

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: ROTAVATOR-294/2545/2020

माह/Month: October, 2020

THIS TEST REPORT VALID UP TO : 31st October, 2027



**SONALIKA, SLPMSR-5.5 (36B) ROTAVATOR
(TRACTOR MOUNTED)**



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

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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7. FIELD PERFORMANCE TEST

The field tests of the rotavator comprising of Wet land and dry land operation were conducted for 10 and 26 hours respectively to assess the performance test is reported in **Annexure-I & III** for wet land and dry land operation respectively.

Observations of field performance test is summarized in the ensuing table:-

Summary of Field Performance Test

Sl. No.	Parameters/operations	Wet land operation (Puddling)	Dry land operation
I	II	III	IV
1.	Tractor used	Preet 4549	
2.	Gear used	L-2	L-2
3.	Type of soil (Refer IS:7926-1975)	Sandy loam	
4.	Average soil moisture (%)	--	15 to 18
5.	Average depth of standing water (cm)	5.5 to 6.7	--
6.	Bulk density of soil (g/cc)	--	1.67 to 2.01
7.	Average speed of operation (kmph)	2.29 to 2.30	2.10 to 2.44
8.	Avg. travel reduction (%)	-0.40 to 1.32	--
9.	Avg. wheel slip (%)	--	0.24 to 1.27
10.	Average depth of puddle (cm)	21.5 to 25.7	--
11.	Average depth of cut (cm)	--	10.7 to 11.9
12.	Avg. effective width (cm)	--	153 to 163
13.	Area covered (ha/h)	--	0.310 to 0.340
14.	Time required for one ha (h)	--	2.94 to 3.23
15.	Field efficiency (%)	--	84 to 88
16.	Puddling index (%)	83 to 85	--
17.	Fuel consumption		
		l/h	2.82 to 3.40
		l/ha	--
18.	Average PTO power utilized (kW)	--	NR

7.1 Wet Land operation

7.1.1 The tractor was fitted with half cage wheel on rear pneumatic traction wheel for conducting the puddling operation. The brief specification of half cage wheel is given in Annexure-II

7.1.2 Quality of work

- The depth of puddle was recorded as 21.5 to 25.7 cm.
- The puddling index was recorded as 83 to 85 %.

7.2 Dry land operation**7.2.1 Rate of work**

- The rate of work was recorded as 0.310 to 0.340 ha/h, and the speed of operation varies from 2.10 to 2.44 kmph.
- The time required to cover one hectare was recorded as 2.94 to 3.23 h



7.2.2 Quality of work

- i) The depth of operation was recorded as 10.7 to 11.9 cm.
- ii) Average effective width was observed as 153 to 163 cm.
- iii) Field efficiency was observed as 84 to 88 %.

7.3 Labour requirement

In all, two skilled operators are needed to ensure continuous operation of rotavator for day long period.

7.4 Wear analysis (on mass basis)

Wear of hatchet blades (on mass basis) was measured and recorded in ensuing table:

Percentage wear of rotavator blades on mass basis

Sl. No.	Initial mass of blade (g)	Mass of blade after 36 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 36 hr.	Percentage of wear on hour basis (%)
1.	1016.5	982.2	34.3	3.37	0.09
2.	1001.2	979.8	21.4	2.14	0.06
3.	1010.8	985.6	25.2	2.49	0.07
4.	1005.7	973.0	32.7	3.25	0.09
5.	1011.3	970.1	41.2	4.07	0.11
6.	992.9	969.1	23.8	2.40	0.07
7.	1000.1	965.4	34.7	3.47	0.10

8. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 10 hours, the rotavator was dismantled for checking the effectiveness of sealing provided against ingress of dust, and water/mud in various sub-assemblies/components. The observations are given in ensuing table:-

Sl. No.	Location	Whether ingress of mud and/or water was observed (Yes/No)
1.	Primary reduction gear box	No
2.	Secondary reduction gear box	No
3.	Rotor assembly (hub)	No

9. EASE OF OPERATION & ADJUSTMENTS

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

10. DEFECTS, BREAKDOWN AND REPAIRS

No noticeable defect or breakdown was observed during the test.


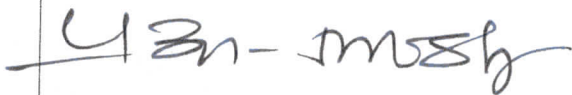
11. CRITICAL TECHNICAL SPECIFICATION

Deferred till 31.12.2020 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 24.04.2020

12. COMMENTS AND RECOMMENDATIONS

- 12.1** The Dimension of three point linkage of implement does not conform in toto as per IS:4468(Part 1)- 1997 and therefore, it should be looked into for corrective action.
- 12.2** The Dimensions of PIC of implement does not conform in toto as per IS: 4931-1995 and therefore, it should be looked into for corrective action.
- 12.3** The chemical composition of blades does not conform, in toto, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action.
- 12.4** The hardness of blades does not conform, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action
- 12.5 Technical literature:-**
One booklet entitled "Service, Operating & Maintenance Manual cum Spare parts Catalogue with Warranty Card" was provided for reference during test. The same, however, needs to be updated as per IS-8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

13. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant comments
13.1	12.1	The dimension of three point linkage of implement will at production end, as per requirement IS: 4931-1995.
13.2	12.2	The dimension of PIC of implement will be improve at vender/production end as per IS: 4931-1995.
13.3	12.3	The chemical composition of blades will be improve at vender/production end as per IS: 6690-1981.
13.4	12.4	The hardness of blades will be improve at vender/production end as per IS: 6690-1981.
13.5	12.5	Technical literature will be updated as per IS: 8132-1999.

