

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 9; September 2024; Page No. 628-631

Received: 19-06-2024
Accepted: 25-07-2024

Indexed Journal
Peer Reviewed Journal

Area under different rice varieties in Chhattisgarh state

¹Saurabh Dubey, ²MA Khan, ³ML Sharma, ⁴Hem Prakash Verma and ⁵Akanksha Minj

¹M.Sc. Scholar, Department of Agricultural Extension, CoA, IGKV, Raipur, Chhattisgarh, India

²Professor & Head, Department of Agricultural Extension, CoA, IGKV, Raipur, Chhattisgarh, India

³Professor, Department of Agricultural Extension, CoA, IGKV, Raipur, Chhattisgarh, India

⁴Ph.D. Research Scholar, Department of Agricultural Extension, CoA, IGKV, Raipur, Chhattisgarh, India

⁵Department of Agricultural Extension, CoA, IGKV, Raipur, Chhattisgarh, India

DOI: <https://doi.org/10.33545/26180723.2024.v7.i9i.1113>

Corresponding Author: Saurabh Dubey

Abstract

A total of 3,799 posts Rural Agriculture Extension Officer (RAEO) are sanctioned in Chhattisgarh state, out of which 2,902 filled and 897 are vacant. Census method was applied to collect the primary data for which structured interview schedule as Google form was communicated to all the working RAEOs using e-mail, message, WhatsApp etc. Repeated contact was made to the RAEOs, to fill the schedule but till the stipulated time 538 RAEOs were filled the same. The majority of respondents in the Rural Agriculture Extension Officer (RAEO) circle cultivate rice on a total cropped area of 1000-1250 hectares, followed by 1250-1500 hectares, 750-1000 hectares, and more than 2000 hectares. Rice cultivation is highest in the Up to 100 hectares category, followed by 400-500 hectares, 300-400 hectares, and more than 600 hectares. Broadcasted rice is the most common type, followed by broadcasted rice, aromatic rice, hybrid rice, irrigated rice, rainfed rice, and bio-fortified rice.

Keywords: Rural agriculture extension officer, broadcasted, aromatic hybrid and bio-fortified rice

Introduction

Rice (*Oryza sativa* L.) stands as the paramount staple food in Asia, with over 90 percent of global rice production and consumption occurring in this continent, home to 60 percent of the world's population. It plays a pivotal role in dietary intake, constituting 73 percent in Bangladesh, 40 percent in Nepal, and 30 percent in India. South Asia accounts for approximately 37 percent of the world's total rice area, and half of the rice-growing area in the region is rainfed. India, with a history of releasing rice varieties predating 1978, currently boasts a total of 1481 released rice varieties. However, only a select few gain popularities among farmers, often due to distinctive characteristics that resonate with agricultural practices and preferences.

Chhattisgarh, the 26th state of the Indian Union, was established on November 1, 2000. Spanning approximately 136 lakh hectares, with cultivable land covering 58.81 lakh hectares and forest land comprising 60.76 lakh hectares; it boasts a population exceeding 2.07 crores. Agriculture plays a pivotal role; engaging about 80 percent of the state's populace and 43 percent of the arable land is under cultivation. Paddy stands as the principal crop, earning the central plains the designation of the rice bowl of central India. Other significant crops include coarse grains, wheat, maize, groundnut, pulses, and oilseeds. Indira Gandhi Krishi Vishwavidyalaya, headquartered in Raipur, serves as an autonomous non-profit research and educational

organization dedicated to improving the livelihoods of farmers in Chhattisgarh. Noteworthy rice varieties developed by IGKV, Raipur, include Mahamaya, Poornima, Shyamla, Danteshwari, Indira Sugandhit Dhan-1, Bamleshwari, Samleshwari, Jaldubi, Chandrasini, Indira sona, Indira barani dhan-1, Karma mahsuri, Maheshwari, Durgeshwari, Rajeshwari, and Indira aerobic-1 (Sarawagi *et al.*, 2016) ^[7].

In Chhattisgarh, Agricultural Extension Services were established with the intent of providing practical and relevant information to rural clients, aiding them in addressing agricultural challenges. Agricultural extension officers play a pivotal role in disseminating information on natural resources, livestock, crops, optimal land utilization, irrigation schemes, water management, disease prevention, and cost-effective farming practices. The focus of agricultural extension officers is not merely on improving the farm but on enhancing the knowledge and skills of farmers. The overarching goal is to facilitate learning among those engaged in agriculture and livestock management. Typically considered public goods, extension services are often funded by the public sector in various countries.

