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व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT



संख्या / No.: Imp. - 178/234  
माह / Month: December, 2015



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**NBSU, WH05, WHEEL HOE (MANUALLY OPERATED)**



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

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

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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 critical components
- Wear analysis of critical components

1.2 **Field Test :**

- Rate of work
- Quality of work
- Labour requirement
- Ease of operation, maintenance 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

As agreed between applicant and testing authority.

4. SPECIFICATION4.1 **General:**

Name and address of the manufacturer	:	<b>M/s. New Bihar Sellar Udyog,</b> Village-Shitalpur, Post-.Jokiyari, P.S.-Raxaul, Dist-East Champaran, Bihar-845305
Name & Address of Applicant	:	<b>Mr.Saroj Prasad</b> <b>M/s. New Bihar Sellar Udyog,</b> Village-Shitalpur, Post-.Jokiyari, P.S.-Raxaul, Dist-East Champaran, Bihar-845305
Make	:	NBSU
Model	:	WH05
Type	:	Manually Operated
Serial Number of machine	:	0021
Year of manufacture	:	2014
Country of origin	:	India
Utility	:	Suitable for inter-culturing in row crops.
Power Source as recommended	:	One Semi Skilled Labour

**8.4.2 On dimension basis (Refer Fig. 2):**

Table No.4

S. No	Notation	Dimension (mm)		Difference (g)	Wear (%)	
		Initial	Final		After 30.0 h	Per h
1.	A	127.2	126.5	0.7	0.55	0.02
2.	B	79.7	77.6	2.1	2.63	0.09
3.	C	9.2	8.0	1.2	13.04	0.43
4.	D	9.4	8.2	1.2	12.77	0.43
5.	E	9.7	8.3	1.4	14.43	0.48

**Remarks:** The hourly percentage wear of sweep on dimensional basis was recorded as 0.02 to 0.48.

**9. EASE OF OPERATION & ADJUSTMENTS**

- 9.1 Handle angle and sweep angle with respect to ground level can be adjusted.
- 9.2 Height of handle from ground level can be adjusted as desired.

**10. DEFECTS, BREAKDOWNS AND REPAIRS**

No breakdown was occurred during 30.0 h of field test of the Wheel hoe.

**11. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS**

**11.1 Performance of the Wheel Hoe:**

**11.1.1 Rate of work :**

- a) The rate of work was recorded as 0.025 to 0.037 ha/h and the speed of operation varies from 0.98 to 1.22 kmph.
- b) The time required to cover one hectare was recorded as 27.0 to 40.0 h.

**11.1.2 Quality of work :**

- a) Average working width was observed as 14 to 15 cm.
- b) The average row spacing covered in double pass by wheel hoe was recorded as 37 to 42 %.
- c) Field efficiency was observed as 71 to 86 %.
- d) Weeding efficiency was observed as 68 to 77%.

**11.1.3 Labour requirement :**

One semi-skilled operator was considered enough to operate the implement for about 0.7 to 0.8 hour in the paddy field.

**11.2 Wear Assessment:**

The hourly rate of wear of the sweep on mass and dimensional basis was recorded as 0.02 % and 0.02 to 0.48 % respectively. The hourly percentage of wear was considered normal.

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- 11.3** Material and size of sweep type working tool does not meet the requirement of IS 14540-1998. This should be looked into.
- 11.4** Dimension of different components of wheel hoe does not conform the requirement of relevant Indian Standard and calls for corrective action.
- 11.5** Dimensions of handle of wheel hoe does not meet the requirement of IS 14540-1998. This should be looked into.
- 11.6** The wheel hub should be provided with cast iron bush bearing fitted on either side of wheel axle and also be coated with rust proof grease prior to assembly as per IS: 14540-1998.
- 11.7 Labeling of the Implement:**  
Labeling plate was not provided on the wheel hoe. It is therefore, recommended that the wheel hoe should be marked with details like manufacturer's name and Trade mark, year of manufacture, Serial no/Code, Size, etc. as per the requirement of Indian Standard.
- 11.8 Adequacy of Literature:**  
Operator's Manual, Service Manual & Parts Catalogue were provided in Hindi along with the implement during the course of testing and found satisfactory.

#### TESTING AUTHORITY



**S. G. PAWAR  
AGRICULTURAL ENGINEER**



**J. J. R. NARWARE  
DIRECTOR**

Test conducted and report compiled by - Sh. P. Lodh, Technical Assistant

#### **12. APPLICANT'S COMMENTS**

- 12.1** One copy of the draft test report was made available to the applicant. No comments, however, was received in this office.