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Risha Singh Sengar
Ph.D. Scholar, Department of
Agricultural Economics, Sam
Higginbottom University of
Agriculture Technology and
Sciences, Nani, Prayagraj, Uttar
Pradesh, India

Ramchandra
Assistant Professor, Department
of Agricultural Economics, Sam
Higginbottom University of
Agriculture Technology and
Sciences, Nani, Prayagraj, Uttar
Pradesh, India

Corresponding Author:
Risha Singh Sengar
Ph.D. Scholar, Department of
Agricultural Economics, Sam
Higginbottom University of
Agriculture Technology and
Sciences, Nani, Prayagraj, Uttar
Pradesh, India

Study of socio-economic profile of the correspondence of major cereals grower with special reference to wheat and paddy in Kanpur Dehat district of Uttar Pradesh

Risha Singh Sengar and Ramchandra

Abstract

The present study entitled “Study of socio-economic profile of the correspondence of major cereals grower with special reference to wheat and paddy in Kanpur Dehat District of Uttar Pradesh” was conducted in the Akbarpur block, in 2021-22 with the objective of finding socio-economic profile of the study area of the selected respondents. For the socio-economic profile the data was collected by the personal interview through the open and closed questionnaire. The tools used in our research for analysing the data were Tabular analysis for socio-economic. The data was collected for Age, type of family, Total population, caste, education, occupation, card holders, land holding, and cropping pattern in different agriculture seasons that is Kharif, Rabi and Zaid. Most of the respondents were from adult age (27-50 years) group with 54.40%, population from adult age (18-59 year) group with 38.85%, backward class people were dominated with 41.60%, with a total literacy rate of 72.80% and mere illiteracy with 27.20%. Agriculture is being the primary occupation where maximum peoples are involved for their bread and butter with 54.80%, and severe to moderate poverty was seen with BPL card holder with 67.20%. The total land holding for cultivation was accounted for 484.86 ha. Land used in different growing season was 427.14 ha for paddy in kharif, 436.96 ha for wheat in rabi season, 168.50 and 160.78 for jowar and moong in zaid season respectively. When analysed statistically the data on caste, education and occupation were found to be significant and rest others were non-significant.

Keywords: Cereals, socio-economic, significant, population, etc

Introduction

India, one of the largest populations in the world is expected to be at the top of the list in the next 20 years, while it is also expected to become the third largest economy of the world overtaking Japan soon. This will result in an increased demand for food which can only be met by either increasing the agricultural productivity or by increasing the imports. 58% of India's population depends on agriculture as their primary source of livelihood. India's consumer spending has returned and is growing since 2021 post the pandemic-led contraction, expanded to 9.7% approximately. The food industry of India is expected to grow, thus resulting in an increased contribution to world food trade in the coming years, especially in the food processing industry. Food processing industry of India accounts for 32% of the country's total food market, making it fifth in terms of production, consumption, export and also in terms of an expected growth. Along with the allied sectors, agriculture is the largest sector on which livelihood of Indians depends, especially in the rural areas. It is also a significant contributor to the Gross Domestic Product (GDP). An efficient agriculture practice which can guarantee food security, rural employment, soil conservation is a sustainable agriculture practice that can help in natural resource management and biodiversity protection thereby proving its worth for holistic rural development. Indian has witnessed a blue Revolution, green Revolution, white revolution and a yellow revolution in the field of agriculture and it is allied sectors (Cagliarini and Rush 2006) [6].

Cereals are an important source of various macro and micronutrients such as vitamin B complex, vitamin E, dietary protein, iron, riboflavin, thiamine, fibre, carbohydrates, niacin and a few of the minerals important not only for humans but also for animals. Bran, which is a soluble part in cereals is helpful in reducing blood cholesterol levels and thus preventing cardiovascular diseases.

