



**LANDFORCE, DCSS-11, SPRING LOADED ELEVEN TYNE
CULTIVATOR (Tractor Mounted)**



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION AND FARMERS WELFARE

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1. SCOPE OF TEST

The scope of test was to check and assess the following:

1.1 Laboratory Test:

- Checking of specifications
- Hardness of soil engaging parts (Shovel)
- Chemical analysis of critical components (Shovel)
- Wear analysis of critical components (Shovel)

1.2 Field Test :

- Rate of work
- Quality of work
- Power requirement
- Labour requirement
- Ease of operation and adjustments
- Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

The implement was directly submitted for test by the applicant at this Institute. Hence, the method of selection is not known.

3. TEST CODE AND PROCEDURE

The following codes were referred for testing of cultivator.

- | | | | |
|------|--|---|---|
| i) | IS: 6638 – 1972 (Reaffirmed Feb.-2011) | : | Specification for tractor mounted spring loaded cultivator. |
| ii) | IS: 7565 (Part-I): 1975 (Reaffirmed Mar. 2009) | : | Specification for Tines for Tractor operated cultivators: Part 1 Rigid tines |
| iii) | IS: 4468 (Part I): 1997 (Reaffirmed Feb. 2012) | : | Agricultural wheeled tractors – Rear-mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 |
| iv) | IS: 3342:1998 (Reaffirmed Mar., 2009) | : | Soil Working Equipment – Cultivators, Animal Drawn - Specification |

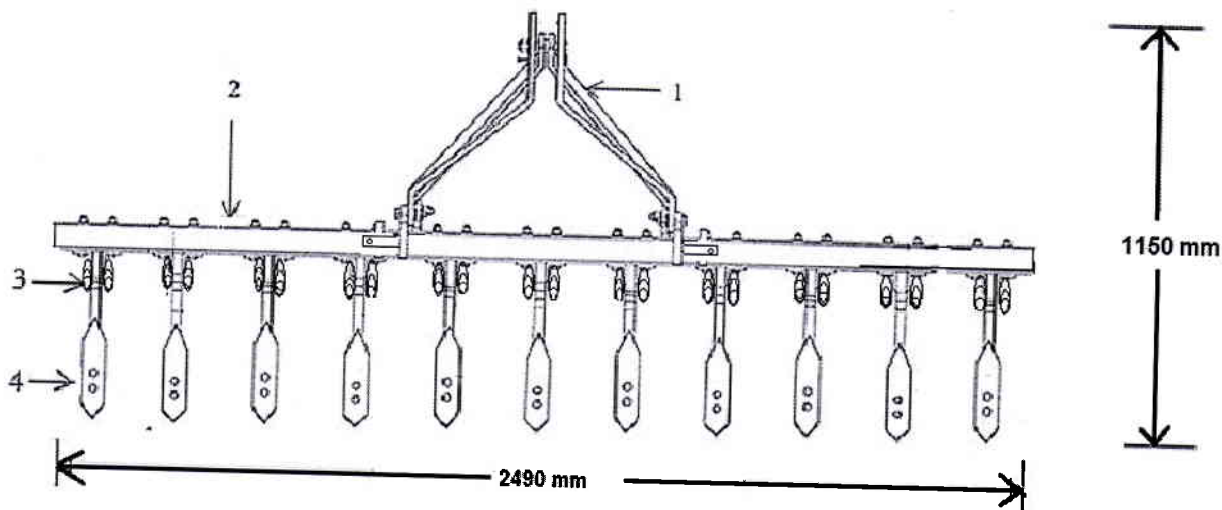
4. SPECIFICATION

4.1 General:

Name and address of the manufacturer : **M/s. Dasmesh Mechanical Works**
Nabha-Malerkotla Road, Amargarh,
Dist.: Sangrur (Pb.) – 148 022

Name & Address of Applicant	: M/s. Dasmesh Mechanical Works Nabha-Malerkotla Road, Amargarh, Dist.: Sangrur (Pb.) – 148 022
Make	: LANDFORCE
Model	: DCSS-11
Type	: Tractor Mounted
Serial Number of machine	: 0315600398
Year of manufacture	: 2015
Size of implement (mm)	: 11 × 235
Working width of implement (mm)	: 2300
Country of origin	: India
Power Source as recommended	: Not recommended
Power source used during the test	: New Holland 5500 Tractor (Specification given in Annexure-II)

4.2 Constructional Details (Refer Fig.1) :



- | | |
|------------------|-----------|
| 1. Hitch pyramid | 3. Tyne |
| 2. Mainframe | 4. Shovel |

Fig.1: LANDFORCE DCSS-11 SPRING LOADED ELEVEN TYNE CULTIVATOR

10. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS**10.1 Performance of the cultivator :****10.1.1 Rate of work :**

- a) The area cover was recorded as 1.400 to 1.540 ha/h at the speed of operation from 6.28 to 6.75 km/h, which is considered normal.
- b) The time required to cover one hectare was recorded as 0.65 to 0.71 h

10.1.2 Quality of work :

- a) The depth of cut was recorded as 10 to 12 cm, which is considered normal for secondary tillage operations.
- b) Average working width was observed as 237 to 254 cm.
- c) Field efficiency was observed as 84.3 to 93.7%.

10.1.3 Power requirement:

The draft of implement was recorded from 542 to 563 kgf and power requirement was calculated as 9.6 to 12.0 kW.

10.1.4 Labour requirement:

One skilled operator was needed to operate the tractor with the implement.

10.2 The lower hitch point span only, does not conform with IS: 4468-1997 (Part-1) (Reaffirmed Feb., 2012). Hence, it is recommended to look into at production level for standardization.

10.3 The specification of the reversible shovel and tyne does not conform to IS: 3342-1998(Reaffirmed Mar., 2009) and IS: 7565 (PART I) - 1975(Reaffirmed Mar., 2009) respectively. This should be improved and provided as per the requirement of Indian Standard..

10.4 Chemical composition and hardness of shovel does not conform to relevant Indian Standards. This needs to be looked into for corrective action.

10.5 The specification of springs for tractor mounted Spring loaded Cultivator, does not conform to IS: 6638 – 2006 (Reaffirmed Feb. 2011) This should be improved and provided as per the requirement of Indian Standard.

10.6 Wear Assessment:

The hourly rate of wear of the reversible shovel on mass and dimensional basis was recorded as 0.32 to 0.51 % and 0.06 to 0.88 % respectively. The hourly percentage of wear was considered normal.

10.7 Provision was not made for adjustment of tyne spacing, which should be looked into for correction to suit different row spacing conditions.

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10.8 Most of the shovel fixing bolts were got stripped during dismantling, due to the use of inferior quality bolts. Therefore, it is recommended that fine threaded high tensile bolts with provision of both plain and spring washers should be used.

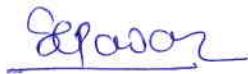
10.9 Labeling of the Implement:

Labeling Plate was provided on the main frame. However, the information provided was insufficient as per the relevant codes. This should be looked into.

10.10 Adequacy of Literature:

An Operator cum Service Manual & Parts Catalogue was provided along with the implement during the course of testing. It is further recommended to bring out these manuals in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY



S. G. PAWAR

AGRICULTURAL ENGINEER



J. J. R. NARWARE

DIRECTOR

Test conducted and report compiled by - **Sh. K. Bora, Technical Assistant**

11. APPLICANT'S COMMENTS

We agree with the report. In regard of non-conformities, we will make the necessary changes in accordance to the relevant BIS Standards in next production line.