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## Appraisal of socio-economic profile of wheat growers among different categories of farmers in Malwa region of Madhya Pradesh

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### Abstract

Wheat is an important source of nutrition in our staple diet. Although farmers in northern India are growing wheat for a long time many farmers are lacking good knowledge of wheat and its new varieties production practices. The present study was conducted to know the profile of wheat growers in different categories of farmers in Malwa region (M.P.). 324 wheat growers, 9 farmers (3 big, 3 medium and 3 small farmers) were selected randomly from each (thirty-six) selected village of nine blocks of Hosangabad, Hadra and Sehore districts (M.P.). The farmers of three categories i.e., small, medium and large farmers differ from each other with regard to socio-personal attributes. The big and medium farmers were higher in age than the small farmers. Therefore, it can be concluded that there was no significant difference in the age, education, social participation, knowledge and adoption of farmers. It is obvious that the areas under wheat crop are not similar among different categories of the farmers. The data regarding contact with extension personnel for all the categories of farmers reveals that 73.45 percent used RAEO as a prime source and ranking first, while 55.55 percent of them used ADO where as 38.88 percent used SADO, 8.33 percent of them used university scientists and 10.80 percent of them used subject matter specialist for getting information regarding improved wheat production technology. It is the overall mean material possession score of all the farmers was 15.68. The 'z' test reveals that the various categories of farmers varied significantly with regards to their mean of farm power, economic motivation, scientific orientation and risk preference.

**Keywords:** wheat, socio-economic status, big farmers, medium farmers, small farmers

### Introduction

Wheat (*Triticum aestivum*) is an important and strategic cereal crop for the majority of the world's population. It is the most important staple food of about two billion people (36% of the world population). It exceeds in acreage and production of every other grain crop (including rice, maize, etc.) and is, therefore, the most important cereal grain crop in the world. Wheat is the most important source of carbohydrates in a majority of countries. Wheat also contains a diversity of minerals, vitamins and fats (lipids). With a small amount of animal or legume protein added, the wheat-based meal is highly nutritious. In India wheat is grown over 30.60 million hectares with total production of 98.38 million tonnes with an average yield is 3216 kg/hectares (DAC & FM, 2017) <sup>[5]</sup> and in Madhya Pradesh, it is grown over an area of 6.03 million hectares with a total production of 17.94 million tonnes with the average yield 2976 kg/ha (FWADD, 2017) <sup>[7]</sup>. In Hoshangabad district, wheat is grown over area of 0.26 million hectares with total production of 1.11 million tonnes with the average yield is 4440 kg/hectares (FWADD, 2017) <sup>[7]</sup>. In Harda district, wheat is grown over area of 0.17 million hectares with total production of 0.66 million tonnes with the average yield is 3843 kg/hectares (FWADD, 2017) <sup>[7]</sup>. In Sehore district, wheat is grown over area of 0.25 million hectares with total production of 0.90 million tonnes with the average yield is 3645 kg/hectares (FWADD, 2017) <sup>[7]</sup>. Considering the importance of the wheat crop it is imperative to study it from different viewpoints so that we can get more and more knowledge about it, which can help our research system to improve the productivity and efficiency of our agricultural sector. In our country, the set-up of our agricultural system is mainly divided in three components i.e. research, education and extension (ICAR handbook of agriculture). Extension plays a large role in bridging the gap between farmers and research which can be validated with the success of green revolution programmes of the late 1960s. The extension service in the country has a huge network of professional extension workers at the national, state district, sub-division, and block and village level. Several programmes for increasing knowledge of farmers and

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motivating the farmers for adoption of new technologies are in operation throughout the country. But still, there is a wide gap between the technology available with the researchers in research institutes and its adoption in farmer's fields particular in wheat. The adoption of improved technology of wheat crop by the farmers is not uniform due to several reasons i.e. lack of mechanization, non-availability of quality seeds, lack of irrigation facilities, lack of market facilities (Kumar, A. 2016). So this study was designed to study the profile of wheat growers among different categories of farmers in Malwa region of Madhya Pradesh.

