

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 8; August 2026; Page No. 490-495

Received: 16-05-2026
Accepted: 19-06-2026

Indexed Journal
Peer Reviewed Journal

Socio- economic profile of paddy growers in Chandauli District of Uttar Pradesh

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DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i8g.4052>

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Abstract

Chandauli district, popularly referred to as the "Rice Bowl of Uttar Pradesh," occupies a central place in the state's paddy economy owing to its fertile alluvial soils, assured canal and tube- well irrigation and a favourable subtropical monsoon climate. Since the pace at which farmers adopt improved production technologies and manage their produce in the market is closely linked with who they are - their age, education, land base, income and exposure to information sources - the present investigation was undertaken to examine the socio- economic profile of paddy growers in the district. An ex- post facto research design was followed, and the study was purposively confined to Berahani and Sakaldiha blocks, from which eight villages and 120 paddy- growing respondents were selected at random. Data were gathered through a pre-tested structured interview schedule and analysed using frequency, percentage, mean and standard deviation. Findings revealed that a majority of the growers (62.50%) fell in the middle- age bracket of 36-60 years, over ninety per cent were literate, and medium- sized families (48.33%) were most common. Landholding was skewed towards small and large categories, private tube wells dominated irrigation (75.00%), and social media and television had overtaken traditional print and radio as the leading channels of agricultural information. Contact with formal extension functionaries, however, remained thin, and nearly half the respondents had no organisational participation. The paper concludes that while the socio- economic base of Chandauli's paddy growers is reasonably favourable for technology adoption, targeted strengthening of institutional extension contact and organisational participation could further accelerate the uptake of improved paddy cultivation and marketing practices.

Keywords: Socio- economic profile, paddy growers, Chandauli, adoption, Uttar Pradesh

Introduction

Rice is far more than a cereal crop for South Asia; it is the backbone of food security and rural livelihood for hundreds of millions of small and marginal households. Botanically placed under the genus *Oryza* and cultivated mainly as *Oryza sativa* L., the crop covers close to 210 million hectares worldwide and remains the principal source of daily calories across large parts of Asia and Africa (Khush, 2005). Its grain, valued for a comparatively balanced amino- acid profile and easy digestibility, contributes meaningfully to nutritional security wherever it is consumed as a staple (Juliano, 1993). At the global level, Asia alone accounts for close to ninety per cent of production, with India now ranked as the largest single producer and exporter, contributing more than a quarter of world output and about two- fifths of the world's rice trade (FAO, 2026).

Within India, Uttar Pradesh holds the largest area under rice

cultivation in the country, and among its districts, Chandauli in the eastern zone has earned the title "Rice Bowl of Uttar Pradesh" because of the sheer scale and productivity of its paddy fields. The district's fertile alluvial soils, an extensive network of canals and tube wells, and a rice-wheat cropping system suited to the subtropical monsoon climate together create conditions that are unusually favourable for intensive paddy production. Yet the extent to which farmers in such a favourable production environment actually adopt improved cultivation practices, and the way they subsequently market their produce, is shaped less by agro- climatic advantage alone than by who the farmers themselves are - their age and education, the size of their landholding and family, their income, the machinery they own, and how connected they are to sources of new information. A clear picture of this socio- economic base is therefore a necessary first step before adoption and marketing behaviour can be meaningfully

understood or improved.

Several earlier studies on rice- growing communities elsewhere in India and abroad have similarly stressed that socio- economic characteristics condition the pace of technology adoption and the efficiency of marketing decisions (Khattak and Hussain, 2008; Patel and Kanungo, 2020; Pandey and Verma, 2022; Kaur and Mazhar, 2024). However, district- specific evidence for Chandauli, despite its importance to the state's rice economy, remains limited. Against this background, the present paper reports the socio- economic profile of paddy growers of Chandauli district, forming part of a wider investigation into the adoption of improved paddy cultivation practices and the marketing behaviour of paddy growers in the district.

Materials and Methods

The study was carried out using an ex- post facto research design, which is appropriate where the variables under study have already occurred and the researcher's task is to describe and relate them rather than manipulate them. Chandauli district of the eastern agro- climatic zone of Uttar Pradesh was selected purposively, both because it is recognised as the leading paddy- producing district of the state and because the researcher's familiarity with the local language and farming

culture facilitated the collection of dependable field data.

