

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT



संख्या / No.: Imp.198/270
माह / Month: December, 2016



**NEW SWAN, NSML SLT 9 TYNE, SPRING LOADED CULTIVATOR
(Tractor Mounted)**



सत्यमेव जयते

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Date- 20-02-17

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 & 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:

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

1.2 Field Test:

- a) Rate of work
- b) Quality of work
- c) Ease of operation and adjustments
- d) Labour requirement
- e) 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 PROCEDURE

The following codes were referred for testing of spring loaded tyne 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. SPECIFICATIONS

4.1 General:

Name and address of the manufacturer	: M/s. New Swan Multitech Limited. Village Raian, Kohara-Machiwara Road PO Heeran, Ludhiana-141 112 (Punjab)
Test requested by (Applicant)	: M/s. New Swan Multitech Limited. C-124, Naraina Industrial Area. Phase-I, Road No. 12. New Delhi-110 027
Name of machine	: Cultivator
Make	: NEW SWAN
Model	: NSML SLT 9 Tyne
Type	: Spring Loaded (Tractor Mounted)
Serial Number of machine	: 19
Size of implement (mm)	: 9 x 225
Year of manufacture	: 2016
Country of origin	: Not Provided
Power Source as recommended	: Not Provided
Power source used during the test	: HMT 4922 Tractor (Refer Annexure-II)

8. EASE OF OPERATION & ADJUSTMENTS

No noticeable difficulty was observed during the operation and adjustment of cultivator.

9. DEFECTS, BREAKDOWNS AND REPAIRS

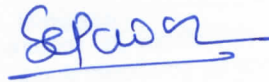
No breakdown was occurred during 21.97 h of field test of the cultivator

10. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

- 10.1 The specification of springs for tractor mounted Spring loaded Cultivator, does not conform to IS: 6638 – 1972 (Reaffirmed Feb. 2011). This should be improved and provided as per the requirement of Indian Standard.
- 10.2 The specification of tyne does not conform to IS: 7565 (PART I) – 1975 (Reaffirmed Mar., 2009). This should be improved and provided as per the requirement of Indian Standard.
- 10.3 The dimension of reversible shovel does not conform to IS: 3342-1998 (Reaffirmed Mar., 2009). This should be looked into for corrective action for standardization.
- 10.4 The dimension of hitch point of the implement does not conform to IS: 4468-1997 (Part-1) (Reaffirmed Feb., 2012). This should be looked into for corrective action for standardization.
- 10.5 The percentage of manganese in the shovel is not within its required range as per IS: 3342:1998. Therefore it is recommended to looked into for corrective action.
- 10.6 The hardness of the shovel does not conform to IS: 3342-1998 (Reaffirmed Feb., 2009). This should be looked into for corrective action.
- 10.7 **Performance of the cultivator:**
- 10.7.1 **Rate of work:**
- The area cover was recorded as 0.769 to 0.972 ha/h at the speed of operation from 4.76 to 5.70 km/h.
 - The time required to cover one hectare area was recorded as 1.03 to 1.30 h.
- 10.7.2 **Quality of work:**
- The depth of cut was recorded as 10 to 13 cm.
 - Average working width was observed as 189 to 197 cm.
 - Field efficiency was observed as 79.6 to 90.5 %.
- 10.7.3 **Power requirement:**
The draft of implement was recorded from 598 to 730 kgf and power requirement was calculated as 5.77 to 7.15 kW.
- 10.7.4 **Labour requirement:**
One skilled operator was needed to operate the tractor with the implement.
- 10.8 **Wear Assessment:**
The hourly rate of wear of the reversible shovel on mass and dimensional basis was recorded as 0.27 to 0.72 % and 0.04 to 1.62 % respectively.

- 10.9 The Centre-to-centre distance between tool bars was observed as 413 mm against the requirement of 525 mm (Min) as per IS: 6638-1972. This should be looked into for corrective action.
- 10.10 The contact angle of the shovel with tyne was not declared as per the recommendation if IS: 6638-1972.
- 10.11 The quality of protective coating applied on the implement was found inadequate. It is therefore recommended to provide paint coating all over the implement satisfactorily so as to prevent the surface against corrosion.
- 10.12 **Labelling plate:**
Manufacturer's name, address, type, model, serial no. and year of manufacture was indicated on the labeling plate. However, it is recommended to specify size, batch or code number and number of tynes as per Indian Standard.
- 10.13 **Technical literature:**
No technical literature was submitted during the period of testing.

TESTING AUTHORITY



**S. G. PAWAR
AGRICULTURAL ENGINEER**



**K.K. NAGLE
DIRECTOR**

Test conducted & Report compiled by -

Sh. Rahul Prajapathi & Sh. Vithato Keyho

11. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant's Comments
11.1	10.1	We will take immediate corrective action for the dimensions of spring, as per Indian Standard.
11.2	10.2	We will take appropriate dimensions of tyne as per Indian Standard for future production.
11.3	10.3	We will make corrective action of reversible shovel in further supplies as per IS: 3342-1998.
11.4	10.4	For future production, as per IS: 4468-1997 we will take appropriate dimension of linkage.
11.5	10.6	We will ensure to comply the hardness of shovel as per Indian Standard.
11.6	10.10	We will ensure the shovel contact angle with tynes as per IS: 6638-1972 in future production.
11.6	10.11	In future production we will improve the coating of the implement.
11.8	10.13	We will provide Technical Literature in future supply.