPUT	28.09		28.09	4470		4470	2950		2950	125.59		125.59	82.89		82.89
21	MALKANGIRI	0.41		0.41	3171		3171	2093		2093	1.29		1.29	0.85		0.85
22	MAYURBHANJ	4.45		4.45	3730		3730	2462		2462	16.62		16.62	10.97		10.97
23	NABARANGPUR	0.59		0.59	2781		2781	1836		1836	1.64		1.64	1.08		1.08
24	NAYAGARH															
25	NUAPADA	3.06		3.06	4092		4092	2701		2701	12.52		12.52	8.26		8.26
26	PURI	31.17		31.17	4310		4310	2845		2845	134.34		134.34	88.66		88.66
27	RAYAGADA	3.10		3.10	4584		4584	3026		3026	14.20		14.20	9.37		9.37
28	SAMBALPUR	11.11		11.11	6791		6791	4482		4482	75.46		75.46	49.81		49.81
29	SUBARNAPUR	35.48		35.48	6577		6577	4341		4341	233.35		233.35	154.01		154.01
30	SUNDARGARH	0.24		0.24	3340		3340	2204		2204	0.81		0.81	0.53		0.53
	TOTAL	274.23		274.23	5115		5115	3376		3376	1402.74		1402.74	925.81		925.81

Source: ODISHA AGRICULTURE STATISTICS 2018-19

In district-wise estimation of area in hectares, Mayurbhanj district is in the first position in Kharif paddy cultivation with 331.98 ha under HYV Paddy cultivation the production of Kharif Paddy cultivation is 961.93 ha. But the lower most Kharif paddy cultivation district is Gajapati 40.21ha and the production of HYV Kharif paddy is 70.88ha.

And the district-wise estimation of area in hectares, Baragarh district is in the first position in Summer paddy cultivation with 69.78 ha under HYV Paddy cultivation the production of Summer Paddy cultivation is 378.30 ha. But the lower most Summer paddy cultivation district is Ganjam 0.03ha and the production of HYV Kharif paddy is 0.07ha.

## Conclusion:

Rice cultivation is a major part of Indian agriculture with over half of the states cultivating the crop. A huge portion of the agricultural community is dependent on it for their livelihood and larger portion of the population is dependent on it for basic food. The organic rice value chain is most important impact factor is farmer. System of Rice Intensification (SRI) principles match the current trends in the advance of rice cultivation technology. Rice management technology that matches new varieties or hybrids is needed to further increase yield. So in this way the basic organic rice production is needed for human development systematically.

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