SOCIO-ECONOMIC PROFILE OF SORGHUM GROWERS IN HARYANA

DHARMENDER SINGH, P. K. CHAHAL*, B. S. GHANGHAS AND DANGI POOJA ARUN

Department of Extension Education
CCS Haryana Agricultural University, Hisar-125 004 (Haryana), India
*(e-mail : pardeepchahal46@gmail.com)

SUMMARY

The most important factor which decides the awareness and adoption level of any new varieties, method or technology in the agricultural sector is the socio-economic conditions of farmers. This study focuses on the socio-economic conditions of the sorghum growers of the Gurugram district of Haryana state.For this study, an interview schedule was prepared. The independent variables are different socio-economic characteristics including age, education, caste, landholding, family type, cropping system etc.The study was conducted in two blocks inthe Gurugram district of Haryana. A total of 120 respondents were selected for the study. The data showed that the majority of respondents belonged to the middle age group (36-50 years). In terms of educational background, it was observed that out of 120 respondents, maximum respondents (45.80 %) were matriculate or intermediate passed, followed by middle education group 23.30 per cent. While 20.80 per cent of respondents were graduate and above and the percentage of illiterate group was lowest as only 10.00 per cent. It is evident from findings that the majority of respondents 49.2 per cent belonged to the other backward caste (OBC) category. That the majority of respondents 76.70 per cent were living in a joint family system and the remaining 23.30 per cent respondents were living in a nuclear family system in the area of investigation. The majority of respondents (71.70%) were having large family sizes followed by respondents having a small family size 28.30 per cent.

Keywords : Socio-economic variables, education, majority, respondents

Sorghum is related to the grass family Poaceae and it is an important fodder crop of the north region of India. It is also known as Jowar, Chari and durra, in many parts of India. Origin of sorghum [*Sorghum bicolor* (L.) Moench] is generally believed to be around present-day Ethiopia in Africa. Sorghum has come from Africa to India during the first millennium. More than half of the world is growing sorghum in arid and semi-arid zones, where it is a staple food for millions of poor and hungry people. In India, sorghum is the fifth most important cereal crop after wheat, rice, maize and barley. It is a widely grown cereal forage crop with short duration alongwith ability to produce high biomass under wide edapho-climatic situations across the country including saline conditions (Satpal *et al.*, 2021). It is mainly grown in the region of Peninsular and Central India. Maharashtra is the leading state in sorghum production followed by Karnataka while Andhra Pradesh, Madhya Pradesh, Gujarat, Rajasthan, Uttar Pradesh and Tamil Nadu, are the other states which grow sorghum in small areas mainly as a fodder crop.

It is a fast growing, adaptive to different environmental conditions and gives palatable nutritious fodder to the animals (Satpal *et al.*, 2016). In Haryana, sorghum is grown as a fodder crop mainly. The total area of sorghum in Haryana is 40.3 thousand hectares, and the total production of sorghum is 21.3 thousand tons with an average yield of 528 kg per ha. In Gurugram, the total area under sorghum cultivation is 6000 ha. (Department of Agriculture, Gurugram). India has 16 % of the total livestock population of the world concerning only 2.6 per cent of the world's geographical area. Though India accounts for high cattle population, the productivity of cattle is the lowest mainly due to the unavailability of good quality fodder in sufficient quantity. India has a 512.05 million livestock population but the area under fodder crops remained static about 4.4 % of the total cultivated area mainly due to focus on the cereal, horticultural crops and cash crops after the green revolution. In this scenario, sorghum emerges as the most important fodder crop due to its high palatability and high value of crude protein and other nutrients.

METHODOLOGY

The sample comprised 120 respondents from eight different villages of the Gurugram district of Haryana state. Data were collected through a personal interview schedulefor research. Descriptive graph statistics of all the respondents were compared through appropriate software. Frequency, percentage, means, ranks order were the main statistical tools that were used in this study.A list of independent variables for the present study was selected. These independent variables were more relevant and significant based on everyday experiences and as per the objective included in the present study. These were: age, education, landholding, socio-economic status, communication source, cropping pattern, family size, and motivation, occupation, risk orientation, innovativeness, annual income and social participation of the respondent.