Materials and Methods

In Chhattisgarh, there are currently 3799 posts of Rural Agriculture Extension Officers, with 2902 being active working posts and 897 remaining vacant. Approximately

2448RAEOs are presently engaged in fieldwork among the 2902 working posts, from which data were collected (Source: Anonymous, 2022, Directorate of Agriculture, Raipur). The census method was applied for collecting primary data from all the RAEO'S working in 33 districts under study. The data were collected by using structured interview schedule through Google forms for which the link for the data collection will be provided through different online modes like WhatsApp, email, messages as per the availability to the RAEO'S and their controlling officers for better turn up. The RAEO'S were insisted to provide the required data from their respective RAEO circle. And collected data were tabulated and processed by using appropriate statistical tools.

Results and Discussion

Area under different rice varieties

1. Area under rice crop

Table 1: Distribution of the respondents according to their supervising area under rice crop (n=538)

Sl. No.	Area under rice crop (ha.)	Frequency	Percentage
1.	Up to 600	6	1.12
2.	600-750	6	1.12
3.	750-1000	96	17.84
4.	1000-1250	223	41.45
5.	1250-1500	134	24.91
6.	1500-1750	28	5.20
7.	1750-2000	14	2.60
8.	More than 2000	31	5.76
Total area covered under rice (ha)		704402	
Rice area to total crop area (%)		93.5	
Average area under rice (ha/RAEO)		1309.30	

The majority of respondents, 41.45%, cultivate rice on 1000-1250 hectares. Following closely, 24.91% manage 1250-1500 hectares. Subsequently, 17.84% cultivate rice on 750-1000 hectares. Lower percentages are observed in more than 2000 hectares (5.76%) and 1500-1750 hectares (5.20%) categories. The smallest proportions are found in 1750-2000 hectares, Up to 600 hectares, and 600-750 hectares categories, each making up only 2.60%, 1.12%, and 1.12% of the total, respectively.

2. Area under Transplanted rice

Table 2: Distribution of the respondents according to their job area under transplanted rice (n=538)

Sl. No.	Area under transplanted rice (ha.)	Frequency	Percentage
1.	Up to 100	182	33.83
2.	100-200	38	7.06
3.	200-300	26	4.83
4.	300-400	91	16.91
5.	400-500	103	19.14
6.	500-600	60	11.15
7.	More than 600	38	7.06
Total area under transplanted rice (ha)		168879.01	
Transplanted rice area to total rice area (%)		23.9	
Average transplanted rice area covered (ha/RAEO)		313.90	

The distribution of respondents based on the area under

transplanted rice shows that the highest percentage, at 33.83%, falls within the Up to 100 hectares category. Following closely, the 400-500 hectares category represents a significant portion at 19.14%. Subsequently, the 300-400 hectares category constitutes 16.91% of the respondents. Lower percentages are observed in the 500-600 hectares (11.15%) and more than 600 hectares (7.06%) categories. The smallest proportions are found in the 100-200 hectares and 200-300 hectares categories, each making up only 7.06% and 4.83% of the total, respectively.

3. Area under Broadcasted rice

Table 3: Distribution of the respondents according to their job area under broadcasted rice (n=538)

Sl. No.	Area under broadcasted rice (ha.)	Frequency	Percentage
1.	Up to 500	30	5.58
2.	500-1000	349	64.87
3.	1000-1500	130	24.16
4.	1500-2000	12	2.23
5.	2000-2500	6	1.12
6.	2500-3000	4	0.74
7.	3000-3500	2	0.37
8.	3500-4000	2	0.37
9.	More than 4000	3	0.56
Total Area under broadcasted rice (ha)		522442	
Broadcasted rice area to total rice area (%)		74.2	
Average broadcasted rice area covered (ha/RAEO)		971.08	

The highest percentage is observed in the 500-1000 hectares category, comprising a significant majority at 64.87% of the respondents. Following this, the 1000-1500 hectares category represents a substantial portion at 24.16%. Subsequently, the Up to 500 hectares category constitutes 5.58%, while 1500-2000 hectares, More than 4000 hectares, and 2000-2500 hectares each stand at relatively lower percentages of 2.23%, 0.56%, and 1.12%, respectively. The smallest proportions are found in the 2500-3000 hectares, 3000-3500 hectares, and 3500-4000 hectares categories, each making up only 0.74%, 0.37%, and 0.37% of the total, respectively.

