

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 3; March 2024; Page No. 206-209

Received: 09-01-2024
Accepted: 19-02-2024

Indexed Journal
Peer Reviewed Journal

An analysis of cropping pattern of rice producers in Satna District of Madhya Pradesh in India

¹Shampi Jain, ²DP Rai, ³Dronak Kumar Sahu and ⁴VS Parihar

¹Ph.D., Department of Agricultural Economics, MGCGV, Chitrakoot, Satna, Madhya Pradesh, India

²Professor and Dean, Faculty of Agriculture, MGCGV, Chitrakoot, Satna, Madhya Pradesh, India

³Guest Teacher, CARS, Kurud, (IGKV) Raipur, Chhattisgarh, India

⁴Professor and Head, Department of Management, MGCGV, Chitrakoot, Satna, Madhya Pradesh, India

DOI: <https://doi.org/10.33545/26180723.2024.v7.i3c.457>

Corresponding Author: Shampi Jain

Abstract

The study conducted "An Analysis of Cropping Pattern of Rice Producers in Satna District of Madhya Pradesh in India". The field level primary data were collected from randomly selected 240 rice growers of 9 villages of Satna district for the agricultural year 2021-22. The results from the study might be drawn from the following conclusions. The overall farm size of sample farms was 1.80 hectares with 0.68, 1.50, 2.71 and 6.99 hectares for marginal, small, medium and large farms, respectively. The area under total cultivated land was observed 1.80 hectares and 100.00 percent. The area under irrigation was observed 98.15 percent and remaining area (1.85 percent) was observed un-irrigated in the district. The cropping intensity of sample households was 142.65 percent, 150.00 percent, 164.94 percent, 168.81 percent and 153.35 percent of marginal, small, medium, large and overall farmers, respectively in study area.

Keywords: Cropping intensity, producers, random sampling technique

1. Introduction

Rice (*Oryza sativa* L.) is the most important staple food grain in world it an important part of the national economy. India is one of the world's largest producers of white rice and brown rice, accounting for 20% of all world rice production. Rice (paddy) (*Oryza sativa*) also known as "Global Grain" is one of the most ancient crops being cultivated in 117 countries. It is one of the most important staple foods of the majority of World's population (60 percent), occupying first place among cultivated cereals. It is being grown under different agro-climatic conditions. India has the largest area (44 million hectares) under rice crop and ranks second place in production (132 million tonnes) next to China (Fertilizer Statistic - 2004- 05, New Delhi).

2. Methodology

Sampling technique of Satna district of Madhya Pradesh was purposively chosen as the study area because, it has the larger area under rice cultivation in the district. A multistage simple random sampling technique (SRS) was adopted to select the villages and the respondents, different farmer involved in rice production in Satna district. The details of the sampling techniques at various stages are given as under:

3. Period of study

The collected data (primary and secondary) pertains to the

agriculture year 2020-21 for Kharif season.

3.1 Operated area at sample farms

The operated area is estimated by owned area plus leased in and subtracted the leased-out area of sample farms and the same is presented in table 1. It reveals that the overall farm size of sample farms was 1.80 hectares with 0.68, 1.50, 2.71 and 6.99 hectares for marginal, small, medium and large farms, respectively. The area under total cultivated land was observed 1.80 hectares and 100.00 percent. The area under irrigation was observed 98.15 percent and remaining area (1.85 percent) was observed un-irrigated in the district (Table 1 and Fig.1).

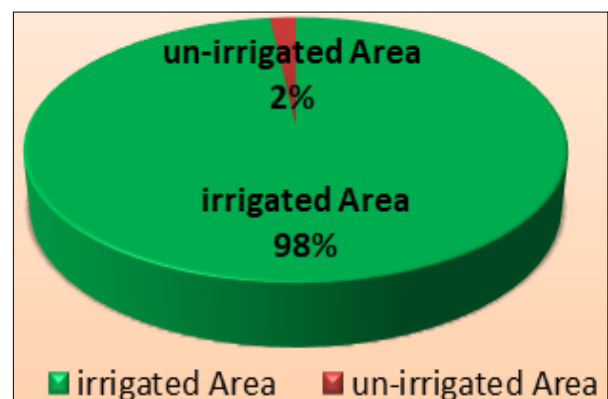


Fig 1: Overall irrigated and un-irrigated area of sample household

Table 1: Land use pattern of sample farmers

Sl. No	Particular	Marginal (105)	Small (85)	Medium (30)	Large (20)	Overall (240)
1.	Total owned land	0.68	1.50	2.71	6.99	1.80
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
2.	Total cultivated Land	0.68	1.50	2.71	6.99	1.80
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
3.	Total irrigated Area	0.67	1.47	2.67	6.79	1.77
		(98.53)	(98.00)	(98.52)	(97.14)	(98.15)
4.	Total un irrigated Area	0.01	0.03	0.04	0.20	0.03
		(1.47)	(2.00)	(1.48)	(2.86)	(1.85)

Note: Figures indicate proportion of sum in parentheses

3.2 Source wise irrigation

Source wise irrigated area is presented in table 2 and fig. 2, it revealed that overall irrigated area was 1.77 ha per farm. The major source of irrigation in study area was tube well

51.73 percent followed by cannel 20.94 percent, tank 10.92 percent, well 10.76 percent and pond 5.65 percent, respectively.