Cereals help to prevent various diseases such as constipation, colon disorders, high blood sugar and even cancer. When cereals combine with milk, they become a good source of protein-rich food. Iron fortified cereals are used as premium solid food for infants.

Agriculture remains a pivotal aspect of India's national economy, being one of the largest employers of its vast workforce (Government of India, 2006). The need to feed a population of over 1.25 billion and counting requires a consistent increase in food production, particularly cereals (Alexandratos and Bruinsma, 2012) [12]. As per the 2nd Advance Estimates for 2021-22, the total food grain production in India is estimated at an all-time high of 316.06 million tonnes, a rise of 5.32 million tonnes compared to 2020-21. This figure is also 25.35 million tonnes higher than the average food grain production over the previous five years (2016-17 to 2020-21). The production of food grains showed stagnation from 2011-12 to 2015-16, reaching a peak of 259.29 million tonnes in 2011-12, but has since seen consistent year-on-year growth due to various government measures (PIB, 2022).

Materials and Methods

Study area

For our research the area selected for study was Akbarpur block in Kanpur Dehat district of Uttar Pradesh. Total of 12 villages were selected randomly out of which 250 respondents were selected randomly for the study purpose.

Crop selection

Out of several crops growing widely we have selected wheat and paddy for the study purpose in two different growing seasons.

Data collection

Interview schedule was developed for data collection after consulting the experts. The interview was conducted in local dialect. The respondents were interviewed at their home, or their farms and responses were recorded on the spot. Besides audio recording of all the interviews of the individual respondent was done and is saved for further references.

Classification of farmers

The farmers were classified into four categories based on land holding marginal (0-1 ha), small (1-2 ha), semi-medium (2-4 ha), and medium (4-10 ha).

Statistical Analysis

Meek (Simple) Tabular analysis

The collected data was organized and presented in tabular format to facilitate straightforward comparisons. Tabular presentation techniques were utilized to analyse the economics of the selected farmers. The data tabulated using both absolute values and percentage for comprehensive analysis and understanding. For the purpose of analysis and straightforward manner, a basic tabular analysis approaches were utilized.

Chi-square (χ^2) test

The chi-square test is a statistical method used to assess the degree of similarity between observed data and expected data in a sample drawn from a population. It evaluates the level of agreement or discrepancy between the observed and expected values. The chi-square formula, denoted as χ^2 , is used to

calculate the chi-square statistic in the chi-square test. The formula is as follows:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Results and Discussion

The total number of farmers was 250, and the distribution of family type among all categories was as follows 89.20 percent of the farmers had a nuclear family and 10.80 percent had a joint family. the maximum number of people were residing in nuclear family and it may be due to several reasons viz some of them posing nuclear family because people went in urban area for their bread and butter and some were nuclear by their choice for maintaining their privacy, and other reason maybe their own family grudges. The association between the type of the family of the respondents and their categories (based on land holding) has been analysed by applying chi-square test has been used the value of chi square come out to be 0.22, which is not statistically significant. ($p < 0.5$).

The data suggests that the study population was skewed towards the adult and old categories, which could have implications for the generalizability of the study findings. The maximum number of respondents were from the age group of adults (27-50 years) and this may be due to reason that the folks from this age group have the maximum efficiency to do work in the field. Similar findings were also reported by Singh *et al.*, (2012) [13], and Yadav *et al.* (2014) [14]. The association between the age group of the respondents and their categories (based on land holding) has been analysed by applyinchi-squarere test has been used the value of chi-square come out to be 1.42, which is statistically non-significant. ($p < 0.5$).

India is a young dynamic country with the highest percentage of adults with 38.85%, followed by population of children with 22.30%, senior citizens with 21.21% and the future of the country that is infants were 17.64%. The infant population were minimum because of the reason that people are thinking about family planning as of increasing inflation day by day and people are also sufficiently educated to know the significance of small families. The association between the population of the Respondent's family and their categories (based on land holding) has been analyzed by applying chi-square and the result was obtained at $p < 0.5$ level of significance, was found to be non-significant with the calculated value 9.56.