4. Area under Aromatic rice varieties

Table 4: Distribution of the respondents according to area under aromatic rice varieties. (n=538)

Sl. No.	Area under aromatic rice varieties (ha.)	Frequency	Percentage
1.	No area	115	21.38
2.	Up to 1	44	8.18
3.	1-5	102	18.96
4.	5-10	58	10.78
5.	10-15	117	21.75
6.	15-20	38	7.06
7.	20-25	37	6.88
8.	25-30	6	1.12
9.	More than 30	21	3.90
Total area under aromatic rice (ha)		6937	
Aromatic rice area to total rice area (%)		0.98	
Average aromatic rice area covered (ha/RAEO)		12.89	

The majority of respondents, at 21.75%, cultivate aromatic rice varieties on 10-15 hectares. Following closely, 18.96% manage 1-5 hectares. Subsequently, 21.38% report having no area under aromatic rice cultivation. Lower percentages are observed in 5-10 hectares (10.78%) and Up to 1 hectare (8.18%) categories. Smaller proportions are found in 20-25 hectares, 15-20 hectares, and More than 30 hectares categories, each making up only 6.88%, 7.06%, and 3.90% of the total, respectively. The smallest proportion, at 1.12%, is found in the 25-30 hectares category. It was also noted that about 1% of the total rice area is under aromatic rice varieties in the study area.

5. Area under hybrid Rice varieties

Table 5: Distribution of the respondents according to their supervising area under hybrid Rice varieties. (n=538)

Sl. No.	Area under hybrid rice varieties (ha.)	Frequency	Percentage
1.	No area	104	19.33
2.	Up to 100	291	54.09
3.	100-200	113	21.00
4.	200-300	20	3.72
5.	300-400	6	1.12
6.	400-500	3	0.55
7.	More than 500	1	0.19
Total area under hybrid rice varieties (ha)		35808	
Hybrid rice varietal area to total rice area (%)		5.1	
Average hybrid rice area covered (ha/RAEO)		68.86	

The majority of respondents, at 54.09%, cultivate hybrid rice varieties on up to 100 hectares. Following closely, 21.00% manage 100-200 hectares. Subsequently, 19.33% report having no area under hybrid rice cultivation. Lower percentages are observed in 200-300 hectares (3.72%), 300-400 hectares (1.12%), 401-500 hectares (0.55%), and More than 500 hectares (0.19%) categories.

6. Area under bio-fortified rice varieties

Table 6: Distribution of the respondents according to their supervising area under bio-fortified rice varieties (n=538)

Sl. No.	Area under Bio-fortified rice (ha.)	Frequency	Percentage
1.	No area	275	51.12
2.	Up to 5	151	28.07
3.	5-10	66	12.27
4.	10-15	10	1.86
5.	15-20	9	1.67
6.	20-25	7	1.30
7.	25-30	2	0.37
8.	More than 30	18	3.35
Total under Bio-fortified rice varieties (ha.)		2396.8	
Bio-fortified rice area to total rice area (%)		0.34	
Average Bio-fortified rice varietal area covered (ha/RAEO)		4.45	

The highest percentage is observed in the No area category, comprising 51.12% of the respondents. Following this, the Up to 5 hectares category represents a significant portion at 28.07%. Subsequently, the 5-10 hectares category constitutes 12.27%, while more than 30 hectares, 10-15 hectares, 15-20 hectares, 20-25 hectares, and 25-30 hectares each stand at relatively lower percentages of 3.35%, 1.86%, 1.67%, 1.30%, and 0.37% respectively.

7. Area under summer rice

Table 7: Distribution of the respondents according to their supervising area under summer rice. (n=538)

Sl. No.	Area under summer rice (ha.)	Frequency	Percentage
1.	No area	21	3.90
2.	Up to 100	329	61.15
3.	100-200	122	22.68
4.	200-300	23	4.28
5.	300-400	15	2.79
6.	400-500	12	2.23
7.	More than 500	16	2.97
Total Area under summer rice (ha.)		57380	
Summer rice area to total rice area (%)		(8.1%)	
Average summer rice area covered (ha/RAEO)		109.08	

The majority of respondents, at 61.15%, cultivate summer rice on up to 100 hectares. Following closely, 22.68% manage 100-200 hectares. Subsequently, 3.90% report having no area under summer rice cultivation. Lower percentages are observed in more than 500 hectares (2.97%), 200-300 hectares (4.28%), 300-400 hectares (2.79%), and 400-500 hectares (2.23%) categories.