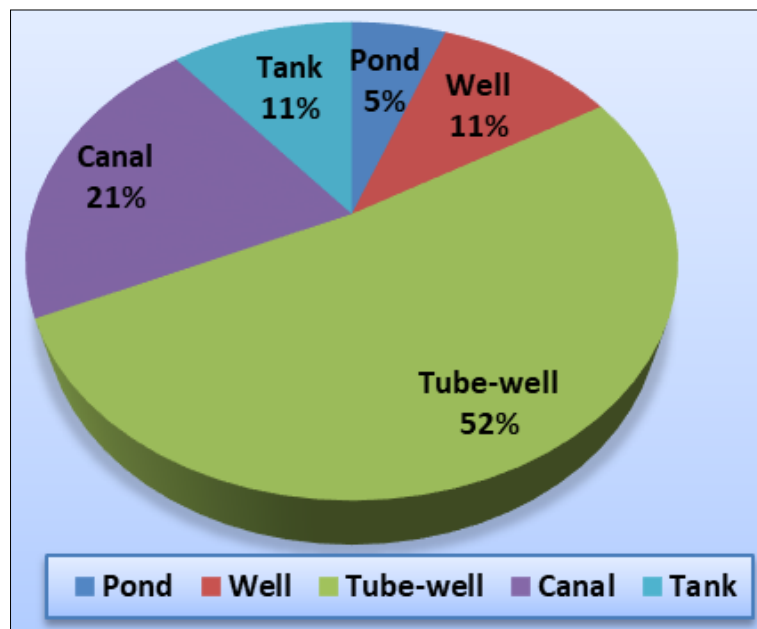


Fig 2: Overall different sources of irrigation of sample households

Table 2: Irrigated area by different sources (ha/farm)

Sl. No	Particular	Marginal (105)	Small (85)	Medium (30)	Large (20)	Overall (240)
	Irrigated area	0.67	1.47	2.67	6.79	1.77
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
1.	Pond	0.04	0.10	0.12	0.45	0.10
		(5.97)	(6.80)	(4.49)	(6.63)	(5.65)
2.	Well	0.07	0.26	0.12	1.12	0.19
		(10.45)	(17.69)	(4.49)	(16.49)	(10.76)
3.	Tube-well	0.29	0.68	1.51	3.69	0.91
		(43.28)	(46.26)	(56.55)	(54.34)	(51.73)
4.	Canal	0.15	0.23	0.67	1.17	0.37
		(22.39)	(15.65)	(25.09)	(17.23)	(20.94)
5.	Tank	0.12	0.20	0.25	0.36	0.19
		(17.91)	(13.61)	(9.36)	(5.30)	(10.92)

Note: Figures indicate proportion of sum in parentheses

4. Cropping Pattern

Table 3 shows the crop distribution in the households being sampled. It can be found that the highest field (63.33 percent) in Kharif paddy was taken by paddy (53.66 percent), vegetables (3.85 percent), soybean (2.34 percent) and pigeon pea (1.99percent) on overall average per farmer.

In Rabi season wheat (16.11 percent), gram (11.84 percent), and vegetable (4.55 percent) were the major crops. The cropping intensity of sample households was 142.65 percent, 150.00 percent, 164.94 percent, 168.81 percent and 153.35 percent of marginal, small, medium, large and overall farmers, respectively in study area.

Table 3: Cropping pattern and cropping intensity of sampled households (in ha.)