Of the nine community development blocks in the district, Berahani and Sakaldiha were selected purposively on the basis of the largest area and productivity under paddy. Four villages were then chosen at random from each of the two blocks, giving a total of eight villages, and fifteen respondent paddy growers were drawn at random from each village with the help of the local Krishi Vigyan Kendra scientist, the District Agriculture Officer and the Deputy Director of Agriculture, giving a final sample of 120 respondents. Ten independent variables age, education, family size, extension contact, mass media exposure, social participation, land holding, irrigation facility, farm equipment and annual income were selected to build the socio- economic profile, most of them measured using scales originally developed by Supe (2007), Nirban (2004, 2007) and Pandya (2010), each suitably modified for the local context. Primary data were collected through personal interviews using a pre- structured schedule that was pre- tested on a small group of farmers and refined before the main survey. The information so obtained was analysed using frequency, percentage, arithmetic mean and standard deviation to present a coherent picture of the sample's socio- economic composition.

Results and Discussion

1. Age

Table 1: Distribution of paddy growers according to age

S. No.	Category	Frequency	Percentage
1.	Young age (18-35 years)	15	12.50
2.	Middle age (36-60 years)	75	62.50
3.	Old age (above 60 years)	30	25.00
	Total	120	100.00

A majority of the respondents, 62.50 per cent, belonged to the middle- age group of 36 to 60 years, while a further 25.00 per cent were above 60 years and only 12.50 per cent were young growers below 35 years. The dominance of the middle- age category suggests that paddy cultivation in the district is largely in the hands of farmers with several years of accumulated field experience, a pattern that is broadly

consistent with earlier socio- economic profiling of rice farmers elsewhere (Khattak and Hussain, 2008). The relatively small share of young farmers may reflect the tendency of younger family members to move toward non- farm employment, a trend that could have implications for the future supply of farm labour in the district

2. Education

Table 2: Distribution of paddy growers according to educational level

S. No.	Category	Frequency	Percentage
1.	Illiterate	9	7.50
2.	Primary	4	3.30
3.	High school	29	24.00
4.	Intermediate	33	27.50
5.	Graduate and above	45	37.50
	Total	120	100.00

Literacy among the sampled growers was high, with 92.50 per cent having received some formal schooling and more than a third being graduates or above. Only 7.50 per cent of respondents were illiterate. Such a comparatively well- educated farming population is likely to be better placed to understand and evaluate new agricultural information, a relationship noted in prior extension research as well (Patel

and Kanungo, 2020). The high proportion of educated respondents strengthens the case for using written and digital extension material alongside conventional face- to- face contact in the district.

3. Family Size

Table 3: Distribution of paddy growers according to family size

S. No.	Category	Frequency	Percentage
1.	Small family (1-4 members)	28	23.33
2.	Medium family (5-8 members)	58	48.33
3.	Large family (more than 8 members)	34	28.34
	Total	120	100.00

Medium- sized families of five to eight members were the most common, accounting for 48.33 per cent of respondents, followed by large families at 28.34 per cent and small families at 23.33 per cent. A moderately large family size in this setting typically translates into a larger pool of household

labour for the labour- intensive operations of paddy transplanting, weeding and harvesting, which may partly explain the continued reliance on manual rather than mechanised transplanting observed later in the farm equipment profile.

4. Extension Contact

Table 4: Distribution of paddy growers according to extension contact

S. No.	Source	Once a week (%)	Once a fortnight (%)	Once a month (%)	Never (%)
1.	Progressive farmers	33.40	37.50	12.50	16.60
2.	Village Panchayat Secretary	8.40	16.60	25.00	50.00
3.	Asst. Development Officer (Agri.)	0.83	1.66	0.83	96.60
4.	Sub- Divisional Extension Officer	0.83	0.83	0.83	97.50
5.	KVK Scientist	5.80	11.60	12.50	70.00
6.	SAU/ICAR Scientist	0.83	0.83	0.83	97.50

Overall contact between paddy growers and formal extension functionaries was found to be weak. Respondents interacted most frequently with progressive farmers in their own villages, with 37.50 per cent doing so once a fortnight, whereas contact with the Assistant Development Officer (Agriculture), the Sub- Divisional Extension Officer and State Agricultural University or ICAR scientists was almost absent, each showing 'never' responses above 96 per cent.

The Krishi Vigyan Kendra scientist fared comparatively better, yet even here 70.00 per cent of respondents reported no contact at all. This pattern points to a heavy dependence on informal, farmer- to- farmer channels rather than institutional extension machinery, echoing similar gaps reported for other rice- growing regions (Busari *et al.*, 2020) [3].