The total number of respondents from medium group growers were 31 out of which the maximum percentage were from backward class 51.61 percent followed by general class with 32.26 percent and the minimum percentage were from SC/ST class with 16.13 percent. Out of total of 250 respondents the maximum cultivators were from each group were from backward class with 41.60 percent followed by General class with 30.40 percent and the least percentage were from 28.00 percent.

Out of total 250 respondents in total variable farmers 72.80 percent were literate and 27.20 percent were illiterate. Out of total literate cultivators the 10.40 percent respondents were educated up to primary class which was maximum then 16.80 percent were educated up to secondary class, followed by intermediate with 16.80 percent, high school with 16.40 percent and the minimum literate percentage was obtained in graduation and above with 4.40 percent. The association between the educational status and their categories (based on land holding) has been analysed by applying chi-square test

has been used the value of chi-square come out to be 50.67, which is statistically significant. ($p < 0.5$).

India is a land of agriculture where maximum people involved in primary occupation for their survival and the percentage of people involved in primary occupations were 54.80%, and 27.20% respondents were involved in the secondary occupation and the minimum number of respondents were from tertiary occupation with 18.00% though they are less in number but their contribution in economy is much higher than the former two. The association between the occupational status and their categories (based on land holding) has been analyzed by applying chi square test has been used the value of chi square come out to be 16.51, which is statistically significant. ($p < 0.5$).

Though India is one of the fastest developing countries in the world but still there is poverty in our country with the BPL card holder in the study area 67.20% and only 32.80% respondents were there who were having APL card. The association between the cardholders of the growers and their categories (based on land holding) has been analysed by applying chi square test has been used the value of chi-square come out to be 6.10, which is statistically non-significant. ($p < 0.5$).

The total land holding they have been 484.86 ha. Out of this the maximum land holding were bear by medium group of the

farmers with 181.35 ha, followed by semi medium group of the farmers with 143.45 ha, then small group of the farmers with 103.56 ha and minimum land holding was with marginal farmers with 56.50 ha. There is no leased-in or leased-out land recorded for any category and it might be since the people have very less land holding and they cannot afford to either leased in or leased out.

The land use pattern in different cultivating season that is *Kharif* which was dominated by paddy cultivation with 88.10%, *rabi* was dominated by wheat cultivation with 90.12%. The major reason to be dominated by paddy and wheat in the two major seasons is as these two cereals are staple food of the country. The Zaid season is dominated by Jowar with 34.75% and Moong with 33.16% land acquisition. The test of goodness that is the Chi-square *test* which was statistically analysed for the socio-economic parameters and it was found that Caste, Education and occupation were found to be statistically significant and rest of age, family, population, card holder, land holding, land used for cropping were found to be statistically non-significant. When the calculated value of Chi-square is greater than the tabulated value then the data is said to be significant and vice versa is non-significant.

Table 1: Family composition of the survey participants

Sr. No.	Family/house hold	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Nuclear	83 (88.30)	65 (90.28)	47 (88.68)	28 (90.32)	223 (89.20)
2.	Joint	11 (11.70)	7 (9.72)	6 (11.32)	3 (9.68)	27 (10.80)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi Square		0.22*				

Table 2: Classification of respondents based on age groups.

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Young (14-26) Years	11 (11.70)	9 (12.50)	6 (11.32)	3 (9.68)	29 (11.60)
2.	Adult (27-50) Years	54 (57.45)	38 (52.78)	29 (54.72)	15 (48.39)	136 (54.40)
3.	Old (Above 50) Years	29 (30.85)	25 (34.72)	18 (33.96)	13 (41.94)	85 (34.00)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi Square		1.42*				

