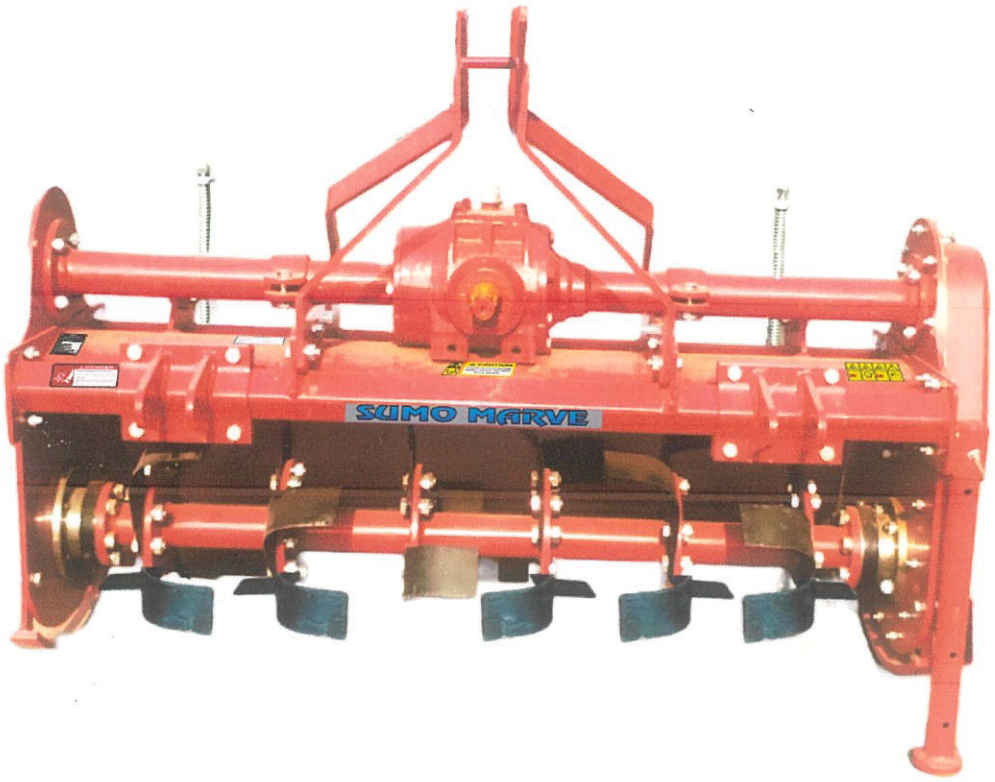
व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: ROTAVATOR-392/3071/2023**
माह/**Month: September, 2023**

THIS TEST REPORT VALID UP TO : 30th September, 2030



JAMNA, JAISMSSR-4
MINI 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
ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001
Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001
[ISO 9001:2015 CERTIFIED]

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Manganese (Mn)	0.50-1.0	0.50-1.00	1.10-1.40	1.29	Conforms
Sulphur (S)	0.05 (Max.)	0.05 (Max.)	0.035 (Max.)	0.01	Conforms
Phosphorous (P)	0.05 (Max.)	0.05 (Max.)	0.025 (Max.)	0.02	Conforms
Chrome (Cr)	--	--	0.3-0.6	0.36	Conforms
Boron (B)	--	--	0.0008-0.005	0.002	Conforms

6. FIELD PERFORMANCE TEST

The field tests of the rotavator was conducted for 36.19 **hours as recommended by the applicant, for dry land only to assess the performance. The details of performance test is reported in Annexure-I.**

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

Summary of Field Performance Test

Sl. No.	Parameters/operations	Dry land operation
I	**II**	**III**
1.	Tractor used	Kubota B2741
2.	Gear used	L-2
3.	Type of soil	Sandy loam
4.	Soil moisture (%)	11.5 to 11.9
5.	Bulk density of soil (g/cc)	1.62 to 1.69
6.	Speed of operation (kmph)	1.83 to 1.99
7.	Wheel slip (%)	-0.82 to -1.68
8.	Depth of cut (cm)	11.00 to 11.50
9.	Effective width (cm)	102 to 108
10.	Area covered (ha/h)	0.147 to 0.169
11.	Time required for one ha (h)	5.91 to 6.80
12.	Field efficiency (%)	78.90 to 84.33
13.	Fuel consumption	
	l/h	3.62 to 4.32
	l/ha	21.76 to 27.52
14.	Avg. PTO power consumption, kW	16.40

6.1 Dry land operation

6.1.1 Rate of work

i) The rate of work was recorded 0.147 to 0.169 ha/h, and the speed of operation varied from 1.83 to 1.99 kmph.

ii) The time required to cover one hectare was recorded as 5.91 to 6.80 h

6.1.2 Quality of work

i) The depth of operation was recorded as 11.00 to 11.50 cm.

ii) Average effective width was observed as 102 to 108 cm.

iii) Field efficiency was observed as 78.90 to 84.33 %.

6.2 Labour requirement

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

6.3 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 37.44 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 37.44 hr.	Percentage of wear on hour basis (%)
1.	784.2	761.2	23.0	2.93	0.08
2.	805.6	785.1	20.5	2.54	0.07
3.	798.1	765.2	32.9	4.12	0.11
4.	805.1	786.1	19.0	2.36	0.06
5.	802.4	787.2	15.2	1.89	0.05
6.	801.4	789.1	12.3	1.53	0.04

7. EFFECTIVENESS OF SEALINGS

Wet land test was not recommended by the applicant, hence not done.

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWN AND REPAIRS

No defect was observed during the test.

11. CRITICAL TECHNICAL SPECIFICATION

The critical technical specification is not specified for Mini Rotavator in the Ministry's communication No 13-9/2019 M &T (I&P) dated 26.04.2019

12. COMMENTS AND RECOMMENDATIONS

12.1 The manufacturer has recommended the rotavator for dry land operation only.

12.2 The Dimension of PIC of Implement does not conform, in toto, to the requirements of IS: 4931-1995 and therefore, it may be looked into for corrective action.

12.3 The overall performance of mini rotavator found satisfactory.

12.4.1 Rate of work

i) The rate of work was recorded 0.147 to 0.169 ha/h, and the speed of operation varied from 1.83 to 1.99 kmph.

ii) The time required to cover one hectare was recorded as 5.91 to 6.80 h

12.4.2 Quality of work

i) The depth of operation was recorded as 11.00 to 11.50 cm.

ii) Average effective width was observed as 102 to 108 cm.

iii) Field efficiency was observed as 28.90 to 84.33 %.

TESTING AUTHORITY

Er. SANJAY KUMAR **AGRICULTURAL ENGINEER**	
Dr. MUKESH JAIN **DIRECTOR**	12.09.2023

The test report is compiled by Sh. Vikram, Sr. Tech.

13. APPLICANT'S COMMENTS

We will take care during our regular production.

उ.क्षे.कृ.म.प्रशि.एवं.परी.सं. हिसार N.R.F.M.T.&T.I., HISAR