

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



**DASMESH LALLI CLASSIC-11 TYNE  
ZERO TILL SEED CUM FERTILIZER DRILL**



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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**6.6 Seeding Uniformity**

The seeding uniformity test was conducted on well-prepared sand bed of 5 m lengths and the width is equal to that of implement's width. The seed cum fertilizer drill was operated over this bed with seed tube very near to the top surface of the bed. The data on number of seeds dropped, average distances between two seeds and the deviation of seed dropped from centerline were recorded. The results are summarized as under: -

| Sl. No. | Parameters                                   | Range        |
|---------|----------------------------------------------|--------------|
| 1       | Avg. number of seeds per meter of row length | 59 to 60     |
| 2       | Avg. spacing between seeds (cm)              | 1.54 to 1.65 |
| 3       | Deviation of seed from center line (mm)      | 4.2 to 4.8   |

**6.7 Hardness:** The surface hardness of furrow opener was recorded as under:

| Sl. No. | Hardness as per IS: 6813-2000 (HB) | Hardness as observed, HB (Hardened zone is not separately provided on furrow opener) | Remarks                 |
|---------|------------------------------------|--------------------------------------------------------------------------------------|-------------------------|
| 1       | 350 to 450                         | 478 to 484                                                                           | <b>Does not conform</b> |

**6.8 Chemical Composition**

A piece of furrow opener was got analyzed for chemical composition. The results of chemical analysis which is given below:

| Constituents    | As per IS: 6690-1981 |                         | Composition As observed (% of weight) | Remarks                 |
|-----------------|----------------------|-------------------------|---------------------------------------|-------------------------|
|                 | Carbon Steel         | Silicon Manganese Steel |                                       |                         |
| Carbon ( C )    | 0.70-0.85            | 0.50-0.60               | 4.1927                                | <b>Does not conform</b> |
| Silicon (Si)    | 0.10-0.40            | 1.50-2.00               | 1.4360                                | <b>Does not conform</b> |
| Manganese (Mn)  | 0.50-1.0             | 0.50-1.0                | 1.7519                                | <b>Does not conform</b> |
| Sulphur (S)     | 0.05-(Max.)          | 0.05-(Max.)             | 0.0137                                | Conforms                |
| Phosphorous (P) | 0.05-(Max.)          | 0.05-(Max.)             | 0.0436                                | Conforms                |

**7. FIELD PERFORMANCE TEST**

The Dashmesh Agro works, Lalli Classic-11, Zero Till Seed Cum Fertilizer Drill was operated for 28.0 hours for sowing of Wheat seed & DAP fertilizer under varying soil and moisture condition in well-prepared seedbed. Total four test trials were conducted (refer **Annexure-XIII**).

The tractor Sonalika-DI-35 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 (%)            | 18.2 to 18.9   |
| 3       | Gear used of tractor         | 1-3            |
| 4       | Avg. speed of travel (km/h)  | 3.86 to 3.99   |
| 5       | Avg. Wheel slip (%)          | 1.77 to 5.93   |
| 6       | Variety of crop              | Wheat HD 2967  |
| 7       | Avg. depth (cm)              |                |
|         | - Seed                       | 4.89 to 5.29   |
|         | - Fertilizer                 | 5.05 to 5.56   |
| 8       | Avg. seed spacing (cm)       | 1.54 to 1.65   |
| 9       | Area covered (ha/h)          | 0.486 to 0.572 |
| 10      | Time required for one ha (h) | 1.75 to 2.06   |
| 11      | Seed rate (kg/ha)            | 120.9 to 129.2 |
| 12      | Fertilizer rate (kg/ha)      | 121.6 to 128.9 |
| 13      | Field efficiency (%)         | 64.2 to 71.5   |
| 14      | Avg. draft (kN)              | 3.5            |
| 15      | Avg. power requirement (kW)  | 3.57           |
| 16      | Fuel consumption             |                |
|         | l/h                          | 2.00 to 2.35   |
|         | l/ha                         | 3.50 to 4.84   |

**7.1 Rate of work**

- The average area covered was recorded as 0.486 to 0.572 ha/h at average operating speed 3.86 to 3.99 km/h
- The field efficiency of seed cum fertilizer drill was recorded as 64.2 to 71.5%.

**7.2 Quality of work**

- The average depth of sowing the seed was recorded as 4.89 to 5.29 cm.
- The average depth of sowing the fertilizer was recorded as 5.05 to 5.56 cm.
- The average number of seeds per meter row length was recorded as 59.4 to 60.8
- The average spacing between seeds was recorded as 1.54 to 1.65 cm.
- The deviation of seed from centre line was observed as 4.2 to 4.8 mm.