RESULTS AND DISCUSSION

Age

Age signifies the chronological age of the respondents. It classifies into three categories namely young, middle age and old age.The data in Table 1 indicates that the majority of the respondents 49.2 per cent belonged to the middle age group (36-50 years) followed by the old age group (above 50 years) to the extent of 28.3 per cent. While the remaining 22.5 per cent of respondents belonged to the young age group (20-35 years).

TABLE 1
Distribution of respondents according to their age

S. No.	Category	Frequency	Percentages
1	Young	27	22.5
2	Middle	59	49.2
3	Old	34	28.3

Results further show that middle age group having more skilled and experienced in sorghum cultivation because of better experience and enthusiasm to get the benefit from sorghum cultivation. That's why; the involvement of middle and old age groups was more as compared to young age group growers.

Caste

Caste was operationalized the hereditary status of class in the society. It was categorized into three castes namely; scheduled caste, other backward class and general category. It is evident from findings that the majority of respondents 49.2 per cent belonged to other backward castes (OBC) which were followed by 35.8 per cent of respondents of general caste and the remaining 15.0 per cent belonged to scheduled caste. It revealed from the Table that respondents from other backward castes were more interested in sorghum cultivation. It may be due to; this section of society mainly depends on agriculture for employment.

TABLE 2
Distribution of the respondents according to their caste

S. No.	Category	Frequency	Percentages
1	SC\ST	18	15.0
2	OBC	59	49.2
3	General	43	35.8

Education

The education variable was stated as the formal education gotten by the respondents. The education variable is categorized into four categories. The data reported in this Table, 3 reveals that the majority of respondents 45.8 per cent were metric or intermediate passed, followed by the middle education group 23.3 per cent. While 20.8 per cent of respondents were graduates and above and the percentage of illiterate group was lowest 10.0 per cent. Data states that the main reason for the technological gap in the adoption of modern technology in sorghum is somewhere lack of proper education farmers.

TABLE 3
Distribution of the respondents according to their education

S. No.	Category	Frequency	Percentages
1	Illiterate	12	10.00
2	Middle	28	23.33
3	Senior secondary	55	45.83
4	Graduate and above	25	20.83

Family type

The family type was classified into two types i.e., nuclear and joint family. Results presented in Table 4 indicate that the majority of respondents 76.7 per cent were living in the joint family system and the remaining 23.3 per cent of respondents were living in the nuclear family system in the area of investigation. It states that a joint family is good at adopting new technology.

TABLE 4
Distribution of the respondents according to their family type

S. No.	Category	Frequency	Percentages
1	Nuclear	28	23.3
2	Joint	92	76.7

Family size

Family size was a very important independent variable for this study. Family size is classified into two categories, one is members upto 5 members and the second is more than 5 members in the family. The data shown in Table 5 stated that the majority of respondents 71.7 % were having large family sizes followed by respondents having small family sizes 28.3. According to this investigation, the maximum percentage of respondents were living with 5 and above members in the family and the small family size category have upto 5 members in the family. It clearly shows that the large size of families was more active in sorghum cultivation. This is because large-size families are more focused on sorghum cultivation.

TABLE 5
Distribution of the respondents according to their family size

S. No.	Family size	Frequency	Percentage
1	Small (<5 members)	34	28.3
2	Large (>5 members)	86	71.7

Annual income

Annual income was constituents earning from all resources respondents have. It was classified into three slabs. Results in Table 6 shows that the maximum percentage of 47.5 of respondent's annual income was upto Rs 1 lakh followed by 40 per cent of respondent's income above Rs. 1 lakh and 12.5 per cent of respondent's income was upto Rs.50 thousand.