Sl. No.	Crops	Marginal (105)	Small (85)	Medium (30)	Large (20)	Overall (240)
A. Kharif						
1.	Paddy	0.59 (60.82)	1.29 (57.33)	2.51 (56.15)	5.45 (46.19)	1.48 (53.66)
2.	Soybean	0.05 (5.15)	0.05 (2.22)	0.10 (2.24)	0.15 (1.27)	0.06 (2.34)
3.	Pigeon pea	0.02 (2.06)	0.06 (2.67)	0.06 (1.34)	0.21 (1.78)	0.06 (1.99)
4.	Vegetables	0.01 (1.03)	0.04 (1.78)	0.03 (0.67)	1.01 (8.56)	0.11 (3.85)
5.	Others	0.01 (1.03)	0.06 (2.67)	0.01 (0.22)	0.17 (1.44)	0.04 (1.49)
	Sub total	0.68 (70.10)	1.50 (66.67)	2.71 (60.63)	6.99 (59.24)	1.75 (63.33)
B. Rabi						
1.	Wheat	0.08 (8.25)	0.35 (15.56)	1.05 (23.49)	1.86 (15.76)	0.45 (16.11)
2.	Gram	0.10 (10.31)	0.25 (11.11)	0.46 (10.29)	1.65 (13.98)	0.33 (11.84)
3.	Vegetables	0.05 (5.15)	0.07 (3.11)	0.20 (4.47)	0.65 (5.51)	0.13 (4.55)
	Sub total	0.23 (23.71)	0.67 (29.78)	1.71 (38.26)	4.16 (35.25)	0.90 (32.51)
C. Summer						
1.	Vegetables	0.01 (1.03)	0.01 (0.44)	0.03 (0.67)	0.20 (1.69)	0.03 (1.03)
2.	Others	0.05 (5.15)	0.07 (3.11)	0.02 (0.45)	0.45 (3.81)	0.09 (3.14)
	Sub total	0.06 (6.19)	0.08 (3.56)	0.05 (1.12)	0.65 (5.51)	0.12 (4.16)
	Gross cropped area	0.97	2.25	4.47	11.8	2.76
	Net cultivated area	0.68	1.50	2.71	6.99	1.80
	Cropping intensity	(142.65)	(150.00)	(164.94)	(168.81)	(153.35)

Note: Figures indicate proportion of sum in parentheses.

5. Suggestions for farmers and future works

- Planting materials should be selected carefully so as to maintain proper plant population in later stages.
- Proper cultivation practices should be followed in accordance with the latest techniques.
- Small scale processing units for producing processed products from papaya will ultimately help the producers for making money and this will also reduce the problem of unemployment for youth in villages and also will encourage women empowerment.
- Easy and efficient finance service from different financing agencies is very important to promote area and production of papaya is study area.
- Efficient use of input and resources so as to gain maximum output with minimum cost.
- Farmers should be met with facilities of fund for using as input, this will prove beneficial for risk reduction of crop failure or poor yield.

6. Conclusion

Rice stands out as a pivotal staple food globally and plays a significant role in national economies, particularly in India, where it ranks among the top producers worldwide. With its cultivation extending across diverse agro-climatic conditions in 117 countries, rice remains a fundamental dietary component for 60% of the world's population. This study delved into the agricultural landscape of rice production in Satna district, Madhya Pradesh, during the

2020-21 Kharif season. Through meticulous sampling techniques and data collection, the study provided insights into farm sizes, land utilization patterns, and irrigation practices, highlighting the essential aspects of rice farming in the region.

7. References

1. Agarwal PK, Yadav P, Mondal S. Economic analysis of cost and return structure of paddy cultivation under traditional and Sri Method: a comparative study. *International Journal of Agriculture Sciences*. 2018;10(8):5890-5893
2. Anandaraj P. Cost, returns and marketing channels of paddy in Thiruvapur district (Tamil Nadu). *International Journal of Science and Research*. 2015;4(11):1634-1639.
3. Deshpande RS, Gopalappa DV. Administrative Reforms in the field of Agricultural Marketing in the Context of WTO. *Indian Journal of Agricultural Marketing*. 2003;17(2):1-13.
4. https://en.wikipedia.org/wiki/Satna_district
5. <https://mp.gov.in/agriculture>
6. <https://satna.nic.in/en/>
7. Kamal V, Meenu A. Pattern of Major Agricultural Crops in Punjab. *Agricultural Situation in India*. 2000;57(2):81-88.
8. Krishna VV. Sustainability and Economic Efficiency of Rice Farming in the Agroecological Problem Area Zone

- of Kerala. M.Sc. Thesis, Department of Agricultural Economics, University of Agricultural Sciences, Bangalore. 2001.
9. Kumar AJ, Nahatkar SB. Growth dynamics of major crops in Madhya Pradesh. JNKVV Res J. 2012;46(2):160-165.
 10. Kumar Ravi, Bapuji KN, Raw B, Lakshmi KR. Economics of Major Farming Systems in North Coastal Zone of Andhra Pradesh. Manage Extension Research Review. 2004;5(1):10-32.
 11. Rai AK, Dass B, Khare A, Bisen A, Kushwaha CP. Impact of Information Technology to enhance the agriculture productivity in India. JNKVV Res J. 2012;46(2):239-244.
 12. Rajeswar Rao J. Crop Diversification in India; Policies Programmes and Perspectives. Agricultural Situation in India. 2003;60(5):307-316.
 13. Velayutham M, Palaniappan SP. Crop Diversification for Sustainable Agriculture. Agricultural Situation in India. 2003;60(5):251-254.
 14. Weerahewa J. Rice Market Liberalization and Household Welfare in Sri Lanka: A General Equilibrium Analysis, 2006. Canadian Agricultural Trade Policy Research Network (CATPRN) Working Paper 2006-17