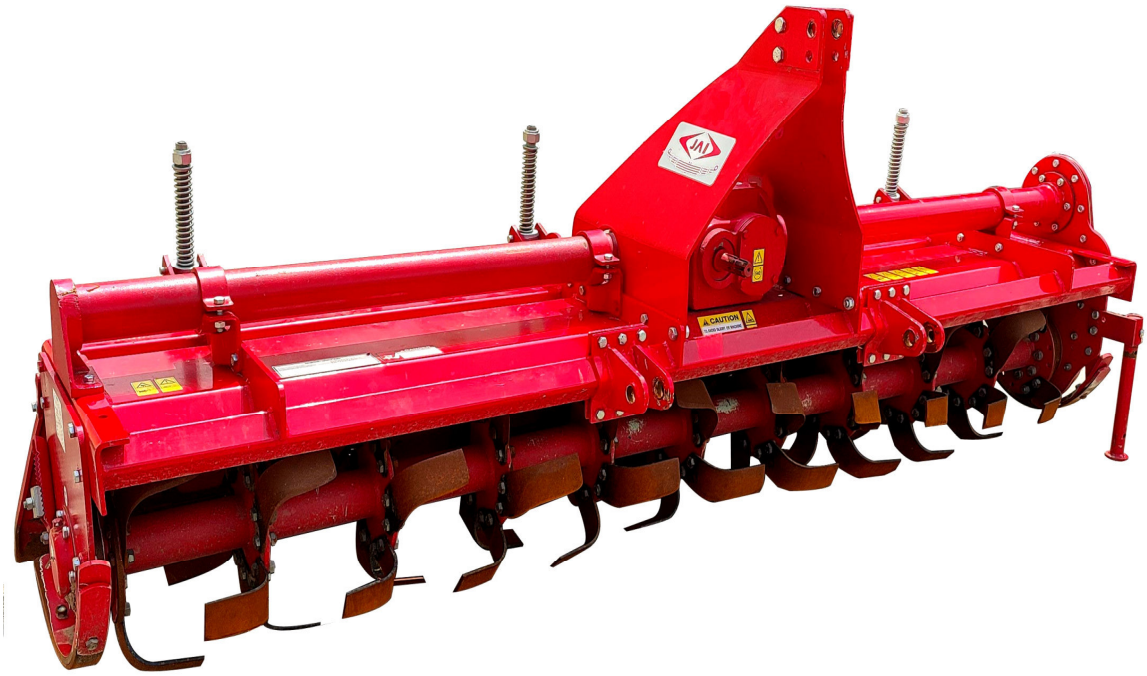
व्यावसायिक परीक्षण रिपोर्ट | संख्या/ No.: ROTAVATOR-385/2896/2022

COMMERCIAL TEST REPORT | माह/Month: August, 2022

THIS TEST REPORT VALID UP TO : 31st August, 2029



JAMNA, JAIKMSR-9
ROTARY TILLER, (ROTAVATOR) TRACTOR MOUNTED

सत्यमेव जयते

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

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[ISO 9001:2015 CERTIFIED]

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6. FIELD PERFORMANCE TEST

The field tests of the rotavator comprising of dry land and wet land operations were conducted for 26.31 and 10.34 hours respectively to assess the performance test which is reported in **Annexure-I & II** for dry land and wet land operation, respectively.
Observations of field performance test is summarized in the ensuing table:-

Summary of Field Performance Test

Sr. No.	Parameters/operations	Dry land operation	Wet land operation (Puddling)
I	**II**	**III**	**IV**
1.	Tractor used	Swaraj 969 FE ST	
2.	Gear used	L-1	L-1
3.	Type of soil	Sandy loam	
4.	Average soil moisture (%)	15.5 to 17.0	--
5.	Average depth of standing water (cm)	--	11.6 to 12.8
6.	Bulk density of soil (g/cc)	1.54 to 1.68	--
7.	Average speed of operation (kmph)	2.70 to 3.18	2.57 to 2.76
8.	Avg. travel reduction (%)	--	1.96 to 3.44
9.	Avg. wheel slip (%)	-0.18 to -1.94	--
10.	Average depth of puddle (cm)	--	16.00 to 16.20
11.	Average depth of cut (cm)	11.03 to 11.40	--
12.	Avg. effective width (m)	2.62 to 2.70	--
13.	Area covered (ha/h)	0.576 to 0.684	--
14.	Time required for one ha (h)	1.46 to 1.74	--
15.	Field efficiency (%)	75.51 to 84.97	--
16.	Puddling index (%)	--	77.42 to 78.21
17.	Fuel consumption		
	l/h	5.70 to 6.41	4.70 to 4.90
	l/ha	9.21 to 11.13	--
18.	Avg. PTO power consumption, kW	21.79	--

6.1 Dry land operation

6.1.1 Rate of work

i) The rate of work was recorded 0.576 to 0.684 ha/h, and the speed of operation varied from 2.70 to 3.18 kmph.

ii) The time required to cover one hectare was recorded as 1.46 to 1.74 h

6.1.2 Quality of work

i) The depth of operation was recorded as 11.03 to 11.40 cm.

ii) Average effective width was observed as 262.0 to 270.0 cm.

iii) Field efficiency was observed as 75.51 to 84.97 %.

6.2 Wet Land operation

6.2.1 Quality of work

i) The depth of puddle was recorded as 16.00 to 16.20 cm.

ii) The puddling index was recorded as 77.42 to 78.21 %.

6.3 Labour requirement

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

6.4 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

Sr. No.	Initial mass of blade (g)	Mass of blade after 37.98 hrs. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 37.98 hrs.	Percentage of wear on hour basis (%)
1.	969.6	956.8	12.8	1.32	0.035
2.	956.5	944.3	12.2	1.27	0.033
3.	965.1	954.2	10.9	1.29	0.034
4.	943.8	932.8	11.0	1.17	0.031
5.	961.1	949.3	11.8	1.23	0.032
6.	954.2	942.7	11.5	1.21	0.032
7.	974.5	961.6	12.9	1.32	0.035
8.	958.7	944.9	13.8	1.44	0.038
9.	973.8	960.2	13.6	1.40	0.037
10.	959.3	947.5	11.8	1.23	0.032
11.	955.1	942.8	12.3	1.29	0.034

7. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 10.34 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:-

Sr. 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

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWN AND REPAIRS

12. COMMENTS AND RECOMMENDATIONS

12.1 The Dimension of PIC of Implement does not conform, in toto, to the requirements of IS:10318-2002 and therefore, it may be looked into for corrective action.

12.2 Technical Literature:

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

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN **DIRECTOR**	18.08.2022

The test report is compiled by Er. Ajay

13. APPLICANT'S COMMENTS

We will comply with during our regular production of the rotavator.