5. Mass Media Exposure

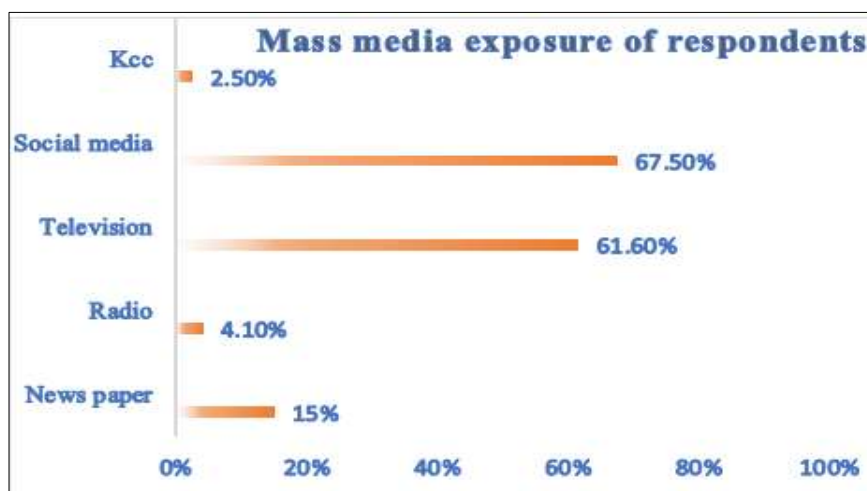


Fig 5: Distribution of the respondents according to their mass media exposure

Social media emerged as the most widely used source of agricultural information, used always by 67.50 per cent of respondents, closely followed by television at 61.60 per cent. Traditional print and audio media lagged well behind: only 15.00 per cent used newspapers or farm magazines regularly and just 4.10 per cent relied on radio, while the Kisan Call

Centre was the least utilised channel at 2.50 per cent. The clear shift toward digital and audio- visual media suggests that extension messages built around smartphone- based platforms are likely to reach a much wider share of Chandauli's paddy growers than print material alone.

6. Social Participation

Table 6: Distribution of paddy growers according to social participation

S. No.	Category	Frequency	Percentage
1.	No participation (no membership)	56	46.73
2.	Poor participation (member of one organisation)	44	36.60
3.	Moderate participation (member of more than one organisation)	11	9.16
4.	Good participation (holds a position)	9	7.50
	Total	120	100.00

Organisational involvement was generally low, with 46.73 per cent of respondents reporting no membership of any local body and a further 36.60 per cent belonging to only one organisation. Only 7.50 per cent held any office- bearing position. Given that cooperative societies, farmer producer

organisations and self- help groups often serve as conduits for both technical knowledge and market linkage, this low level of participation may itself be a constraint on the pace of technology adoption and on collective bargaining strength in marketing paddy.

7. Land Holding

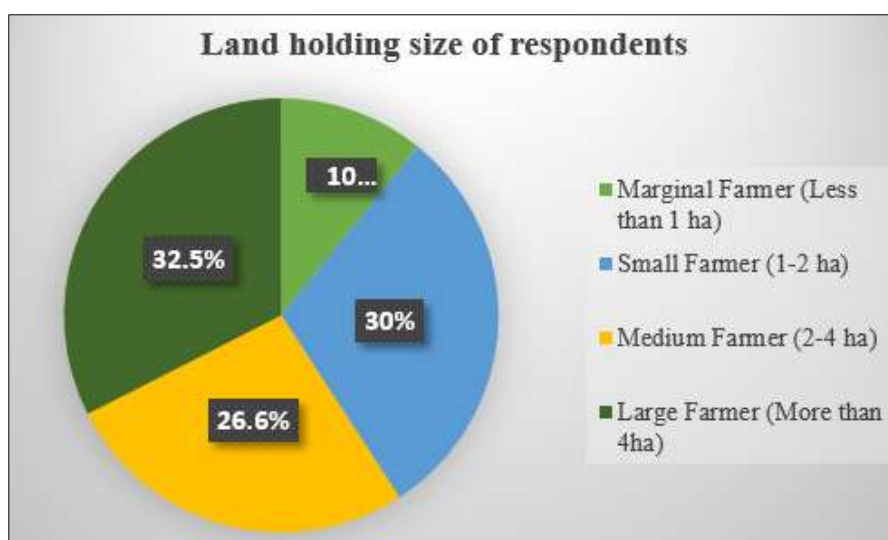


Fig 7: Distribution of the respondents according to their social participation

Landholding size was skewed toward the larger end of the scale, with large farmers (more than 4 ha) forming the biggest group at 32.50 per cent, followed by small farmers at 30.00 per cent and medium farmers at 26.60 per cent; marginal farmers with less than one hectare made up only 10.80 per

cent of the sample. Almost 89 per cent of respondents thus operated more than one hectare of land, a resource base that is generally favourable for investment in improved seed, inputs and mechanisation.