Table 3: Total population of the Respondent's family

S. N.	Age (Years)	Marginal		Small		Semi Medium		Medium		Total Variable
		Male	Female	Male	Female	Male	Female	Male	Female	
1	Infant (0-5)	42 (19.00)	37 (18.78)	27 (14.44)	25 (15.06)	30 (20.98)	24 (20.17)	17 (18.09)	10 (13.33)	212 (17.64)
2	Children (6-17)	53 (23.98)	48 (24.37)	44 (23.53)	40 (24.10)	31 (21.68)	23 (19.33)	16 (17.02)	13 (17.33)	268 (22.30)
3	Adult (18-59)	78 (35.29)	71 (36.04)	69 (36.90)	62 (37.35)	56 (39.16)	52 (43.70)	42 (44.68)	37 (49.33)	467 (38.85)
4	Senior citizens (> 60)	48 (21.72)	41 (20.81)	47 (25.13)	39 (23.49)	26 (18.18)	20 (16.81)	19 (20.21)	15 (20.00)	255 (21.21)
5	Sub Total	221 (52.87)	197 (47.13)	187 (52.97)	166 (47.03)	143 (54.58)	119 (45.42)	94 (55.62)	75 (44.38)	1202 (100.00)
6	Total	418 (100.00)		353 (100.00)		262 (100.00)		169 (100.00)		
Chi Square		9.56*								

Table 4: Caste-wise classification of the respondents.

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	SC/ST	21 (22.34)	30 (41.67)	14 (26.42)	5 (16.13)	70 (28.00)
3.	Backward class	43 (45.74)	14 (19.44)	31 (58.49)	16 (51.61)	104 (41.60)
4	General	30 (31.91)	28 (38.89)	8 (15.09)	10 (32.26)	76 (30.40)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi-Square		32.06*				

Table 5: Education-wise classification of the Respondents

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Primary	17 (18.09)	9 (12.50)	10 (18.87)	11 (35.48)	46 (18.40)
2.	Secondary	7 (7.45)	14 (19.44)	11 (20.75)	4 (12.90)	42 (16.80)
3.	High school	9 (9.57)	20 (27.78)	8 (15.09)	6 (19.35)	41 (16.40)
4.	Intermediate	18 (19.15)	12 (16.67)	10 (18.87)	3 (9.68)	42 (16.80)
5.	Graduation and above	2 (2.13)	3 (4.17)	6 (11.32)	2 (6.45)	11 (4.40)
7.	Total Literate	53 (56.38)	58 (80.56)	45 (84.91)	26 (83.87)	182 (72.80)
8.	Total illiterate	41 (43.62)	14 (19.44)	8 (15.09)	5 (16.13)	68 (27.20)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi-Square		50.65*				

Table 6: Occupation-wise distribution of the Respondents

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Primary Occupation	63 (67.02)	42 (58.33)	20 (16.67)	12 (38.71)	137 (54.80)
2.	Secondary Occupation	17 (18.09)	18 (25.00)	20 (37.74)	13 (41.94)	68 (27.20)
3.	Tertiary Occupation	14 (14.89)	12 (16.67)	13 (24.53)	6 (19.35)	45 (18.00)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi-Square		16.51*				

Table 7: Distribution of the different types of card holders of the cereal growers.

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	BPL	72 (76.60)	45 (62.50)	32 (60.38)	19 (61.29)	168 (67.20)
2.	APL	22 (23.40)	27 (37.50)	21 (39.62)	12 (38.71)	82 (32.80)
Total		94 (100)	72 (100)	53 (100)	31 (100)	250 (100)
Chi-Square		6.10				

Table 8: Classification of the different Size of land holding (ha) of the respondents.