**7.3 Metering rate****7.3.1 Wheat**

The seed rate of Wheat was recorded 120.9 to 129.2 kg/ha.

**7.3.3 Fertilizer**

The fertilizer rate of was recorded 121.6 to 128.9 kg/ha.

**7.4 Power requirement**

**7.4.1** The average draft observed during wheat sowing was 3.5 kN.





7.4.2 The power requirement during wheat sowing was 3.57 kW.

7.5 Rate of wear on mass basis (for 28.0 hours of field operation):

| Furrow opener No | Initial Mass (g) | Final Mass (g) after 28.0 h | Percent Wear (%)              |                |               |
|------------------|------------------|-----------------------------|-------------------------------|----------------|---------------|
|                  |                  |                             | Loss of mass (g) after 28.0 h | Percent (Wear) | Wear Per hour |
| 1                | 6138.8           | 6120.4                      | 18.4                          | 0.30           | 0.01          |
| 2                | 6228.5           | 6200.8                      | 27.7                          | 0.44           | 0.02          |
| 3                | 6630.8           | 6610.5                      | 20.3                          | 0.31           | 0.01          |
| 4                | 6644.2           | 6620.3                      | 24.4                          | 0.37           | 0.01          |
| 5                | 6586.5           | 6560.7                      | 25.8                          | 0.39           | 0.01          |

Remark: The hourly rate of wear on mass basis was observed as 0.01% to 0.02%.

7.6 Labor requirement

One skilled operator was required to operate the tractor and one more labour is needed for filling the seed and fertilizer box, to check the furrow openers and seed tubes against chocking.

## 8. EASE OF OPERATION AND ADJUSTMENT

No noticeable difficulty was observed during operation and adjustment of Zero till seed cum fertilizer drill.

## 9. DEFECTS, BREAKDOWNS, ADJUSTMENTS AND REPAIRS

No noticeable defect occurred in the seed cum fertilizer drill during the test.

## 10. CONFORMITY TO INDIAN STANDARDS

| Cl. No | Requirement as per IS: 6813: 2000 | Observations           | Remarks |          |
|--------|-----------------------------------|------------------------|---------|----------|
| Cl 4   | Type                              | Tractor mounted        | --      |          |
| Cl 5.1 | Size                              | 11x191 mm (Adjustable) | --      |          |
| Cl 6.1 | Material: -                       |                        |         |          |
|        | Component Requirement             |                        |         |          |
|        | Frame and toolbar                 | MS                     | MS      | Conforms |
|        | Wheel                             | MS, Cast iron          | MS      | Conforms |
|        | Axle & shaft                      | MS                     | MS      | Conforms |



|         |                                                                                                                                                                                                                 |                                                                                                                          |                                 |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| CI 12.2 | 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                        |
| CI 12.3 | 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                        |
| CI 14   | <b>MARKING &amp; PACKING:</b>                                                                                                                                                                                   |                                                                                                                          |                                 |
| CI 14.1 | Each drill shall be marked with the following particulars:<br>a) Indication of the source of Manufacture<br>b) Model, code and serial number<br>c) Type<br>d) Size<br>e) Type of seeds (suitability)<br>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, 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  $\frac{3}{4}$ <sup>th</sup>,  $\frac{1}{2}$ <sup>nd</sup> and  $\frac{1}{4}$ <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.



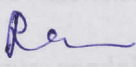
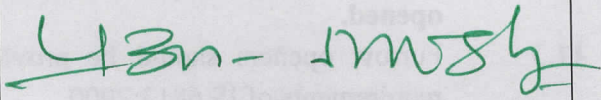


- 11.10** The labeling plate is not provided on the drill. It is therefore recommended that, a labeling plate with following information may be provided on the machine
- I. Name of manufacturer and trade mark, if any
  - II. Make
  - III. Model
  - IV. Year of manufacturer
  - V. Serial No.
  - VI. Recommended power source, (kW)
  - VII. Seed to be sown

**11.11 Technical Literature**

No technical literature was provided for reference during the testing, therefore, it is recommended to provide operator's manual, service manual and Parts catalogue. An operator's manual should be brought out as per IS: 8132- 1999.

**TESTING AUTHORITY**

|                                            |                                                                                      |
|--------------------------------------------|--------------------------------------------------------------------------------------|
| R. K. NEMA<br>SENIOR AGRICULTURAL ENGINEER |  |
| P. K. PANDEY<br>DIRECTOR                   |  |

**12. APPLICANT'S COMMENTS**

No specific comment received from applicant.