### Research Methodology

The *ex post facto* research design was followed in this study. This study was carried out in Hoshangabad, Harda and Sehore districts of Madhya Pradesh State during 2018-19 to know the profile of wheat growers among different categories of farmers. A total of 36 villages were selected with the help of a stratified random sampling method from 9 blocks namely Hoshangabad, Pipariya, Itarsi, Harda, Timarni, Khirkiya, Sehore, Ichhawar and Narsullaganj (4 villages from each block) on account of the maximum area covered under wheat crop. A total of 324 wheat growers, 9 farmers (3 big, 3 medium and 3 small farmers) were selected with simple random sampling from each selected village under the study. The primary data was collected personally through group discussion and a pre-tested interview schedule which was prepared on the basis of objectives of the study. It was measured as per chronological age of the respondents. Education measured as per the responses given by farmer. According to seven categories namely illiterate, only read, can read & write, up to primary, middle, high school, higher secondary and graduate level were developed. The social participation variable was measured on three point continuum

as always, sometimes and never and scores of two, one and zero were given respectively. On the basis of range of scores the respondents were placed in three categories, low, medium and high participation. It was measured to area (in ha.), of wheat crops possessed by an individual for the purpose of cultivation. Accordingly, the respondents were three categorized i.e. small, medium and large. The total scores indicated the degree of participation in extension activities. The material possession and farm power variable measured on the basis of self-scoring. The value was measured by using economic motivation, scientific orientation and risk preference scale developed by Supe (2007). For determining knowledge level a questionnaire was prepared as per recommended package of practices of wheat crop. The responses were recorded on a three-point continuum as complete, partial and no knowledge and were given 3, 2 and 1 score, respectively. The knowledge level possessed by individual respondents was measured by a computing knowledge index. On the basis of scores gained by each respondent the respondents were categories into low (up to 41), medium (42 to 57) and high (above 57). For appraising the extent of adoption the responses were recorded on a three-point continuum as complete, partial and no adoption and were given 3, 2 and 1 scores, respectively. The total score obtained by the respondents from all practices was the adoption score of the individual respondent. Finally, the raw adoption score obtained by the individual respondent was converted into an adoption index. On the basis of scores gained by each respondent the respondents were categories into low (up to 28.33), medium (28.34 to 31.66) and high (above 31.66).

## Results and Discussion

### 1. Age

**Table 1:** Mean age of different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	40.75	--
2.	Medium farmers	108	40.50	0.310 -
3.	Small farmers	108	39.31	1.671 1.847
Overall mean 40.18				

\* Significant at 0.05 level of probability

The mean age of different categories of farmers is presented in Table 1. It is clear from the table that the overall mean age of all the farmers was 40.18 years. The mean age of big farmers was 40.75, medium farmers 40.50 and small farmers 39.31 years. The big and medium farmers were higher in age than the small farmers. The 'z' test between the mean age of all three categories of farmer was showed not significant that they were similar in age from one another. Thus, shows that

the calculated value of 'z' is less than its tabulated value at 5 per cent level of significance. Thus null hypothesis ( $H_0$ ) is accepted and research hypothesis is rejected. Therefore, it can be conclude that there was no significant difference in the age of farmers.

### 2. Education

**Table 2:** Mean education score of the different categories of the farmers.

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	3.47	--
2.	Medium farmers	108	3.33	0.489 -
3.	Small farmers	108	2.99	1.697 1.191
Overall mean 3.26				

\* Significant at 0.05 level of probability

The education level of different categories of farmers is given in Table 2. It is clear from the table that the overall mean education score of all the farmers was 3.26. The mean of education of big farmers was 3.47 medium 3.33 and small

2.99. The mean education score of big farmers and medium farmers was higher than the Overall mean and small farmer was lower than the Overall mean. The 'z' test between the mean educations of all three categories of farmers was

showed not significant that they were similar in education level from one another. Thus, shows that the calculated value of 'z' is less than its tabulated value at 5 per cent level of significance. Thus null hypothesis (H<sub>0</sub>) is accepted and research hypothesis is rejected. Therefore, it can be concluded that there was no significant difference in the education of the farmers.