8. Irrigation Facility

Table 8: Distribution of paddy growers according to irrigation facility

S. No.	Category	Frequency	Percentage
1.	Private tube well (electric/diesel)	90	75.00
2.	Government tube well	10	8.40
3.	Canal/river	14	11.60
4.	Drip/sprinkler irrigation	6	5.00
	Total	120	100.00

Private tube wells were overwhelmingly the dominant source of irrigation, used by 75.00 per cent of respondents, while canal or river water served a further 11.60 per cent. Government tube wells and drip or sprinkler systems together accounted for only about 13 per cent, indicating that public irrigation infrastructure and water- saving technology have

yet to make significant inroads in the district despite its canal network. Continued dependence on privately owned tube wells also carries implications for groundwater sustainability that merit attention alongside the productivity gains they enable.

9. Farm Equipment

Table 9: Distribution of paddy growers according to farm equipment owned*

S. No.	Equipment	Frequency	Percentage
1.	Paddy transplanter	2	1.67
2.	Tractor and trolley	52	43.30
3.	Sprayer/duster	36	30.00
4.	Rotavator	19	15.80
5.	Cultivator	45	37.50
6.	Harrow	40	33.60
7.	Power weeder	10	8.33
8.	Leveller/puddler	23	27.60
9.	Zero- till drill	18	21.60

*Multiple response; N = 120

Ownership of farm machinery centred on land- preparation and plant- protection equipment: 43.30 per cent of respondents owned a tractor and trolley, 37.50 per cent a cultivator and 33.60 per cent a harrow, while sprayers or dusters were held by 30.00 per cent. In sharp contrast, mechanised paddy transplanters were owned by only 1.67 per

cent of growers and power weeders by 8.33 per cent, confirming that transplanting in the district is still carried out almost entirely by hand. This gap between land- preparation mechanisation and transplanting mechanisation represents a clear opportunity for custom- hiring services or subsidy-linked promotion of transplanters to ease labour bottlenecks.

10. Annual Income

Table 10: Distribution of paddy growers according to annual income

S. No.	Category	Frequency	Percentage
1.	Up to ₹1,00,000	4	3.30
2.	₹1,00,001 - ₹2,00,000	22	18.30
3.	₹2,00,001 - ₹3,00,000	27	22.50
4.	₹3,00,001 - ₹4,00,000	32	26.72
5.	Above ₹4,00,000	35	29.18
	Total	120	100.00

Annual household income was fairly evenly spread across the higher brackets, with 29.18 per cent of respondents earning above ₹4,00,000 and a further 26.72 per cent earning between ₹3,00,001 and ₹4,00,000. Only 3.30 per cent reported an annual income of up to ₹1,00,000. The concentration of respondents in the higher income brackets indicates a reasonably sound economic base among Chandauli's paddy growers, one that could support greater investment in improved cultivation practices and in better post- harvest and marketing arrangements if paired with stronger extension support.

Conclusion

The socio- economic profile of paddy growers in Chandauli district points to a farming community that is predominantly middle- aged, largely literate, moderately well- off and increasingly connected through digital media, yet still poorly linked to formal extension functionaries and only lightly engaged in local organisations. These characteristics carry a mixed message: on one hand, sound education levels, comfortable landholding and rising income levels create favourable ground for the adoption of improved paddy cultivation and marketing practices; on the other, weak institutional extension contact and limited organisational participation could slow the translation of this potential into actual adoption and better market outcomes. Strengthening the presence of extension functionaries in the field, actively using social media and television as delivery channels, and encouraging membership in farmer organisations and

cooperatives would together help convert Chandauli's favourable socio- economic base into faster and more widespread adoption of improved paddy technologies and more remunerative marketing behaviour among its growers.

Acknowledgement

The authors gratefully acknowledge the cooperation extended by the paddy growers of Berahani and Sakaldiha blocks of Chandauli district during data collection, and the support of the local Krishi Vigyan Kendra and District Agriculture Office in facilitating the survey.

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