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Extent of Knowledge and Adoption of Recommended Wheat Production Practices among Wheat Growers in Malwa Region (M.P.)

Mangi Lal Jat[1], D. K. Jaiswal[2] and Y.S. Saharawat[3]

[1]PG Scholar, [2]Professor, Department of Extension Education, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur-482004, Madhya Pradesh, India
[3]Principal Scientist and Program Manager, International Fertilizer Development Center (IFDC), New Delhi, India
*Corresponding author email id: mangilalgodara9546@gmail.com

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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 study was conducted to know the extent of knowledge and adoption of recommended wheat production practices among wheat cultivating farmers of the Malwa region. Nine 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 making a total of 324 wheat growers. Among the practicewise level of knowledge regarding recommended wheat production technology; method of storage (mean score- 2.30) was ranked first and selection and preparation of land (mean score- 2.25) was ranked second. On the whole, the highest number of the wheat growers (46.29%) had a medium knowledge level of recommended wheat production practices while 41.66% had a medium level of adoption on the basis of their level of adoption of recommended technological practices of wheat crop cultivation.

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) 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). 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 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 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

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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, 2016; Shitu et al., 2018). So this study was designed to study the extent of knowledge and level of adoption of recommended Wheat Production Practices by Wheat Growers in the Malwa region of Madhya Pradesh.

METHODOLOGY

The exploratory 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 extent of knowledge and adoption of recommended wheat production practices by different categories of wheat growers. 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.

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 computing knowledge index. On the basis of scores gained by each respondent the respondents were categorised 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 categorised into low (up to 28.33), medium (28.34 to 31.66) and high (above 31.66).

RESULTS AND DISCUSSION

Knowledge plays an important role in decision making process at the individual level. It is the precursor to the adoption of any innovation. It might be difficult to presume the level of adoption of technology unless it is first known to the person who is going to adopt it. Ascertaining the level of knowledge and adoption among farmers was done to know their perception about the sustainability of wheat crop. Knowledge and adoption were perceived as the level up to which different practices were known and adopted by the sampled farmers. Further, practice-wise knowledge and adoption were also calculated to see the extent of knowledge and adoption. Results from Table 1 has reflected the knowledge level of different categories of wheat growers regarding different wheat cultivation practices. Regarding the recommended practice 'selection and preparation of land', 46.29 per cent of wheat growers had medium knowledge followed by high (39.81%) and low (13.88%). 60.80% Wheat growers had medium knowledge in 'seed and sowing method' followed by high (27.46%) and low (11.72%). About knowledge of the practice 'fertilizer management', majority of the wheat growers (50.92%) had medium knowledge followed by high (29.62%) and low (19.44%) respectively. The 44.75 per cent wheat growers had medium knowledge about 'irrigation management' followed by high (32.71%) and low (22.53%). 40.43% wheat growers had medium knowledge level regarding the practice 'weed management' was found among followed by high (35.49%) and low (24.07%). In case of 'insect pest & disease management' 43.20% wheat growers' had medium knowledge, followed by high (31.79%) and low (25%) knowledge. 44.44% wheat growers had medium knowledge of 'time and method of harvesting' practice followed by high (34.56%) and low (20.98%) knowledge. 44.75% of the wheat growers had high knowledge regarding 'method of storage' followed by medium (40.74%) and low (14.50%) knowledge. In case of mean score of the practices, 'method of storage' (mean score 2.30, Rank I) followed by 'selection and preparation of land' and 'Seed and sowing method' (mean score 2.15, Rank II) which was equal overall mean score 2.15. followed by 'time and method of harvesting' (mean score 2.13, Rank III), 'weed management' (mean score 2.11, Rank IV), 'fertilizer management' and 'irrigation management' (mean score 2.10, Rank V), 'insect-pest and disease management' (mean score 2.06, Rank VI). Thus it may be reported that, overall mean score of 2.15 level of knowledge regarding recommended wheat production technology among respondents was found.

