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Knowledge level of farmers about wheat seed production technology in Haryana

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Abstract

The present study was carried out in Hisar and Sirsa districts of Haryana to find out the knowledge level of farmers about wheat seed production technology. In total 120 respondents, viz. 60 wheat seed producing farmers from each district and 30 farmers from each block were selected for the study. The data were collected with the help of well-structured and pre-tested interview schedule and analyzed using 26th version of Statistical Package for Social Sciences (SPSS) for tabulating results and drawing conclusions. Findings of the study revealed that most of the farmers (61.67%) had medium level of overall knowledge level about seed production technology of wheat followed by high and low. Indeed, more awareness programmes should be organized by the government and non-governmental organizations to increase level of knowledge about wheat seed production technology to sustain wheat production in Haryana. Study also revealed that variables like age, education, socio-economic status, extension contact, mass media exposure, change proneness, risk orientation, scientific orientation and seed production experience were positively and significantly correlated with their knowledge level about wheat seed production technology.

Keywords: knowledge, seed production technology and wheat seed farmers

Introduction

Wheat is the most widely grown cereal crop feeding the people across the globe. It is grown in near about 220.11 million hectares with a production of 768.49 million tonnes of grain. Whereas in India, it covered an area about 31.35 million hectares and production of 107.8 million tonnes (Anonymous, 2020) ^[2]. Among different states, Haryana wheat accounts for an area of 02.82 million hectares with total production of 12 million tonnes (Anonymous, 2020) ^[1]. It is mainly used in the form of flour for making chapattis and pasta products. The wheat usually contains sufficient amount of carbohydrates, protein, fat, minerals, fiber and moisture. The proteins which are found in wheat are of special significance, besides their significance in nutrition, these are principally concerned with providing the characteristic substance 'gluten', which is very much essential for bakers. Moreover, its straw is used as fodder, padding and mulching material.

In agriculture, seed is a vital input and a dynamic component for increasing agricultural production. Quality seed has been regarded as one of the basic agricultural inputs essential for continued development for Indian agriculture. Use of improved and quality seed is one of the ways of increasing agricultural production as they possess disease and pest resistance, shorter duration and tolerance against unfavourable climate condition. The development of seed enterprise is necessary in the context of modern agriculture (Kumbhare and Singh, 2011) ^[5]. Farmers demands seeds which are genetically pure and possess other desired qualities viz. high germination percentage, high vigour, high purity and sound health. When the farmer does not get, seeds possessing these qualities and values, the yield they obtain may not be as expected (Patel *et al.*, 2004) ^[7]. Only seeds with assured quality can be expected to respond to fertilizers and other inputs in the expected manner. It has been noticed that among the inputs used by farmers cost of seed remains the lowest. It is a basic input and forms only a small part of the total expenses yet, without good seeds, the investment on other inputs will not pay the desired returns.

Keeping in view the above facts and importance of quality seed in agriculture, the present study was taken with objective to identify the knowledge level of farmers about wheat seed production technology in Haryana.

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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 26th version of Statistical Package for Social Sciences (SPSS). The responses of farmers' were obtained on three-point continuum scale as full knowledge, partial knowledge and no knowledge 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. Knowledge index was calculated with following formula:

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

Results

Results of the study are presented and discussed under broad

heading and sub-headings as follows:

Practice-wise knowledge level of farmers about wheat seed production technology

Table 1 revealed about the practice-wise knowledge level of wheat seed growers with respect to fifteen dimensions of wheat seed production technologies as recommended by the state department of agriculture, Haryana. It was observed that most of the farmers had significant knowledge about 'field preparation' practices for wheat seed production ranked I with weighted mean score (WMS) 3.00 followed by 'seed treatment', 'seed rate', 'land selection', 'sowing time', 'harvesting', 'recommended varieties', 'irrigation management', 'field inspection by SCO', 'nutrient management', 'field standards', 'roguing', 'plant protection measures', 'seed standards' and 'spacing' ranked II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV and XV with WMS 2.98, 2.97, 2.95, 2.94, 2.93, 2.87, 2.83, 2.75, 2.66, 2.64, 2.60, 2.56, 2.54 and 2.49, respectively. It reflected that field preparation and seed treatment were highly known practices by farmers than other practices, while spacing, seed standards and irrigation management needed more attention to increase regarding the knowledge of the respondents about these practices of seed production technology of wheat. The findings are in line with those of Thorat *et al.* (2011) [11] and Singh *et al.* (2013) [9] who both reported that all the respondents had full knowledge about field preparation.

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

(n = 120)

Particulars	Weighted mean score	Knowledge in %	Rank
Land selection	2.95	49.16	IV
Recommended varieties	2.87	47.83	VII
Sowing time	2.94	49.00	V
Field preparation	3.00	50.00	I
Seed rate	2.97	49.50	III
Spacing	2.49	41.50	XV
Seed treatment	2.98	49.60	II
Nutrient management	2.66	44.33	X
Irrigation management	2.83	47.16	VIII
Seed standards	2.54	42.33	XIV
Field standards	2.64	44.00	XI
Roguing	2.60	43.33	XII
Field inspection by SCO	2.75	45.83	IX
Plant protection measures	2.56	42.66	XIII
Harvesting	2.93	49.33	VI

Note: Scale: 1 = No knowledge, 2 = Partial Knowledge, 3 = Full Knowledge

Overall knowledge level of the farmers

Knowledge is pre-requisite to the adoption of an innovation. The ultimate decision of farmers to adopt an innovation is usually the result of their accumulated knowledge gained through experience and expose to different sources of information of the technology. Here knowledge level of farmers refers to the information they possess in respect of wheat seed production technology.

