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## Adoption level of wheat seed production technologies in north-west zone and south-west zone of Haryana

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### Abstract

The present study was carried out in Sirsa and Hisar districts of Haryana to find out the adoption level of wheat seed production technologies. In total 120 respondents, viz. 60 wheat seed producing farmers from each district and 30 farmers from each block were selected for the study. Empirical data were collected personally through a well-structured and pre-tested interview schedule and analyzed with the help of appropriate statistical tools using 26<sup>th</sup> version of Statistical Package for Social Sciences (SPSS). Findings revealed that more than half of the respondents (56.67%) had medium level of overall adoption level regarding wheat seed production technology. In case of practise-wise adoption, the adoption level was high about field preparation, recommended varieties, seed standards and field standards, while spacing and sowing time were less adopted practices. Study also concluded that independent variables like age, education, socio-economic status, land holding, extension contact, mass media exposure, change proneness, risk orientation, scientific orientation and seed production experience were positively and significantly correlated with adoption level.

**Keywords:** adoption, seed production technology and wheat seed growers

### Introduction

Wheat crop is India's prime most staple harvest, placed second only to rice. It is mostly consumed in the north and north-west parts of the country. Being rich in protein, vitamin and carbohydrates, it provides a balanced food to millions of people each day. Wheat is grown mainly in crop-rotation like Rice-wheat, Jowar-wheat, Bajra-wheat, Maize-wheat, Pulse-wheat, Cotton-wheat, Soybean-wheat, etc. in different parts of the country under irrigated condition. Under rainfed condition, fallow-wheat is most common, but sometimes short duration pulse crops may precede wheat in assured rainfall areas (Anonymous, 2020) <sup>[1]</sup>. It is mainly used by human beings in the form of flour for making chapatias and pasta products.

In agriculture, a good quality seed is the most basic and essential input. Other inputs are contingent upon quality of seed for being optimally effective (Singh *et al.*, 2014) <sup>[9]</sup>. However, quality seeds possess different characters; genetic purity, and uniformity and should conform to the standards of the particular cultivar, disease free, free from admixtures of other crop seeds, weeds and inert matter, acceptable uniformity with respect to size, shape and color (Roy and Bandyopadhyay, 2014) <sup>[7]</sup>. It is estimated that the direct contribution of quality seed alone to the total production is about 15.00 to 20.00 per cent depending upon the crop and it can be further raised up to 45.00 per cent with efficient management of other inputs. Hence, development of seed enterprise is necessary in the context of modern agriculture. Farmers demands seeds which are genetically pure and possess other desired qualities and when they don't get, quality seeds the yield they obtain may not be as expected (Wadge, 2017) <sup>[9]</sup>.

Keeping in view the above facts and the seed demand for the state, the present study was taken with the objective to identify the adoption level of wheat seed production technologies in north-west zone and south-west zone of Haryana.

### Materials and Methods

The present study was carried out in two districts of Haryana state, i.e. Hisar and Sirsa, which were selected purposively, as they have higher number of seed processing plants. Hisar-I and Hisar-II blocks from Hisar and Rania and Odhan blocks from Sirsa district were selected on the basis of simple random sampling method. In total 120 respondents, viz. 60 wheat seed producing farmers from each district and 30 farmers from each block were constituted the sample size for the study.

The data were collected through personal interview technique with the help of well-structured and pre-tested interview schedule. Empirical data were tabulated and analyzed with the help of appropriate statistical tools using 26<sup>th</sup> version of Statistical Package for Social Sciences (SPSS). The responses of farmers' were obtained on three-point continuum scale as 'full adoption', 'partial adoption', and 'no adoption' and weightage was given as 3, 2 and 1, respectively. Aggregate total weightage score was calculated for each statement separately and on the basis of calculated score, total weighted score and weighted mean score were obtained. Adoption index was calculated with following formula:

$$\text{Adoption index (UI)} = \frac{\text{Total obtained adoption score}}{\text{Maximum possible obtained adoption score}} \times 100$$

**Results**

Results of the study are presented and discussed under broad heading and sub-headings as follows:

**Practice-wise level of adoption of farmers about wheat seed production technology**

Adoption refers to a decision for full scale continued use of an innovation over a period of time. It is a mental process through which an individual passes from first hearing about an innovation to its final adoption. It was evident from Table