Results from Table 2 revealed that in case of small farmers, 45.37% wheat growers had medium level of knowledge regarding recommended wheat production practices, followed by high (32.40%) and low (22.22%) knowledge. In case of medium farmers,

Table 1. Practice wise level of knowledge regarding recommended wheat production technology

S.No.	Recommended Production Practices of Wheat Crop	Level of knowledge			Mean score	Rank
		Low F(%)	Medium F(%)	High F(%)		
1.	Selection and preparation of land	45(13.88)	150(46.29)	129(39.81)	2.25*	II
2.	Seed and sowing method	38(11.72)	197(60.80)	89(27.46)	2.15	III
3.	Fertilizer management	63(19.44)	165(50.92)	96(29.62)	2.10	VI
4.	Irrigation management	73(22.53)	145(44.75)	106(32.71)	2.10	VI
5.	Weed management	78(24.07)	131(40.43)	115(35.49)	2.11	V
6.	Insect-pest &disease management	81(25)	140(43.20)	103(31.79)	2.06	VII
7.	Time and method of harvesting	68(20.98)	144(44.44)	112(34.56)	2.13	IV
8.	Method of storage	47(14.50)	132(40.74)	145(44.75)	2.30*	I
	Overall Mean				2.15	

F= frequency, %= Per cent, Figures in parenthesis shows the percentage, * higher than overall mean score

Table 2. Knowledge level of recommended wheat production practices

S.No.	Level of Knowledge	Frequencies of farmers			Overall farmers
		Small	Medium	Big	
1.	Low (25 to 41)	24(22.22)	27(25.00)	20(18.51)	71(21.91)
2.	Medium (42 to 57)	49(45.37)	43(39.81)	58(53.70)	150(46.29)
3.	High (Above 57)	35(32.40)	38(35.18)	30(27.77)	103(31.79)
	Total	108(100.00)	108(100.00)	108(100.00)	324(100.00)

*****Figures in parenthesis are percentage

39.81% wheat growers had medium level of knowledge, followed by high (35.18%)and low (25%). In case of big farmers, 53.70% wheat growers had medium level of knowledge, followed by high (27.27%) and low (18.51%) about the improved wheat cultivation practices. The pooled data of overall farmers has revealed that 46.29 per cent of the wheat growers had medium level of knowledge regarding recommended wheat production practices, followed by high (31.79%) and low (21.91%). Thus, it may be inferred from the data that the higher percentage i.e. about 78.08 per cent of wheat growers had medium to high level of knowledge regarding recommended wheat production technology. The results of this study are supported by the study of Verma & Yadav (2011); Kumar et al., (2012); Chaudhary et al., (2013); Painkra et al., (2014).

Results from Table 3 has given insights about the distribution of the adoption respondents according to their practice wise extent of adoption of recommended wheat production technology. Regarding the practice 'selection and preparation of land', 48.45 per cent wheat growers had high adoption level followed by medium (36.11%) and low (15.43%). for practice 'seed and sowing method' 44.75 per cent of wheat growers had medium adoption level, followed by high (28.39%) and low (26.85%). For the practice 'fertilizer management', (46.91%) wheat growers had medium adoption level followed by high (31.79%) and low (21.29%) respectively. About the practice of 'irrigation management' the majority of the wheat growers (42.90%) had high adoption level followed by medium (42.59%) and low (14.50%). For the practice of 'weed management' (37.65%) wheat growers had medium adoption level, followed by high (34.25%) and low (28.08%). Regarding adoption of the practice 'insect-pest & disease management' majority of the wheat growers (50.30%) had medium adoption level followed by high (29.01%) and low (20.67%) adoption. For 'time and method of harvesting' practice (47.22%) wheat growers had medium adoption level of adoption, followed by high (41.04%) and low (11.72%) respectively. Regarding 'method of storage' practice, 43.20 per cent of the wheat-growers had high adoption level followed by medium (40.43%) and low (16.35%). In the case of mean score of adoption, the 'selection and preparation of land' had a mean score of 2.33 (Rank I) followed by 'time and method of harvesting' with a mean score of 2.29 (Rank II) followed by 'irrigation management' with mean score 2.28 (Rank III), followed by the 'method of storage' with mean score 2.26 (Rank IV), all of which are higher than the overall mean score 2.18, followed by 'Fertilizer management' with mean score 2.10 (Rank V) followed by 'insect-pest and disease management with mean score 2.08 (Rank VI) followed by 'weed management' with mean score 2.06 (Rank VII) and at last followed by 'seed and sowing method' with lowest mean score 2.01 (Rank VIII). Thus it may be reported that, overall mean score of 2.18 of practice wise adoption regarding recommended wheat production technology among respondents may be found.