### 3. Social participation

**Table 3:** Mean social participation score of different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' value
1.	Big farmers	108	7.25	- -
2.	Medium farmers	108	7.00	0.709 -
3.	Small farmers	108	6.68	1.592 0.870
Overall mean 6.97				

\* Significant at 0.05 level of probability

Social participation of the different categories of farmers is given in Table 3. The data in table 3 indicate that the overall mean score for social participation of all the farmers was 6.97. The big, medium and small farmers had mean social participation 7.25, 7.00 and 6.68 respectively. The 'z' test amongst the mean social participation these three categories of farmers showed that the mean social participation of big, medium and small farmers did not differ significantly. Thus, the data lead to conclude that the farmers of different categories are not different with respect to their social participation and in general they showed participated in at least three different organizations. Thus null hypothesis (H<sub>0</sub>) is accepted and research hypothesis is rejected. Thus, shows that the calculated value of 'z' is less than its tabulated value at 5 per cent level of significance difference in the social participation of the farmers.

### 4. Area under wheat crop

**Table 4:** Mean of area under wheat crop score of different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' value
1.	Big farmers (above 4 ha.)	108	2.56	- -
2.	Medium farmers (2.1 to 4 ha.)	108	2.01	6.927* -
3.	Small farmers (up to 2 ha.)	108	1.94	7.967* 3.683*
Overall mean 2.17				

\* Significant at 0.05 level of probability

The area under wheat crop of different categories of farmers is presented in Table 4. It is clear from the table that the overall mean of area under wheat crop score of all the farmers was 2.17. The big farmers mean of area under wheat crop score of 2.56, medium farmers 2.01 and small farmers 1.94. The 'z' test reveals that the various categories of farmers varied significantly with regards to their mean area under wheat crop. It is obvious that the areas under wheat crop are not similar among different categories of the farmers. On the

basis of such data, it can be concluded that big farmers had more area under wheat crop than medium and small farmers. Similarly medium farmers had more area under wheat crop than the small farmers. Thus null hypothesis (H<sub>0</sub>) is rejected and research hypothesis is accepted. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance.

### 5. Extension contact

**Table 5:** Mean extension contact score of different categories of farmers

S. No	Categories	No. of respondents	Mean	'Z' value
1.	Big farmers	108	6.86	- -
2.	Medium farmers	108	6.48	3.758* -
3.	Small farmers	108	6.28	6.017* 2.723*
Overall mean 6.54				

\* Significant at 0.05 level of probability

The extension contact of different categories of farmers is shown in Table 5. It is clear from the table that the overall mean extension contact score was 6.54. The big farmers had mean extension contact score 6.86, medium 6.48 and small farmers 6.28 respectively. The 'z' test revealed that the mean extension contact score for the three categories of farmers

shows that the mean extension contact for big farmers, medium farmers and small farmers of different significantly. Thus null hypothesis (H<sub>0</sub>) is rejected and research hypothesis is accepted. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance.

**Table 6:** Percentage distribution of different category of farmers on the basis of their contacts with extension personnel.

S. No	Extension personnel	Big farmers n=108	Medium farmers n=108	Small farmers n=108	Overall farmers n=324	Rank
		Freq.	Freq.	Freq.	Freq.	
1.	RAEO	108 (100.00)	66 (61.11)	64 (59.25)	238 (73.45)	I
2.	ADO	58 (53.70)	58 (53.70)	64 (59.25)	180 (55.55)	II
3.	SADO	16 (14.81)	58 (53.70)	52 (48.14)	126 (38.88)	III
4.	Uni. Scientists	-	-	27 (25)	27 (8.33)	V
5.	SMS	-	-	35 (32.40)	35 (10.80)	IV

(Figures in parenthesis are percentage)

The data in Table 6, shows that from the categories of big farmers 59.25 percent through contact with RAEO and ADO, 48.14 percent from SADO, 25 percent University Scientists

and 32.40 percent from subject matter specialist for getting agriculture information regarding improved wheat production technology. While in case of medium farmers 61.11 percent

of indicated contact RAEO, 53.70 percent ADO and SADO, while in case of small farmer's cent percent of the farmers used RAEO, 53.70 percent ADO and 14.81 percent SADO indicated a source for getting agricultural information regarding improved wheat production technology. The data regarding contact with extension personnel for all the categories of farmers reveals was 73.45 percent used RAEO as a prime source and ranking first, while 55.55 percent of them used ADO where as 38.88 percent used SADO, 8.33

percent of them used university scientists and 10.80 percent of them used subject matter specialist for getting information regarding improved wheat production technology. Thus, the contact with extension personnel through which farmers receive farm information was through RAEO, ADO, SADO, SMS and University Scientists in order of ranking.