1 that 'recommended varieties', 'field preparation', 'seed standards' and 'field standards' practices were highly adopted with adoption index (AI) 50.00 per cent, followed by 'seed treatment' (48.83%), 'harvesting' (48.33%), 'field inspection by SCO' (47.33%), 'nutrient management' (41.33%), 'land selection' (41.11%), 'irrigation management' (40.66%), 'plant protection measures' (38.50%), 'roguing' (37.66%), 'seed rate' (31.83%), 'spacing'(31.00%), and 'sowing time' (27.80%) ) ranked II, III, IV, V, VI, VII, VIII, IX, X, XI and XII, respectively. It reflected that recommended varieties, field preparation, seed standards and field standards were highly adopted practices by farmers than other practices, while spacing and sowing were least adopted practices by the growers. Therefore, there is an urgent to increase the knowledge of the respondents about these practices of seed production technology of wheat, which will eventually increase their adoption. These findings are in conformity with the findings of Deshmukh and Tamgadge (2011) [2] who reported that majority of the farmers had fully adopted different practices of seed production technology. Singh *et al.* (2014) [8] reported that 96.88 per cent of wheat growers had adopted recommended dose of herbicides to control weeds and 42.50 per cent of them had adopted chemical control measures to control termite and aphid.

**Table 1:** Ranking of items under practice-wise level of adoption of farmers about wheat seed production technology

(n=120)			
Particulars	Weighted mean score	Adoption in %	Rank
Land selection	2.47	41.11	VI
Recommended varieties	3.00	50.00	I
Sowing time	1.67	27.80	XII
Field preparation	3.00	50.00	I
Seed rate	1.91	31.83	X
Spacing	1.86	31.00	XI
Seed treatment	2.93	48.83	II
Nutrient management	2.48	41.33	V
Irrigation management	2.44	40.66	VII
Seed standards	3.00	50.00	I
Field standards	3.00	50.00	I
Rouging	2.26	37.66	IX
Field inspection by SCO	2.84	47.33	IV
Plant protection measures	2.31	38.50	VIII
Harvesting	2.90	48.33	III

**Note:** Scale: 1= No Adoption, 2= Partial adoption, 3= Full adoption.

**Overall adoption level about wheat seed production technology**

It is clear from Table 2 that majority of the seed growers had medium level of overall adoption about wheat seed production technology ranked I with a highest percentage score of 56.67 followed by high (22.50%) and low (20.83%) with ranks II and III, respectively. The possible trend might be due to their low to medium level of overall knowledge. It reflected the most of respondents have low to medium level of overall adoption about seed production technology. Here again comes the role of extension agencies which should not only make the farmers aware and educated on improved technology but should also ensure the supply of inputs and services well in time and to the best of convenience of the farmers. Moreover, adoption of such technologies can also be increased through the demonstrations in farming community. Similar findings were also reported by Meena (2012) [4], Singh *et al.* (2014) [8] and Patodiya (2018) [6].

**Table 2:** Ranking of items under overall adoption level of the farmers

(n=120)		
Categories & Scores	Frequency (Percentage)	Rank
Low (Below 114)	25 (20.83)	III
Medium (114 to 125)	68 (56.67)	I
High (Above 125)	27 (22.50)	II

**Correlation coefficient between respondents' personality traits with their adoption level about wheat seed production technology**

It can be concluded from Table 3 that out of 12 personality traits like education, socio-economic status, mass media exposure, extension contact, scientific orientation and seed production experience showed positive and highly significant correlation with the adoption level of the respondents about seed production technology of wheat at 0.01 level of probability.

While age, land holding, change proneness and risk orientation showed positive and significant correlation with the adoption level of the respondents at 0.05 level of probability. However, farm implements and irrigation facilities showed positive and non-significant correlation with the adoption level of the respondents about seed production technology of wheat. The findings are in conformity with those of Nakro (2003) [5], Kumar *et al.* (2014) [3] and Roy and Bandyopadhyay (2014) [7].

**Table 3:** Correlation coefficient between respondents' personality traits with their adoption level about wheat seed production technology

(n=120)	
Personality traits	Correlation coefficient 'r' value
Age	0.218*
Education	0.441**
Socio-economic status	0.452**
Land holding	0.195*
Farm implements	0.056 <sup>NS</sup>
Mass media exposure	0.414**
Extension contact	0.506**
Irrigation facilities	0.070 <sup>NS</sup>
Change proneness	0.212*
Risk orientation	0.181*
Scientific orientation	0.235**
Seed production experience	0.398**

**Note:** \* Significant at 0.05 level of probability, \*\* Significant at 0.01 level of probability, NS : Non-significant

### Multiple regression analysis between respondents' personality traits with their adoption level about wheat seed production technology

The result of multiple regression analysis is presented in Table 4. The result of multiple regression analysis revealed that all the 12 personality traits jointly contributed to 51.27 per cent ( $R^2 = 0.5127$ ) variation in the adoption level. This means that only 51.27 per cent of the variation in the dependent variable was due to these independent variables and the remaining 48.73 per cent was due to unexplained variable. Moreover, one unit change in education, socio-economic status, mass media exposure, extension contact, risk orientation and seed production experience will result in a corresponding change of 2.022, 0.377, 0.781, 0.387, 0.575 and 0.764 unit in the adoption level of wheat seed growers about seed production technology of wheat.

