

Attitude and Knowledge of the Farmers about Zero Tillage Sowing of Wheat

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Abstract

Studies were conducted to find out the role of knowledge and attitude of farmers for the dissemination of zero tillage technology in Mewat District of Haryana. Results revealed that response of adopters and non-adopters was different towards many questions, but about the advantages of zero tillage such as high profitability, money, water and fuel saving and crop does not turn yellow after first irrigation in zero tillage were recognized by the adopters, whereas the non adopters only recognized the advantages in money and fuel saving. The majority of the respondents among the adopters were agreed that the yield in zero tillage field was higher than in conventional tillage. Most of the adopters were agreed that the zero till drill increased the yield. Generally, marginal and small farmers were found to have less knowledge about the zero tillage technology as they got the information about zero tillage by fellow farmers only and they did not experience this technology at their own.

Key words: Knowledge, attitude, zero-tillage

Introduction

Rice-wheat is one of the pre-dominant and economical cropping systems of northern India as well as South Asia. In this system, wheat is planted with traditional method by giving 4-6 tillage operations for the preparation of fine seed-bed. The tillage operations are only raising the cost of production but they have no benefits for increasing the grain yield of wheat. From the last four years, the farmers are adopting the zero tillage for planting wheat being a technology for reducing the cost of production, tillage operations, saving fuel^[3], water, energy, time reduce the weed population *i.e. Phalaris minor*, timely planting of crop^[1] and reduces the wear and tear of tractor^[2]. However, knowledge and attitude play significant role for the rapid transfer of any technology after its introduction. Keeping in view the

importance of the above factors, the present investigation was undertaken to see the knowledge and attitude of the adopters and non-adopters towards zero tillage technology in Mewat District of Haryana.

Material and Methods

The study was conducted in randomly selected villages viz. Sanghel, Ujina, Jaysinghpur and Jajuka in Nuh block of Mewat district, Haryana in 2016. Personal interview technique on the basis of the set of questionnaires was used for the collection of data. For the selection of the respondents, a list of farmers was prepared and 80 were selected as respondents. Besides such phased data, questioning on different components of wheat cultivation, socio-economic, cultural and technological background of the respondents was also taken into account.

The response of farmers (respondents) was resided with respect to attitude, knowledge and constraints (technological, extension and financial) obtained on a five-point attributes, viz. ‘Strongly agree’, ‘agree’ ‘undecided’, ‘disagree’, and ‘strongly disagree’ with the weightage of 5, 4, 3, 2 and 1, respectively for concerned statement. The total attitude and knowledge score for each respondent was calculated and categorized in three categories, viz. less knowledgeable, knowledgeable and most knowledgeable for knowledge level and less favourable, favourable and most favourable in case of attitude level on the basis of mean and S.D.

Result and Discussion

Attitude of the Farmers towards Zero tillage Wheat

The responses of adopters and non-adopters on the questions related to attitude are summarized in Table 1(a). It is evident from the table that the response of adopters and non-adopters was different towards many questions, but about the advantages of zero tillage such as high profitability, money, water and fuel saving and crop do not turn yellow after first irrigation in zero tillage were recognized by the adopters, whereas the non-adopters only recognized the advantages in money and fuel saving. The adopters about 96.34% were agreed to higher profitability in

zero tillage. However, non- adopters about 47.15% were agreed to this advantage of the zero tillage technology. All the adopters were agreed for saving of money and diesel due to zero tillage. However, non-adopters 64.76% and 64.72% were agreed for these important merits of this technology. The similar results were reported by Singh *et al.* (2002).

Data presented in Table 1(b) explain the Attitude of the farmers towards zero tillage technique was favourable and farmers have shown positive attitude. Few farmers have shown less favourable attitude as they were of the opinion that wheat cannot be grown without tillage (land preparation). They were also of the view that zero tillage-sown wheat has poor germination. Few farmers have positive attitude and also very much convinced that poor germination was not because of the zero tillage technology but due to insufficient moisture at the time of sowing and improper placement of seeds due to improper adjustment of machine. Favourable attitude of higher proportion of farmers was mainly due to lesser operational cost, use of lower seed rate, less weed infestation, early sowing and seed emergence. It indicated a sea change in the mind-set of farmers. Data presented in Table 1(b) also indicate that very less farmers has negative attitude about this technology.

Table 1(a): Farmer’s attitude towards zero tillage Wheat in Mewat district of Haryana

S.No.	Statements	Adopters (%) (SA+A)	Non-adopters (%) (SA+A)
1	Zero tillage is a highly profitable technology	96.34	47.15
2	Zero tillage saves water in the subsequent irrigation	44.52	5.91
3	Zero tillage increases yield from wheat	64.81	23.53
4	Zero tillage does not increase yield from wheat at all.	18.52	5.94
5	I earned a lot of money for myself and my family due to adoption of zero tillage	83.54	5.91
6	I feel all the farmers should adopt zero tillage technology	85.15	29.47
7	Zero tillage saves diesel	100.00	64.72
8	Zero tillage saves money	100.00	64.76
9	Zero tillage saves water in first irrigation.	94.44	41.25
10	The crop turns yellow after first irrigation in conventional tillage	100.00	64.71
11	The crop does not turn yellow after irrigation in zero tillage.	96.38	31.35
12	Zero tillage technology is very simple and does not require any special skill	94.52	29.43

