Zero Till Drill – A Suitable Tool for Sowing Wheat

in Tal Area

ABSTRACT

Zero till drill is very useful implement for sowing wheat crop especially is such area where there is a little time for land preparation. In tal areas, water recedes in October and large area of field get exposed for sowing crop at a time. More in such areas due to high percentage of clay and low permeability of soil, proper tilth is not obtained by ploughing the soil which results poor yield of wheat crop. Studies for the suitability of zero till drill in Tal area recorded better performance of Wheat under the system.

KEY WORD: Clay, Tilth, Yield

INTRODUCTION

The most prevalent cropping system of Eastern Bihar is wheat. The soil of this area is heavy consisting clay content more than 50 percent. The clay dominates in montmorillonite which is of swelling and shrinking type. The soil forms big cracks and hard clods on drying. Due to heavy rain and water stagnation in the catchment area farmer faces several problems. Water recedes in October and large area of field get exposed for sowing of crop at a time and sowing operation is to be done in very short duration within a week. Due to inundation of water for four months these area remain completely free from weeds. Tillage is generally done to control weed and create a fine tilth for sowing of crop especially wheat. In Tal due to high amount of clay and low permeability of soil proper tilth is not achieved by ploughing the field. Therefore zero till drill, which doesn't expose the soil to a greater depth thats why clods formation is not possible is used. Moreover proper aeration is provided for germination seeds.

- 25 This avoids any mechanical obstruction for germination seeds as furrow remains uncovered.
- 26 The experimental findings on these aspects were observed and described into subsequent
- 27 heads.

MATERIALS AND METHODS

The test was conducted in Rajpur Tal of Bhagalpur district for direct sowing of wheat after harvest of rice. The soil and sowing characteristics has been presented in Table 1. The paddy field was manually harvested and the stubble was left at height ranging 10-15 cm. For accurate seed rate the drill was calibrated like traditional seed drill but in this case seed rate was kept 20% higher than recommended conventional drilling. The moisture content was 20 percent. The other method for sowing of wheat was also carried out in the Rajpur Tal and the suitability of the zero till drill was evaluated.

RESULT AND DISCUSSION

The results of this experiment are presented in Table 2 and Table 3. The emergence of wheat as influence by different method of sowing at an interval of 7 days is presented in Table 2. The maximum emergence was noted in case of zero till drill due to minimum resistance to germinating seeds. The yield attributing character is presented in Table 3. The effective tiller per square meter of field, no. of grains per panicle and 1000 grain weight is found to be more in case of sowing of wheat by zero till drill. The yield of grain has been noted 38q/ha by sowing the seed by zero drill, which is relatively higher than other sowing method adopted in the Tal land.

Based upon the above results, the zero till drill prove most suitable machine for sowing wheat in Tal land, where little time is left for land preparation.

REFERENCE

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52 Table 1: Soil and sowing characteristics of experimental site

Location	Soil Char	acterist	ics	Sowing Characteristics				
	Textural	PH	EC	OC%	HC	BD	Moist.	Ht. of stubble
	class		(mmh/c)		(cm/hr)	(g/cm	Content	(cm)
						3)	(%)	
Rajpur	Clay	7.2	0.35	0.52	0.126	1.46	20	10-15
Tal of								
Bhagalpur								
district								

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Table 2: Emergence of wheat as influenced by different treatments

Sl.	Treatments	No of emergence per sq. meter			
No.		7 days after sowing	15 days after sowing		
1.	Broadcasting of seed and mixing by	152	170		
	cultivar				
2.	Sowing inploughed field by	178	205		
	broadcasting and mixing by cultivator				
3.	Sowing by zero till drill	185	230		

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Table 3: Yield attributing characteristics and yield of wheat

Sl. No.	Treatments	Effective Tiller/sqm	No. of grains/panicle	1000 grains wt (gm)	Yield (q/ha)
1.	Broadcasting of seed and mixing by cultivar	208	39	34.8	27.8
2.	Sowing inploughed field by broadcasting and mixing by cultivator	218	37	36.5	34.5
3.	Sowing by zero till drill	221	41	38.2	38.0