Sr. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Owned land holding	56.50 (100)	103.56 (100)	143.45 (100)	181.35 (100)	484.86 (100)
2.	Leased in	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)
3.	Leased out	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)
4.	Uncultivated land	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)	00.00 (00.00)
5.	Total Irrigated land	55.82 (98.80)	102.05 (98.54)	140.25 (97.77)	179.5 (98.98)	477.62 (98.51)
6.	Total Unirrigated land	0.68 (1.20)	1.51 (1.46)	1.95 (1.36)	0.51 (0.28)	4.65 (0.96)
7.	Total cultivated land	56.50 (100)	103.56 (100)	143.45 (100)	181.35 (100)	484.86 (100)
Chi Square		1.43*				

Table 9: Land used in kharif season.

Sr. No.	Particular	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Paddy	50.03 (88.55)	91.16 (88.03)	128.60 (89.65)	157.35 (86.77)	427.14 (88.10)
2.	Urd	00.00 (00.00)	00.00 (00.00)	2.05 (1.43)	5.23 (2.88)	7.28 (1.50)
3.	Maize	00.00 (00.00)	3.12 (3.01)	1.15 (0.80)	3.12 (1.72)	7.39 (1.52)
4.	Jowar	4.12 (7.29)	5.43 (5.24)	7.03 (4.90)	9.28 (1.72)	25.86 (5.33)
5.	Miscellaneous Vegetable	2.35 (4.16)	3.85 (3.72)	4.62 (3.22)	6.37 (3.51)	17.19 (3.55)
Total land		56.50 (100)	103.56 (100)	143.45 (100)	181.35 (100)	484.86 (100)
Chi-Square		8.28				

Table 10: Land used in Rabi season.

Sr. No.	Particular	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Wheat	50.43 (89.26)	95.21 (91.94)	129.95 (90.59)	161.37 (88.98)	436.96 (90.12)
2.	Berseem	2.45 (4.34)	3.12 (3.01)	3.92 (2.73)	4.82 (2.66)	14.31 (2.95)
3.	Pea	1.35 (2.39)	1.51 (1.46)	3.95 (2.75)	4.95 (2.73)	11.76 (2.43)
4.	Lentils	00.00 (00.00)	00.00 (00.00)	1.26 (0.88)	3.46 (1.91)	4.72 (0.97)
5.	Black Gram	00.00 (00.00)	2.47 (2.39)	2.00 (1.39)	2.17 (1.20)	6.64 (1.37)
6.	Miscellaneous Vegetable	2.27 (4.02)	1.25 (1.21)	2.37 (1.65)	4.58 (2.53)	10.47 (2.16)
Total land		56.50 (100)	103.56 (100)	143.45 (100)	181.35 (100)	484.86 (100)
Chi-Square		7.46				

Table 11: Land used in Zaid season.

Sr. No.	Particular	Marginal	Small	Semi-Medium	Medium	Total Variable
1.	Urd	4.65 (8.23)	6.26 (6.04)	15.45 (10.77)	18.31 (10.10)	44.67 (9.21)
2.	Moong	15.30 (27.08)	36.19 (34.95)	51.64 (36.00)	57.65 (31.79)	160.78 (33.16)
3.	Jowar	25.34 (44.85)	39.26 (37.91)	42.65 (29.73)	61.25 (33.77)	168.50 (34.75)
4.	Miscellaneous Vegetable	4.32 (7.65)	8.26 (7.98)	15.26 (10.64)	19.24 (10.61)	47.08 (9.71)

5.	Fallow land	6.89 (12.19)	13.59 (13.12)	18.45 (12.86)	24.9 (13.73)	63.83 (13.16)
	Total	56.50 (100)	103.56 (100)	143.45 (100)	181.35 (100)	484.86 (100)
	Chi-Square	6.89				