Examination of the data presented in Table 2 indicated that majority of the farmers had medium level of overall knowledge about seed production technology of wheat ranked I with a highest percentage score of 61.67 followed by high (25.83%) and low (12.50%) with ranks II and III, respectively. Hence, there is an urgent need to organize need based training programme for the wheat farmers in the specific areas of concern. Similarly, Patodiya (2018) [8] also reported that 61.25 per cent of the respondents had medium

level of overall knowledge about scientific wheat cultivation practices.

Table 2: Ranking of items under overall knowledge level of the farmers

(n = 120)

Categories & Scores	Frequency (Percentage)	Rank
Low (Below 121)	15 (12.50)	III
Medium (121-135)	74 (61.67)	I
High (Above 135)	31 (25.83)	II

Relationship between farmers' personality traits with their knowledge level about wheat seed production technology

It is clear from Table 3 that personality traits like age ($r = 0.225$), education ($r = 0.537$), socio-economic status ($r = 0.445$), mass media exposure ($r = 0.406$), extension contact (r

= 0.648), change proneness ($r = 0.209$), risk orientation ($r = 0.216$), scientific orientation ($r = 0.193$) and seed production experience ($r = 0.349$) exhibited positive and significant correlation at 0.05 level of probability with their knowledge level about wheat seed production technology, while land holding ($r = 0.035$), farm implements ($r = 0.064$) and irrigation facilities not show any significant association. Thus, it may, therefore, be inferred that increase in age, education, socio-economic status, mass media exposure, extension contact and seed production experience of the farmers meant increase in their knowledge about wheat seed production technology. While in case of the 'partial regression coefficient'; education (4.493), mass media exposure (5.247), extension contact (3.417), risk orientation (2.990) and seed production experience (2.542) were found significant. However, age (0.593), socio-economic status (1.188), land holdings (-1.646), farm implements (0.633), irrigation facilities (1.208), change proneness (-0.999) and scientific orientation (-0.166) did not significantly contribute with their knowledge level about wheat seed production technology. The results are in conformity with the results of Nakro (2003) [6], Patel *et al.* (2004) [7], Gupta (2011) [4] and Wadge (2017) [12].

Further, it was revealed that all the twelve independent variables included in the study jointly contributed 64.33 per cent variation in knowledge level about wheat seed production technology when other factors were kept constant. This means that 64.33 per cent of the variation ($R^2 = 64.33$) in the dependent variables was due to these variables and remaining 35.67 per cent variation was due to extraneous variables.

Table 3: Students' personal variables and their association with knowledge level about wheat seed production technology

(n = 120)

Personality traits	Correlation coefficient ('r' value)	Regression coefficient ('b' value)	't' values
Age	0.225*	0.868	0.593 ^{NS}
Education	0.537*	2.808	4.493*
Socioeconomic status	0.445*	0.253	1.188 ^{NS}
Land holding	0.035 ^{NS}	-1.427	-1.646 ^{NS}
Farm implements	0.064 ^{NS}	0.273	0.633 ^{NS}
Mass media exposure	0.406*	2.681	5.247*
Extension contact	0.648*	0.682	3.417*
Irrigation facilities	0.078 ^{NS}	1.672	1.208 ^{NS}
Change proneness	0.209*	-1.295	-0.999 ^{NS}
Risk orientation	0.216*	0.989	2.990*
Scientific orientation	0.193*	-0.113	-0.166 ^{NS}
Seed production experience	0.349*	1.395	2.542*

*Significant at $p = 0.05$ level, NS = Non- Significant, $R^2 = 64.33\%$ or 0.6433

Conclusion

The results of the study indicated that most of the farmers had medium level of overall knowledge level about seed production technology of wheat followed by high and low. With regard to practice-wise knowledge, majority of them had significant knowledge about 'field preparation' practices followed by 'seed treatment', 'seed rate', and 'land selection', etc. The study also envisaged that variables like age, education, socio-economic status, mass media exposure, extension contact, change proneness, risk orientation, scientific orientation and seed production experience

exhibited positive and significant correlation at 0.05 level of probability with their knowledge level about wheat seed production technology. Therefore, it may be concluded that State Agricultural Universities and State Department of Agriculture should provide knowledge about wheat seed production technology to the growers by providing them need based trainings, which will help to increase the production and net returns to the farmers. Effective media should be used for ranking awareness and knowledge among seed farmers about the innovations, as large numbers of seed growers did not know about improved technologies recommended and released by the State Agricultural Universities. Moreover, State Seed Certification Agency should also organize exposure visits of seed growers to seed processing plants of the corporation such as Haryana State Seed Development Corporation which will provide them requisite practical knowledge about various practices.

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