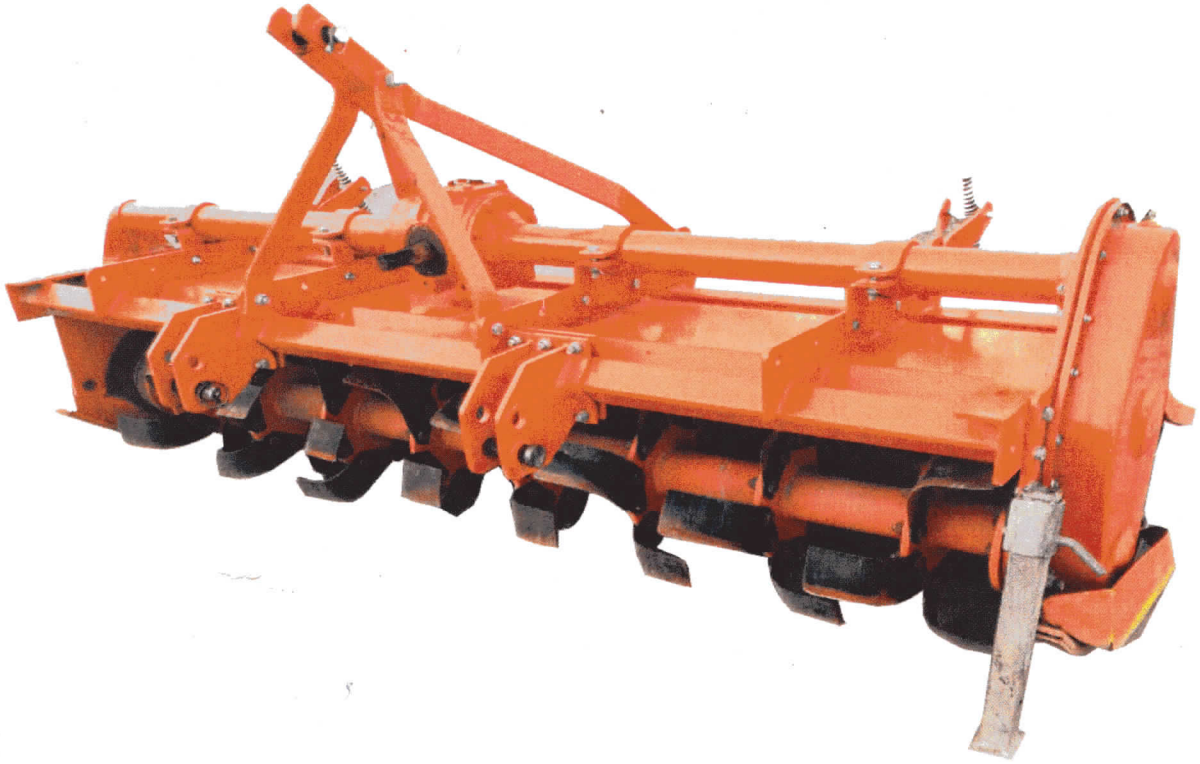
व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: ROTAVATOR-300/2551/2020**
माह/**Month: October, 2020**

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



SOILTECH, SS 210 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
Northern Region Farm Machinery Training and Testing Institute
ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001
Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001
[ISO 9001:2015 CERTIFIED]

Website: http://nrfmtti.gov.in/
E-mail: fmti-nr@nic.in Tele./FAX: 01662-276984

7. FIELD PERFORMANCE TEST

The field tests of the rotavator comprising of Wet land and dry land operation were conducted for 10 and 28 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	International tractor Ltd, DI -750 III Power Plus	
2.	Gear used	L-2	L-2
3.	Type of soil	Sandy loam	
4.	Average soil moisture (%)	--	14.27 to 19.00
5.	Average depth of standing water (cm)	6.62 to 6.80	--
6.	Bulk density of soil (g/cc)	--	1.720 to 1.850
7.	Average speed of operation (kmph)	3.12 to 3.15	3.19 to 3.41
8.	Avg. travel reduction (%)	-0.69 to 0.64	--
9.	Avg. wheel slip (%)	--	-1.03 to -1.79
10.	Average depth of puddle (cm)	15.80 to 16.75	--
11.	Average depth of cut (cm)	--	12.10 to 13.39
12.	Avg. effective width (cm)	--	187 to 197
13.	Area covered (ha/h)	--	0.512 to 0.560
14.	Time required for one ha (h)	--	1.79 to 1.95
15.	Field efficiency (%)	--	84 to 85
16.	Puddling index (%)	78 to 88	--
17.	Fuel consumption		
	l/h	3.36 to 3.85	5.11 to 6.12
	l/ha	--	9.60 to 11.51
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

i) The depth of puddle was recorded as 15.80 to 16.75 cm.

ii) The Puddling index was recorded as 78 to 88 %.

7.2 Dry land operation

7.2.1 Rate of work

i) The rate of work was recorded as 0.512 to 0.560 ha/h, and the speed of operation varies from 3.19 to 3.41 Kmph.

ii) The time required to cover one hectare was recorded as 1.79 to 1.95 h.

7.2.2 **Quality of work**

i) The depth of operation was recorded as 12.10 to 13.39 cm.

ii) Average effective width was observed as 187 to 197 cm.

iii) Field efficiency was observed as 84 to 85 %.

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 39.82 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 39.82 hr.	Percentage of wear on hour basis (%)
1.	936.6	928.0	8.6	0.918	0.02
2.	882.9	878.1	4.8	0.544	0.01
3.	910.4	905.1	5.3	0.582	0.01
4.	903.2	898.1	5.1	0.565	0.01
5.	887.1	880.6	6.5	0.733	0.02
6.	896.7	889.3	7.4	0.825	0.02
7.	910.6	873.4	37.2	4.085	0.10
8.	877.5	865.3	12.2	1.390	0.03

8. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 10.29 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, to the requirements of IS: 4468 (Part-1)-1997 and therefore, it may be looked into for corrective action.

12.2 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.

12.3 The hardness of blades does not conform, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action

12.4 Recommended power source is indicated as "45-55 HP" in the specification sheet, at variance with "45-55 kW" as indicated in the labeling plate. **This is misleading to the users** and calls for necessary action.

12.5 The grade of grease is not specified. It **MUST** be specified.

12.6 There is no provision to check oil level of secondary reduction gear box. It **MUST** be provided.

12.7 **Technical literature:-**

One booklet entitled "Operator cum Service Manual cum parts catalogue" was provided for reference during test. The same, however, needs to be updated as per IS-8132-1999.

TESTING AUTHORITY

RINKU PRASAD GUPTA TECHNICAL ASSISTANT	
P. K. PANDEY **DIRECTOR**	

13. APPLICANT'S COMMENTS

No specific comments received from applicant.