Further, out of personality traits, five variables like socio-economic status, mass media exposure, extension contact, risk orientation and seed production experience showed significant effect on adoption level of wheat seed growers about recommended seed production technology of wheat at 0.01 level of probability, while education had significant effect at 0.05 level of probability. However, variables like age, land holdings, farm implements, irrigation facilities, change proneness, scientific orientation could not show any significant effect on adoption level of wheat seed growers about seed production technology of wheat. The findings of the study are in agreement with the findings of Nakro (2003) [5] and Wadge (2017) [9].

**Table 4:** Multiple regression analysis between independent variables of the respondents and their adoption level about wheat seed production technology

(n=120)		
Personality traits (X)	Regression coefficient 'b' value	't' value
Age (X <sub>1</sub> )	0.629	0.572 <sup>NS</sup>
Education (X <sub>2</sub> )	2.022	4.300**
Socio-economic status (X <sub>3</sub> )	0.377	2.436*
Land holding (X <sub>4</sub> )	-0.484	-0.737 <sup>NS</sup>
Farm implements (X <sub>5</sub> )	0.195	-0.583 <sup>NS</sup>
Mass media exposure (X <sub>6</sub> )	0.781	2.334*
Extension contact (X <sub>7</sub> )	0.387	2.529*
Irrigation facilities (X <sub>8</sub> )	1.004	0.942 <sup>NS</sup>
Change proneness (X <sub>9</sub> )	-0.958	-0.937 <sup>NS</sup>
Risk orientation (X <sub>10</sub> )	0.575	2.282*
Scientific orientation (X <sub>11</sub> )	0.910	1.763 <sup>NS</sup>
Seed production experience (X <sub>12</sub> )	0.764	2.495*

**Note:** \* Significant at 0.05 level of probability, \*\* Significant at 0.01 level of probability, NS : Non-significant,  $R^2 = 51.27\%$  or 0.5127

### Conclusion

The results of the study indicated that most of the farmers had medium level of overall adoption level about seed production technology of wheat followed by high and low. With regard to practice-wise adoption, majority of them had significant adoption level about "field preparation", 'seed standards' and 'field standards' practices followed by 'seed treatment', 'harvesting' and 'field inspection by SCO', etc. The study also envisaged that variables like age, education, socio-economic status, land holding, extension contact, mass media exposure, change proneness, risk orientation, scientific orientation and seed production experience were positively and significantly correlated with adoption level. From the above research findings, it can be concluded that the majority of the respondents had medium level of adoption level regarding seed production technology of wheat. Therefore, it is necessary to hold awareness campaigns, training and

meetings with farmers so that the farming community can adopt advance seed production technologies. Moreover, as semi-medium and medium farmers are mostly involved in seed production programme, they can be provided with the requisite inputs like fertilizers, pesticides on subsidized rates. Further, it is also recommended that the necessary information of wheat seed production technology needs to be given through mass media like newspaper, radio, television, internet and extension publication, so that farmers may increase their knowledge level and be motivated to adopt complete wheat seed production technology which in turn helps in increasing the adoption level of wheat seed growers.

### References

1. Anonymous. Published by the Food and Agriculture Organization (FAO) STAT. [Weblink: [www.fao.org](http://www.fao.org)] [Visited: 28 March, 2021] 2020a.

2. Deshmukh AS, Tamgadge SB. Adoption of paddy growers about recommended technology. *Agriculture Update* 2011;6(1):81-84.
3. Kumar GA, Sailaja V, Satyagopal PV, Prasad SV. Evaluation of profile characteristics of SRI cultivation farmers in relation to their extent of adoption of technologies. *Current Biotica* 2014;8(1):36-41.
4. Meena BS. Adoption behaviour of wheat production technology. *Agriculture Update* 2012;7(3/4):283-286.
5. Nakro R. Farmer's knowledge and adoption of rice production technology in Nagaland. 2003. Doctoral dissertation, Agricultural Extension Education, CCSHAU, Hisar.
6. Patodiya RS. Knowledge and adoption of scientific wheat cultivation practices in Rajasthan. *Indian Research Journal of Extension Education* 2018;18(1):93-95.
7. Roy D, Bandyopadhyay AK. Factors contributing towards adoption of aromatic rice production technology in Nadia district of West Bengal. *Journal of Crop and Weed* 2014;10(2):166-169.
8. Singh R, Hansra BS, Chand R. Knowledge and adoption level of farmers of Haryana about scientific wheat cultivation practices. *Indian Journal of Agricultural Research* 2014;48(1):52-56.
9. Wadge SK. Knowledge and adoption of kharif maize production technology among the growers. Doctoral dissertation, Vasanttrao Naik Marathwada Krishi Vidyapeeth, Parbhani 2017.