**6. Material possession**

**Table 7:** Mean material possession score of different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	17.27	--
2.	Medium farmers	108	15.72	3.626*-
3.	Small farmers	108	14.07	7.532* 2.910*
Overall mean 15.68				

\* Significant at 0.05 level of probability

The material possession of different categories of farmers is presented in Table 7. It is clear from the table that the overall mean material possession score of all the farmers was 15.68. The big farmers mean material possession score of 17.27, medium farmers 15.72 and small farmers 14.07. The 'z' test reveals that the various categories of farmers varied significantly with regards to their mean material possession. It is obvious that the material possessions are not similar among different categories of the farmers. On the basis of such data, it can be concluded that big farmers had more material possession than medium and small farmers. Similarly medium farmers had more material possession than the small farmers. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance. Thus null hypothesis (H<sub>0</sub>) is rejected and research hypothesis is accepted.

farm power for big farmers, medium farmers and small farmers of different significantly. Thus null hypothesis (H<sub>0</sub>) is rejected and research hypothesis is accepted. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance.

**8. Economic motivation**

**Table 9:** Mean score of economic motivation of different categories of farmers

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	36.29	--
2.	Medium farmers	108	35.03	3.534*-
3.	Small farmers	108	34.19	6.097* 2.411*
Overall mean 35.17				

\* Significant at 0.05 level of probability

**7. Farm power**

**Table 8:** Mean of farm power score of different categories of farmers

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	8.51	--
2.	Medium farmers	108	7.19	4.242*-
3.	Small farmers	108	6.07	9.659* 3.634*
Overall mean 7.25				

\* Significant at 0.05 level of probability

It is clear from the table 8 that the overall mean score of farm power of all the farmers was 7.25. The big farmers had 8.51 mean score of farm power where as medium farmers 7.19 and small farmers 6.07. The 'z' test revealed that shows the mean

It is evident from the table 9 that the overall mean of economic motivation of all the categories of farmers was 35.17, big farmers mean was 36.29, medium farmers 35.03 and small farmers was 34.19. The mean economic motivation of big farmers was higher than overall mean while, it was less in case of medium farmers and small farmers. The 'z' test showed that these were significantly different in case of big farmers Vs medium farmers and medium farmers Vs small farmers at 0.05 per cent level of probability. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance. Thus null hypothesis (H<sub>0</sub>) is rejected and research hypothesis is accepted.

**9. Scientific Orientation**

**Table 10:** Mean score of scientific orientation of different categories of farmers

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	37.26	--
2.	Medium farmers	108	36.35	2.502*-
3.	Small farmers	108	35.42	5.068* 2.478*
Overall mean 36.34				

\* Significant at 0.05 level of probability

It is clear from the table 10 that the overall mean score of scientific orientation of all the category of farmers was 36.34 while in case big farmers had mean scientific orientation of score 37.26, medium farmers 36.35, small farmers 35.42. The

mean economic motivation of big and medium farmers was higher than overall mean while, it was less in case of small farmers. The 'z' test reveals that the various categories of farmers varied significantly with regards to their mean of



scientific orientation. Thus null hypothesis ( $H_0$ ) is rejected and research hypothesis is accepted. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance.

### 10. Risk Preference

**Table 11:** Mean score of risk preference of different categories of farmers

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	33.56	--
2.	Medium farmers	108	32.86	2.129* -
3.	Small farmers	108	31.83	4.725* 2.864*
Overall mean 32.75				

\* Significant at 0.05 level of probability

The risk preference of the farmers is presented in Table 11 which reveals that the overall mean score for risk preference for all the categories of farmers was 32.75, while in case big farmers had mean risk preference of score 35.56, medium farmers 32.86, small farmers 31.83. The mean risk preference of big and medium farmers was higher than overall mean while, it was less in case of small farmers. The 'z' test reveals that the various categories of farmers varied significantly with regards to their mean of risk preference. Thus, shows that the calculated value of 'z' is more than its tabulated value at 5 per cent level of significance. Thus null hypothesis ( $H_0$ ) is rejected and research hypothesis is accepted.