TABLE 6
Distribution of the respondents according to their annual family income

S. No.	Category	Frequency	Percentage
1	Low (below Rs. 50,000)	15	12.5
2	Medium (upto Rs. 1 lakh)	57	47.5
3	High (above Rs. 1 lakh)	48	40.0

Landholding

For the classification of landholding variable researcher used the scale of the Ministry of Rural Development.Data given in Table 7 described that a maximum number of respondents 41.6 per cent were had land 2.5-5 acres which comes in small farmers categories. Medium categories landholder group 27.5 per cent have 5-10 acres of land closely followed by marginal farmers (<2.5 acres) to the extent of 26.6 per cent. The large farmer's group (>10 acres) acres were to the tune of 4.1 per cent only.

Table 7
Distribution of the respondents according to their landholding

S. No.	Category	Frequency	Percentage
1	Marginal (< 2.5 acre)	32	26.6
2	Small (2.5-5 acre)	50	41.6
3	Medium (5-10 acres)	33	27.5
4	Large (> 10 acres)	05	04.1

Cropping pattern

The cropping pattern was selected based on the research area. Sorghum was the base crop because our research was on sorghum-based technologies. Table 8 refers to the cropping pattern which is adopted by the respondents. There were mainly sorghum-wheat, sorghum-mustard, sorghum-potato-wheat cropping patterns followed. Most of the respondents follow the sorghum - mustard pattern to the tune of 53.3 per cent followed by sorghum-wheat (33.3%) and sorghum-potato-wheat pattern adopted by 13.3 per cent of respondents only.

TABLE 8
Distribution of the respondents according to their cropping pattern

S. No.	Category	Frequency	Percentage
1	Sorghum -Wheat	40	33.33
2	Sorghum - Mustard	64	53.30
3	Sorghum - Potato - Wheat	16	13.30

Occupation

Occupation of the respondents was asked during data collection. Occupation of respondents divides simply into two categories namely; agriculture or any other type of service. Data in the Table 9 reveals that 60.8 per cent of respondents were engaged in the agriculture sector while only 39.2 per cent of the respondents had a job along with agriculture or any other services or business along with agriculture.

TABLE 9

Distribution of the respondents according to their occupation

S. No.	Category	Frequency	Percentage
1	Agriculture	73	60.8
2	Agriculture + Service (any other)	47	39.2

Irrigation sources

Irrigation sources were categorized into tube well, canal and both. The data was collected through multiple response ways. The data about irrigation sources are presented in Table 10. Irrigation sources play a very crucial role in any crop cultivation. In the investigation area, tube wells and canals are the main irrigation sources. The present study states that 78.3 per cent of respondents were using tube well as irrigation sources followed by 17.5 per cent of respondents using both tubewells as well as canal water for crop cultivation as irrigation sources. Only 4.2 per cent of respondents use canal water as an irrigation source.

TABLE 10

Distribution of the respondents according to their irrigation source used

S. No.	Category	Frequency	Percentage
1	Tubewell	94	78.3
2	Canal	05	04.2
3	Both	21	17.5

Distribution of the respondents according to innovativeness, motivation and risk orientation

Innovativeness

Innovativeness is defined as the degree to which an individual is relatively earlier in adopting improved technology as compared to other people. Major findings of the innovativeness were that maximum respondents belonged to late adoption categories i.e. 49 with 40.8 per cent followed by early adoption with 35.0 per cent and very late adoption with 24.2 per cent as given in Table 11.

Motivation

Motivation is the main reason for adopting modern technologies by the farmers. It may be of different types like social motivation, economic motivation etc. Maximum numbers of respondents belonged to high categories with 47.5 per cent and

followed by medium and low categories with 37.5 and 15.0 per cent, respectively.

Risk orientation

Risk orientation is generally defined as the degree to which an individual faces uncertain conditions. These conditions include mainly uncertainty of availability of seeds, fluctuation in weather conditions etc. Maximum respondents belong to medium categories with 45.8 per cent and 30.8 per cent of respondents belonging to high categories and 23.3 per cent in low categories.