8. Area under Irrigated rice

Table 8: Distribution of the respondents according to their supervising area under Irrigated rice. (n=538)

Sl. No.	Area under irrigated rice (ha.)	Frequency	Percentage
1.	Up to 250	17	3.16
2.	250-500	34	6.32
3.	500-750	39	7.25
4.	750-1000	146	27.14
5.	1000-1250	180	33.46
6.	1250-1500	76	14.13
7.	More than 1500	46	8.55
Total Area under irrigated rice (ha.)		291484	
Irrigated rice area to total rice area (%)		41.4	
Average irrigated rice area covered (ha/RAEO)		541.80	

The majority of respondents, at 33.46%, cultivate irrigated rice on 1000-1250 hectares. Following closely, 27.14% manage 750-1000 hectares. Subsequently, 14.13% cultivate 1250-1500 hectares. Lower percentages are observed in 500-750 hectares (7.25%) and more than 1500 hectares (8.55%) categories. The smallest proportions are found in 250-500 hectares (6.32%) and Up to 250 hectares (3.16%) categories.

8. Area under Rain fed rice

Table: 9: Distribution of the respondents according to their supervising area under Rain fed rice (n=538)

Sl. No.	Area under rain fed rice (ha.)	Frequency	Percentage
1.	No area	7	1.3
2.	Up to 250	12	2.2
3.	250-500	395	73.4
4.	500-750	69	12.8
5.	750-1000	19	3.5
6.	1000-1250	11	2.04
7.	1250-1500	6	1.4
8.	1500-1750	4	0.7
9.	1750-2000	15	1.1
10.	More than 2000	7	1.3
Total Area under Rain fed rice (ha.)		412917	
Rain fed rice area to total rice area (%)		58.6	
Average rain fed rice area covered (ha/RAEO)		773.96	

The majority of respondents, at 60.78%, cultivate rain fed rice on up to 250 hectares. Following this 14.68% report having no area under rain fed rice cultivation. Subsequently, 7.81% cultivate 250-500 hectares. Lower percentages are observed in 500-750 hectares (6.13%) and 750-1000 hectares (6.32%) categories. Smaller proportions are found in more than 2000 hectares, 1000-1250 hectares, 1500-1750 hectares, 1250-1500 hectares, and 1750-2000 hectares categories, each making up only 2.23%, 0.74%, 0.56%, 0.37%, and 0.37% of the total, respectively.

Conclusion

The data reveals that the majority of respondents engage in rice cultivation across various hectare categories, with significant concentrations in the 1000-1250 hectares and up to 100 hectares ranges for different rice varieties. This indicates a diverse approach to rice farming, with varying scales of operation among the respondents.

References

1. Abegunde V, Sibanda M, Obi A. Determinants of the adoption of climate-smart agricultural practices by small-scale farming households in King Cetshwayo District Municipality, South Africa. *Sustainability*. 2019;12(1):195.
2. Agwu AE, Uche-Mba UC, Akinnagbe OM. Use of information communication technologies (ICTs) among researchers, extension workers, and farmers in Abia and Enugu States: implications for a national agricultural extension policy on ICTs. *J Agric Ext*. 2008;12(1):37-49.
3. Bhagat U, Banafar KNS. An economic analysis of aromatic rice in Balrampur district of Chhattisgarh. *Indian J Econ Dev*. 2017;13:2322-0430.
4. Chodvadiya MB, Singh S, Choudhary H. Adoption of remunerative farmers' developed varieties of rice: case studies from Odisha and Chhattisgarh states of India. *Agric Sci Digest*. 2018;38(3):0976-0547.
5. Marothia DK, Singh RK, Chandrakar MR, Jain BC. Economics and marketing of aromatic rice — a case study of Chhattisgarh. *Agric Econ Res Rev*. 2007;20:29-46.
6. Rajnandini V, Sidar RS, Verma ON, Chandrakar CK.

Performance of rice (*Oryza sativa*) varieties in Kabirdham district of Chhattisgarh. *The Pharma Innovation J*. 2022;11(10):1160-1162.

7. Sarawagi AK, Bhandarkar S, Sharma D, Sharma B, Chandel G, Nair SK. Evolved improved rice varieties by Genetics and Plant Breeding Department and its characteristics. *Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.)*; c2016.
8. Singh SK. Economics of hybrid rice cultivation in Northern Hill Zone of Chhattisgarh. *Economic Affairs*. 2019;64:0976-4666.