SA–Strongly agree; A–Agree

Table 1(b): Attitude of Farmers about Zero tillage Wheat

Attitude	No. of farmers	Per cent
Most favourable	48	60.00
Favourable	27	33.75
Less favourable	5	6.25
Total	80	100.00

Knowledge of the Farmers about zero tillage Wheat

It is evident from Table 2(a) that the adopters have more knowledge of beneficial effects of zero tillage. The respondents 66.7% among the adopters were agreed that the yield in zero tillage fields was higher than in conventional tillage. However, the non-adopters only 5.9% were agreed with the beneficial attribute of zero tillage. Most of the adopters were agreed that the zero till drill increased the yield; under zero tillage wheat was sown one day before the conventional tillage. Standing stubbles of 1.5' are not a problem, earlier germination (1 or 2 days) under zero tillage, phosphorus application at right depth with zero till drill, placement of seed in most fertile zone with zero till drill, better vigour under zero tillage, reduced *Phalaris minor* population under zero tillage and about the other benefits of the zero tillage are mentioned in Table 2.

The data in Table 2(a) reveal the average knowledge of sources on the different farm sizes of adopters and non-adopters. Results revealed that adopters of zero tillage attained the higher score of knowledge (88.6%) than the non-adopters of zero tillage (75.2%). The differences in the attainable

score of the adopters and non-adopters were observed significant at 0.05% level of probability. The different categories of farm size, small, medium and large farmers almost have the same level of knowledge among the adopters and non-adopters of zero tillage technology. It is evident that all the categories of farm size, small, medium and large farmers are equally realizing the benefits and adopting it as same as medium and large farmers. This indicated that an area (5 lakhs acre) under this technology during 2003-04, has been increased five times more than the area of 2002-03 (1 lakhs acre) probably due to the adoption of the technology by all types of farmers in Punjab. This study also proved that it was the only technology, which was acceptable to all categories of the farmers' *i.e.* small, medium and large farmers.

With respect to level of knowledge about zero tillage technology amongst the farmers, about 72.50 per cent of the farmers possessed very good knowledge on different aspects, *viz.* machine operation, maintenance, residue management, weed control, sowing time and field condition followed by 23.75 per cent having medium knowledge. Very few farmers (3.75%) have less knowledge about ZTT.

Table 2(a): Farmer's knowledge towards zero tillage Wheat in Mewat district of Haryana

S.No.	Statements	Adopters (%) (SA+A)	Non-adopters (%) (SA+A)
1	Zero tillage technology means a new machine that will increase the yield.	81.5	17.6
2	Emergence of wheat under zero tillage is 1 or 2 days earlier than conventional tillage.	72.3	17.6
3	The crop vigour is better than conventional tillage.	92.6	41.2
4	Use of post-emergence herbicides is necessary in ZT.	100.0	47.1

5	The saving of at least Rs. 1000 is possible by using ZT.	98.1	52.9
6	The crop does not remain yellow after first irrigation.	98.2	41.2
7	The lodging is not a problem in zero tillage.	75.9	47.1
8	Insect population specially yellow stem borer does not increase in rice after wheat using zero tillage technology	61.1	23.5
9	The population of rats does not increase if we use zero tillage.	64.8	23.5
10	The population of termite does not increase if we use zero tillage.	70.4	23.5
11	The yield in zero tillage fields is more than in conventional tillage.	66.7	5.9
12	There is definitely saving in labour if one uses zero tillage technology	98.2	47.1

SA–Strongly agree; A–Agree

Table 2(b): Knowledge of farmers about Zero Tillage

Knowledge	No. of farmers	Per cent
High knowledge	58	72.50
Medium knowledge	19	23.75
Less knowledge	3	3.75
Total	80	100.00

Generally, marginal and small farmers were found to have less knowledge about the zero tillage technology as they got the information about zero tillage by fellow farmers only and they did not experience this technology at their own.

Conclusion:

Study on the acceptability of zero tillage technology in Mewat district of Haryana during the last years indicated that the area under zero tillage had been rapidly increasing. It is very successful resource (labour, energy, fuel, water, seed, soil texture and structure) conservation technology for sustained productivity of wheat crop under rice-wheat system. A gradual increase in area under zero tillage since last few years has been noticed by the farmers. Not only large and

medium farmers but also small and marginal farmers are now realizing the benefits of this technology and adopting it.

Rate of adoption is comparatively higher in resource rich than that in resource poor farmers. Study also indicated that zero tillage technology is among very few technologies, which is acceptable to both resource rich and poor farmers. So, it can be termed as a resource neutral technology. It was also observed that the comparatively young (30-45 years) farmers performed the role of innovator and early adopter. The rate of adoption and extent of using this technology was correlated with level of education and it was found that educated farmers adopted technology fastly and eagerly.

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