TABLE 11

Distribution of the respondents according to innovativeness, motivation, and risk orientation

Innovativeness	Frequency	Percentage
Early adoption	42	35.0
Late adoption	49	40.8
Very late adoption	29	24.2
Motivation		
Low	18	15.0
Medium	45	37.5
High	57	47.5
Risk orientation		
Low	28	23.3
Medium	55	45.8
High	37	30.8

Social participation

Social participation of the respondents also slightly indicates the cosmopolite nature of the respondents. It tells about the social participation of the respondents in the different ground level organizations. The major findings according to Table 12 were that the maximum percentage of 47.5 of the respondents as members of no organization followed by 34.2 per cent respondents who were members of one or more organizations. Only 18.3 per cent of respondents were the office bearer of any organization in the investigation area.

TABLE 12

Distribution of the respondents according to their social participation

S. No.	Category	Frequency	Percentage
1	Member of no organization	57	47.5
2	Member of one or more organization	41	34.2
3	Office bearer	22	18.3

TABLE 13
Information sources used by respondents

S. No.	Mass media	Daily (4)	Often (3)	Rarely (2)	Never (1)	Total score	Weighted mean score	Rank
1.	Radio	0 (0)	2 (6)	4 (8)	114 (114)	128	1.06	III
2.	Magazine and newspaper	56 (224)	29 (87)	23 (46)	12 (12)	369	3.07	I
3.	TV	35 (140)	36 (108)	14 (28)	35 (35)	311	2.59	II
4.	Training	-	-	-	-			-

It clearly shows that a maximum number of respondents were not a member of a single organization.

Information sources

Respondents get agricultural information from various sources. Some of them were selected in an interview scheduled to be asked to respondents for this study. The data presented in Table 13 revealed that reading of newspaper and farm magazines ranked first with a mean score of 3.0 followed by the TV with second (2.59) and Radio with weighted score 1.06 ranked last i.e., the third rank.

CONCLUSION

The outcomes of this study suggest that the majority of the sorghum growing farmers of Gurugram district belonged to middle age group, educated up to secondary level and belonged to OBC category, had medium annual income with large size of family and majority of them belonged to joint family, had small land holding, medium extension and low social participation. Sorghum growers of Haryana used newspapers as sources of information. Socio-economic parameters of Gurugram sorghum farmers reveals that there is a scope for further improvement in socio-economic status, which ultimately leads to a greater extent for adopting modern technologies in sorghum cultivation. This study is also useful for policy-makers so that they should make policy by keeping in mind these conditions of farmers.

REFERENCES

Anonymous, 2011 : Indiastat.

Anonymous, 2018 : Food and Agriculture Organization (FAO) STAT.

Charyulu, K., M. Shyam, C. Bantilan, S. T. Borikar, A. Kumar and V. S. B. Reddy, 2016 : Rainy season sorghum technology adoption and impact study in Maharashtra. *International Crops Research Institute for the Semi-Arid Tropics,* **80**.

Ghuge, S. N. and R. P. Kadam, 2015 : Constraints faced by *Kharif* sorghum growers in adoption of recommended technology. *Agriculture Update,* **10**(4): 312-317.

Intodia, S. L. and F.L. Sharma, 1993 : Technological knowledge of tribal farmers. *Indian Research Journal of Extension Education,* **29**(3&4): 84-86.

Mbulwe, L., 2015 : Sorghum technology adoption using the innovation platform. *Advances in Plants Agriculture Research,* **2**(2): 97-103.

Satpal, B. Gangaiah, N. Kumar, S. Devi, N. Kharor, K. K. Bhardwaj, P. Kumari, B.L. Sharma, Neelam and S. Kumar, 2021 : Performance of single cut forage sorghum [*Sorghum bicolor* (L.) Moench] genotypes under graded levels of NPK fertilizers. *Forage Res.,* **47**(2): 180-186.

Satpal, B. S. Duhan, S. Arya, P. Kumari, and S. Devi, 2016 : Performance of single cut forage sorghum genotypes to different fertility levels. *Forage Res.,* **42**(3): 184-188.

Trivedi, G., 1963 : Measurement and analysis of socio-economic status of rural families, Ph. D. *Thesis,* Indian Agricultural Research Institute, New Delhi.