Conclusion

Based on our finding socio-economic profile of the respondents, nuclear family as they are concerned with their privacy. In age-wise classification, the maximum respondents were from the adult age group followed by old age and young age group. The total population of the respondents were maximum from adult followed by children, and senior citizens as the adult population is maximum because India is a young dynamic country with having maximum of people between the age group 18 to 45 years. In India caste prevails in some or other way and has an impact on society in some way the maximum number of respondents were from the backward class followed by general class. India is a developing country and education being the fundamental right to its citizens the literacy rate was more than the double rate of illiterate people. To educate the people it is also a directive principle of the state which is mentioned in the part IV of Indian Constitution. India being the land of agriculture where agriculture is not a profession but it is a way of living for many of us have the highest people involved in the Primary occupation for their bread and butter. Though we are a developing country but we also have a serious issue of poverty because of which million are unable to meet their basic need and to mitigate that GOI issue BPL card through which they can at least their basic needs like wheat, paddy, sugar, pulses etc. As we know that there is uneven distribution of the land to and the maximum people of India are either from marginal group or small group having land less than an acre. It was quit even after the 44th amendment to the constitution from there on though the land holding is uneven but not as before the amendment and simultaneously it is also not sufficient to meet the basic need of the people. The maximum land used in kharif and rabi was with paddy and wheat respectively as these two crops are staple foods of India and in zaid season the cultivation was dominated by jowar and moong. And when these parameters were analyzed for the test of goodness on Chi square test only caste, education and occupation were found to be significance.

References

1. Ali A, Sarwar M, Khanzada S, Abro GH. Reaction of Certain Wheat Varieties to the Action of Red Flour Beetle, *Tribolium castaneum* (Herbst) (Coleoptera) Under Insectary Conditions. Pak. J Zool. 2009;41(1):51-56.
2. Ali A, Sarwar M, Khanzada S, Abro GH. Evaluating Resistance of Wheat Germplasms to Attack by Red Flour Beetle, *Tribolium castaneum* (Herbst) (Coleoptera). Pak. J Zool. 2011;43(4):793-797.
3. Asodiya PSK, Patel KS, Asodiya PS, Parmar VK. Input use, costs structure, return and resource use efficiency analysis of wheat crop in south Gujarat, India. International Journal of Agricultural Extension. 2014;2(1):5-12.
4. Awika JM. Cost of Cultivation of Principal Crops in India, 2007, Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India; c2011.
5. Bidyasagar, Talukdar, SRF Nicra. Marketing channel and marketing efficiency analysis for rice in Nalbari district of Assam (India) International Journal of Chemical Studies. 2017;5(5):1285-1289.
6. Cagliarini and Rush World agriculture towards 2030/2050: the 2012 revision. ESA Working paper No. 12-03. Rome, FAO; c2006.
7. Fuller, *et al.* New product development opportunities for traditional cereals. Journal of Food Investigation. 2011;49:238-243.
8. Govt. of India. First Advance Estimates of National Income, 2018-19. Press Information Bureau, Ministry of Statistics & Programme Implementation, New Delhi; c2019.
9. Gupta Nayak AK, Maiti D, Kumar GAK, Reddy JN, Rath PC, Swain P, *et al.* (Eds.) National Rice Research Institute: Activities, Achievements and Aspirations. ICAR-National Rice Research Institute, Cuttack, Odisha; c2019. p. 264. + viii, ISBN: 81-88409- 08-1.
10. PIB Record production, procurement and msp payments (ppps) in agriculture sector Ministry of Agriculture & Farmers Welfare, Government of India; c2022.
11. Pushpa Srivastava SK. Marketing Efficiency and Marketing Channels for Paddy Crop in the Eastern Region of Uttar Pradesh. Economic Affairs. 2017;62(2):289-296.
12. Alexandratos N, Bruinsma J. World agriculture towards 2030/2050: the 2012 revision.
13. Singh G, Joyce EM, Beddow J, Mason TJ. Evaluation of antibacterial activity of ZnO nanoparticles coated sono-chemically onto textile fabrics. Journal of microbiology, biotechnology and food sciences. 2012 Aug 1;2(1):106-20.
14. Yadav M, Chatterji S, Gupta SK, Watal G. Preliminary phytochemical screening of six medicinal plants used in traditional medicine. Int J Pharm Pharm Sci. 2014;6(5):539-42.