

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: IMP-1051/2844/2022
माह/Month: April, 2022

THIS TEST REPORT VALID UP TO : 30th April, 2029



**PARAM AGRO INDUSTRIES, 751
TRACTOR (PTO) OPERATED WEEDER**



भारत सरकार
Government of India
कृषि एवं किसान कल्याण मंत्रालय
Ministry of Agriculture and Farmers Welfare
कृषि एवं किसान कल्याण विभाग
Department of Agriculture and Farmers Welfare
उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
Northern Region Farm Machinery Training and Testing Institute
ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001
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TABLE-2: Summary of field performance

i)	Tractor used	:	John Deere-5105
ii)	Gear used	:	L-2
iii)	Type of soil	:	Loam
iv)	Av. soil moisture, %	:	14.2 to 16.4
v)	Speed of operation, kmph	:	2.56 to 2.91
vi)	Depth of cut, cm	:	7.7 to 8.7
vii)	Width of cut, m	:	1.78 to 1.81
viii)	Area covered, ha/h	:	0.342 to 0.438
ix)	Wheel slippage, %	:	1.11 to 2.92
x)	Fuel consumption		
		l/h	3.90 to 4.50
		l/h	9.35 to 12.57
xi)	Weeding efficiency, %	:	90.29 to 95.80
xii)	Field efficiency, %	:	75.16 to 83.11

8.1 Rate of work:

The rate of work is assessed by the area covered during field operation. Area covered by the machine ranged from 0.342 to 0.438 ha/h at the speed of 2.56 to 2.91 kmph.

8.2 Quality of work:

Quality of work is assessed by the depth of cut in field operation and weeding efficiency which were observed from 7.7 to 8.7 cm & 90.29 to 95.80% respectively.

8.3 Wear of blades**8.3.1 Mass basis**

The wear of the rotary weeder blades was measured after 26.80 hrs of field operation and the observation are as under:

Sr. No.	Initial mass of blade (g)	Mass after 26.80 hrs. (g)	Loss of mass (g)	Percent wear (%)	Percent wear per hours
1.	959	913.9	45.1	4.70	0.175
2.	980	928.8	51.8	5.29	0.197
3.	993	940.5	52.5	5.29	0.197
4.	965	915.2	49.8	5.16	0.193
5.	980	932.6	47.7	4.84	0.181
6.	979	927.5	51.5	5.26	0.196

9. EFFECTIVENESS OF SEALINGS

After completion of field test for 26.80 hrs, the implement was dismantled to check effectiveness of sealing provided against ingress of dust in various sub-assemblies and decide the condition of components of the tractor (PTO) operated weeder.

Sr. No.	Location	Whether ingress of mud and/or water was observed
1.	Primary reduction gear box	No
2.	Secondary reduction chain & sprocket	No
3.	Hub of rotor assembly	No

10. EASE OF OPERATION, ADJUSTMENTS & SAFETY

- 10.1 Universal coupling shaft is provided with safety cover.
- 10.2 The tractor (PTO) operated weeder has the provision to adjust working width according to row crop spacing

11. DEFECTS BREAKDOWNS AND REPAIRS

No defect observed during the test.

12. SPECIAL FEATURES

- 12.1 Tractor operated.
- 12.2 Overall width of weeder is adjustable according to crop spacing.

13. CRITICAL TECHNICAL SPECIFICATIONS

Vide Ministry's communication F. No. 13-9-2019 M&T (I&P) dated 26.04.2019.

Sr. No.	Parameters	Specifications	Observed	Remarks
1	Type	Tractor mounted, PTO Powered	PTO powered	Conforms
2	Working width (mm)	1500 (min)	1850	Conforms
3	Type of blades	Hatchet/Straight/Curved/L type	L-Type	Conforms
4	Material of blade	Boron steel 28 MnCrB5/ High Carbon steel EN42j	High carbon steel ENJ42	Conforms
5	Hardness of material, HRC	38 (min)	44.02	Conforms
6	Type of primary transmission	Gear	Gear	Conforms
7	Type of secondary transmission	Gear/chain & sprocket	Gear	Conforms
8	Material for rotor shaft	SAE 1045 (CRS)/ EN8/EN9	EN8	Conforms

9	No. of flanges per row	2 (min)	02	Conforms
10	Type of flanges	Square/ circular/ rectangular	Circular	Conforms
11	No. of blades in each flange	4 (min)	06	Conforms
12	No. of rotor blade	8 (min)	36	Conforms
13	Thickness of rotor blade (mm)	5 (min)	07	Conforms
14	Material of blade	Boron steel 28 MnCrB5 EN42j	28 MnCrB5	Conforms
15	Hardness of blade, HRC	38 (min)	Provided	Conforms
16	Provision for shield/cover to prevent flying of mud & stone from rotor	Must be provided	Provided	Conforms
17	Depth control mechanism	Must be provided	Not provided	Does not conform
18	Marking/Labelling of machine	The labelling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacture, Serial Number, Type, Size, Size of prime mover (kW)	Provided	Conforms
19	Literature	Operator manual, service manual, parts catalogue should be provided.	Provided	Conforms



14. COMMENTS & RECOMMENDATIONS

- 14.1 Three point linkage of implement does not conform in toto, to the requirement of IS:4468 (Part-1)-1997 and therefore, it may be looked into for corrective action.
- 14.2 The dimension of PIC of implement does not conform in toto, the requirement of IS:4931-1995 and therefore, it may be looked into for corrective action.
- 14.3 The chemical composition of blade does not conform, in toto to the requirement of IS:6690-1981. This need to be looked into for corrective action.
- 14.4 The recommended PTO speed of prime mover is not specified on the labeling plate. It **MUST** be looked into
- 14.5 Depth control mechanism is not provided. It should be provided.

15. TECHNICAL LITERATURE

One booklet entitled "Owners" manual was provided for reference during test. The same, however, needs to be updated as per IS:8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 18.04.2022

Test report compiled by: Er. Dharmendra Kumar, Technical Assistant.

16. APPLICANT'S COMMENTS

No specific comments received from the applicant.