Results from Table 4 has revealed that in the case of small farmers, (41.66%) wheat-growers had medium level of adoption regarding recommended wheat production practices, followed by

Table 3. Practice wise level of adoption regarding recommended wheat production technology

S.No.	Technological practices of wheat crop cultivation	Level of adoption			Mean score	Rank
		Low F(%)	Medium F(%)	High F(%)		
1.	Selection and preparation of land	50(15.43)	117(36.11)	157(48.45)	2.33*	I
2.	Seed and sowing method	87(26.85)	145(44.75)	92(28.39)	2.01	VIII
3.	Fertilizer management	69(21.29)	152(46.91)	103(31.79)	2.10	V
4.	Irrigation management	47(14.50)	138(42.59)	139(42.90)	2.28*	III
5.	Weed management	91(28.08)	122(37.65)	111(34.25)	2.06	VII
6.	Insect-pest & disease management	67(20.67)	163(50.30)	94(29.01)	2.08	VI
7.	Time and method of harvesting	38(11.72)	153(47.22)	133(41.04)	2.29*	II
8.	Method of storage	53(16.35)	131(40.43)	140(43.20)	2.26*	IV
	Overall Mean				2.18	

F= frequency, %= Per cent, Figures in parenthesis shows the percentage, * higher than the overall mean score

Table 4. Adoption of recommended production practices by wheat growers

S.No.	Categories of adoption level	Frequencies of farmers			Overall Farmers
		Small	Medium	Big	
1.	Low (25 to 41)	40(37.03)	45(41.66)	25(23.14)	110(33.95)
2.	Medium (42 to 57)	45(41.66)	35(32.40)	55(50.92)	135(41.66)
3.	High (Above 57)	23(21.29)	28(25.92)	28(25.92)	79(24.38)
	Total	108(100.00)	108(100.00)	108(100.00)	324(100.00)

Figures in parenthesis are percentage

low (37.03%) and high (21.29%). In the case of medium farmers, (41.66%) wheat-growers had low adoption, followed by medium (32.40%) and high (25.92%) respectively. In the case of big farmers, 50.92%) wheat-growers had a medium level of adoption, followed by low (23.14%) and high (25.92%). All the pooled data has revealed that 41.66 per cent of the wheat-growers were had a medium level of adoption regarding recommended wheat production practices; followed by low (33.95%) and high (24.38%). Thus, it may be inferred from the data that the higher percentage of wheat growers had medium to high adoption level of recommended wheat production technology. The reason might be that, majority of the farmers had medium extension contact, medium material possession, medium economic motivation, medium scientific orientation and medium level of knowledge regarding recommended wheat production technology. Hence, all these factors might have influenced them to fall under the medium adoption category. Further, as the landholding and income increase naturally and they prove towards economical returns. The Extension programme may have played an effective role in changing the attitude, skill and knowledge of wheat growers toward recent technology for disease and pest management of wheat including their adoption. This result of this study is supported by the study of Bhagat et al., (2002); Kumar et al., (2012); Meena (2012); Nain et al., (2012); Painkra et al., (2014); Singh et al., (2014); Ashok Kumar et al., (2018).

CONCLUSION

It is concluded from the study that the majority of the wheat grower had a medium level of knowledge regarding technological practices of wheat crop cultivation while a majority of the wheat grower had a medium level of adoption regarding technological practices of wheat crop cultivation and it becomes very important for extension agencies to play a role to create awareness among farmers about the recommended practices of wheat cultivation through training and group discussion as well as field trips. As wheat crop has much importance to us, so there is a need to create a viable and sustainable agricultural system with the judicious use of resources so that our upcoming generations do not feel deprived of their sustenance need i.e. food.

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