### 11. Knowledge

**Table 12:** Mean Knowledge score of the different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	51.73	--
2.	Medium farmers	108	52.50	0.780 -
3.	Small farmers	108	51.02	0.743 1.541
Overall mean 51.75				

\* Significant at 0.05 level of probability

The knowledge of improved wheat production technology of different categories of farmers is shown in table 12. It is clear from the table that the overall mean knowledge score of all the categories of farmers was 51.75. The big farmers had a mean knowledge of 51.73, medium farmers 52.50 and small farmers 51.02. The knowledge of improved wheat production technology among medium category of farmers was higher than small and big farmers. The 'z' test reveals that the mean knowledge of all the three categories of farmers showed that the mean knowledge of big, medium and small farmer did not differ significantly. Thus, it may be concluded that all these three category of farmers are similar to each other regarding the knowledge level of improved wheat production technology. Thus, shows that the calculated value of 'z' is less than its tabulated value at 5 per cent level of significance. Thus null hypothesis ( $H_0$ ) is accepted and research hypothesis is rejected.

### 12. Adoption level

**Table 13:** Mean adoption score of the different categories of farmers.

S. No	Categories	No. of respondents	Mean	'Z' - value
1.	Big farmers	108	35.33	--
2.	Medium farmers	108	35.00	0.841 -
3.	Small farmers	108	34.05	3.267* 2.470*
Overall mean 34.79				

\* Significant at 0.05 level of probability

It is clear from the table 13 that the overall mean adoption score of all the farmers was 34.79. The big farmers mean adoption score was 35.33, medium farmers 35.00 and small farmers 34.05 respectively. The adoption of improved wheat production technology for big and medium farmers was higher than small farmers. The 'z' test reveals that the mean adoption score for the three categories of farmers shows that the mean adoption score of big, medium and small farmers did not differ significantly. Hence, it may be concluded that all the three different categories of farmers were similar to each other in adoption level regarding the improved wheat production technology. Thus, shows that the calculated value of 'z' is less than its tabulated value at 5 per cent level of significance. Thus null hypothesis ( $H_0$ ) is accepted and research hypothesis is rejected.

### Conclusion

The study revealed that the wheat growers were of the mean age of 40.18 years and were having primary level of education. The respondents had participated in three different social organizations. The big farmers had more material possession as compared to medium and small farmers. The study indicated that big farmers and small farmers were having different economic motivation and scientific orientation as compared to medium farmers while in risk

preference small farmers differed significantly from the big and medium farmers. As regards to knowledge and adoption level of improved wheat production technology the wheat growers of different categories were similar to each other. The study pointed out that the big and medium farmers were having more contacts with extension personnel for solution of their problems as compared to the small farmers where as for obtaining information towards improved wheat production technology. The mean area under wheat crop score of wheat growers was 2.17. In case of big farmers the mean area under wheat crop score was found 2.56 which were higher than the medium and small farmers, indicating that big farmers had more area under wheat crop in comparison to medium and small farmers. The mean of farm power score of wheat growers was 7.25, but in case of big farmers the mean farm power score was found 8.51. Regarding the knowledge level of improved wheat production technology all the three categories of farmers did not differ significantly and similar to each other. The study concluded that majority of wheat growers' possessed medium knowledge of improved wheat production technology. The reason might be that respondents possessed medium level of scientific orientation, risk preference and adoption of improved wheat production technology. Regarding the adoption level of wheat growers in the big and medium farmers are non-significant. But in case

of big vs small and medium vs small farmers was significant. But in case of big farmers adoption level is more than medium and small farmers. The study concluded that majority of wheat grower possessed medium adoption of improved wheat production technology. The reason might be that respondent possessed medium level of scientific orientation and knowledge level of improved wheat production technology.

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