

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> MARCH, 2026**



**LAND FORCE, ZTD-DLX-4913  
ZERO TILL SEED CUM FERTILIZER DRILL**



सत्यमेव जयते

भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

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## 7. FIELD PERFORMANCE TEST

The Land Force, ZTD-DLX-4913, Zero Till Seed Cum Fertilizer Drill was operated for 26.22 hours for sowing of Wheat seed & SSP fertilizer under varying soil and moisture condition in well-prepared seedbed. Total four test trials were conducted (refer **Annexure-XIII**).

The tractor Mahindra-260 DI and reported data are summarized in ensuing table.

**Table: Summary of field performance results :**

Sl. No.	Parameters	Range
1	Type of soil	Sandy loam
2	Soil moisture (%)	21.5 to 22.1
3	Gear used of tractor	L-3
4	Avg. speed of travel (km/h)	3.60 to 3.67
5	Avg. Wheel slip (%)	4.88 to 6.14
6	Variety of crop	Wheat HD 2967
7	Avg. depth (cm)	
	- Seed	3.89 to 4.36
	- Fertilizer	4.96 to 5.29
8	Avg. seed spacing (cm)	1.58 to 1.74
9	Area covered (ha/h)	0.566 to 0.658
10	Time required for one ha (h)	1.52 to 1.77
11	Seed rate (kg/ha)	114.9 to 116.0
12	Fertilizer rate (kg/ha)	117.3 to 118.4
13	Field efficiency (%)	67.8 to 77.4
14	Avg. draft (kN)	4.84
15	Avg. power requirement (kW)	4.93
16	Fuel consumption	
	l/h	2.10 to 2.38
	l/ha	3.33 to 4.01

### 7.1 Rate of work

- The average area covered was recorded as 0.566 to 0.658 ha/h at average operating speed 3.60 to 3.67 km/h
- The field efficiency of seed cum fertilizer drill was recorded as 67.8 to 77.7 %.

### 7.2 Quality of work

- The average depth of sowing the seed was recorded as 3.89 to 4.36 cm.
- The average depth of sowing the fertilizer was recorded as 4.96 to 5.29 cm.
- The average number of seeds per meter row length was recorded as 51.9 to 54.2
- The average spacing between seeds was recorded as 1.58 to 1.74 cm.
- The deviation of seed from centre line was observed as 4.3 to 5.5 mm.

### 7.3 Metering rate

#### 7.3.1 Wheat

The seed rate of Wheat was recorded 114.9 to 116.0 kg/ha.

#### 7.3.3 Fertilizer

The fertilizer rate of was recorded 117.3 to 118.4 kg/ha.

### 7.4 Power requirement

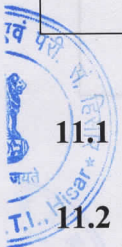
7.4.1 The average draft observed during wheat sowing was 4.84 kN.



	c) Row marker  d) Press wheel  e) Area recorder	Provided  Not provided  Not provided	<b>conform</b> Conforms <b>Does not conform</b> <b>Does not conform</b> <b>Does not conform</b>
<b>CI. 12</b>	<b>WORKMANSHIP &amp; FINISH</b>		
<b>CI 12.1</b>	The welding shall be satisfactory in all aspects and should not be brittle.	Satisfactory	Conforms
<b>CI 12.2</b>	The components shall be free from rust and shall have a protective coating to prevent surface deterioration in transit and storage.	The components are free from rust and have a protective coating to prevent surface deterioration in transit and storage.	Conforms
<b>CI 12.3</b>	The components should be free from pits, burrs and other defects that may be detrimental for their use.	The components are free from pits, burrs and other defects.	Conforms
<b>CI 14</b>	<b>MARKING &amp; PACKING:</b>		
<b>CI 14.1</b>	Each drill shall be marked with the following particulars: a) Indication of the source of Manufacture b) Model, code and serial number c) Type d) Size e) Type of seeds (suitability) f) Mass	Labeling plate is provided. But not as per requirement.	<b>Does not conform in toto</b>

### 11. COMMENTS & RECOMMENDATIONS

- 11.1 The three point linkage system of the seed cum fertilizer drill does not conform to IS:4468 (Part 1):1997. This should be looked into.
- 11.2 **The seed and fertilizer box should be provided with self-locking mechanism on being opened.**
- 11.3 Furrow openers should be provided with depth adjusting arrangement to meet the requirements of IS 6813:2000.
- 11.4 Accessories like covering device, row marker, press wheel and area recorder may also be provided.
- 11.5 The chemical composition of inverted T shoe type furrow opener does not meet, in full, the requirement of IS: 6690-1981. This should be looked into for corrective action.
- 11.6 Seed agitator has not been provided. It should be looked into for corrective action.
- 11.7 **The variation in dropping of seed among different furrow openers was observed to be too high and therefore needs to be looked into for improvement in design.**
- 11.8 **The variation in dropping due to box filling at 3/4<sup>th</sup>, 1/2<sup>nd</sup> and 1/4<sup>th</sup> of rated capacity and mechanical damage of seed were excessive and calls for improvement in the design.**





**11.9** Variation in the quantity of seed dropping due to change in the speed were excessive and this MUST be looked in for improvement in the design.

**11.10** The labeling plate is not provided on the drill. It is therefore recommended that, a labeling plate with following information may be provided on the machine

- I. Name of manufacturer and trade mark, if any
- II. Make
- III. Model
- IV. Year of manufacturer
- V. Serial No.
- VI. Recommended power source, (kW)
- VII. Seed to be sown

**11.11 Technical Literature**

Operator cum service manual & parts catalogue was provided for reference during the testing.

The operator's manual should be updated as per IS: 8132- 1999.

**TESTING AUTHORITY**

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	<i>Ran</i>
P. K. PANDEY DIRECTOR	<i>Y. S. Singh</i>

**12. APPLICANT'S COMMENTS**

Regarding non conformities we will make improvement.

