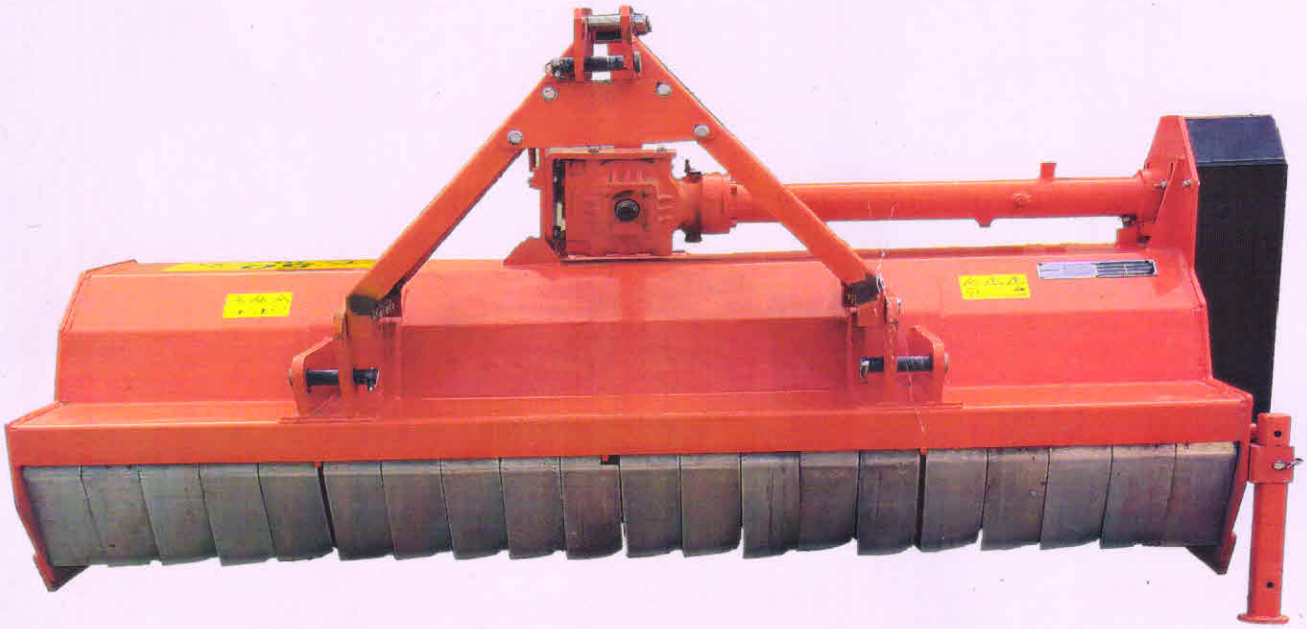
व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: MACHINE-21/2587/2020**
माह/**Month: November, 2020**

THIS TEST REPORT VALID UP TO : 30th November, 2027



SONALIKA, SLLWM – 6 MULCHER (TRACTOR MOUNTED)

सत्यमेव जयते
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]

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6.2.3 Fixed knife blade :-

S. No.	Element	Chemical composition as per IS:6025-1982 (Reaffirmed 2014) (%)	Chemical composition as observed (%)	Remarks
1.	Carbon	0.70-0.95	0.3024	**No remarks is given because this is mulcher - blade and not harvester - blade**
2.	Manganese	0.30-0.50	0.7700	
3.	Silicon	-	0.2822	
4.	Phosphorus	-	0.0188	
5.	Sulphur	-	0.0371	

7. FIELD PERFORMANCE TEST

The field tests of the implement were conducted for 32 hours to assess the performance of the implement. The performance of implement is reported in **Annexure-I & II** Observations of field performance test are summarized in the ensuing table:

Summary of Field Performance Test

Sl. No.	Parameters/operations	
I	**II**	**III**
1.	Tractor used	Mahindra Arjun 555 DI
2.	Gear used	L - 1
3.	Type of soil	Sandy loam
4.	Height of stubble before operation(cm)	15.77 to 36.80
5.	Height of stubble After operation(cm)	9.0 to 11.4
6.	Mass of stubble in one m^2 area before operation(gm)	422.67 to 1545.67
7	Mass of stubble in one m^2 area after operation(gm)	157.0 to 478.00
8	Straw length (cm)	8.0 to 17.00
9	Loose straw mass before operation in one meter m^2 area (gm)	321.67 to 1206.33
10	Straw mass in one m^2 area after operation (gm)	774.33 to 2063.67
11	Loose straw length before operation (cm)	28.0 to 41.83
12	Average speed of operation (kmph)	2.56 to 2.66
13	Avg. working width (cm)	160 to 162
14	Area covered (ha/h)	0.350 to 0.368
15	Time required for one ha (h)	2.72 to 2.86
16	Field efficiency (%)	81.78 to 86.38
17	Total load of crop residue (t/ha)	7.88 to 27.52
18	Fuel consumption	
	l/h	4.4 to 4.8
	l/ha	11.96 to 13.71

7.1 Quality of work

i) Height of stubble after operation was observed as 9.0 to 11.4 cm

ii) Mass of stubble in one m^2 area after operation was observed as 422.67 to 1545.67 gm

iii) Straw mass in one m^2 area after operation was observed as 774.33 to 2063.67 gm

7.2 Rate of work

i) The rate of work was recorded as 0.350 to 0.368 ha/h, and the speed of operation varies from 2.56 to 2.66 kmph.

ii) The time required to cover one hectare was recorded as 2.72 to 2.86 h.

iii) Total load of crop residue was observed as 7.88 to 27.52 t/ha.

7.3 Labour requirement

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

7.4 Wear analysis (on mass basis)

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

Percentage wear of Mulcher rotor blades on mass basis:

Sl. No.	Position	Initial mass of blade (g)	Mass of blade after 34.71 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 34.71 hr.	Percentage of wear on hour basis (%)
1.	Left	552.7	543.1	9.6	1.74	0.05
	Right	550.9	543.2	7.7	1.40	0.04
	Straight	390.9	382.4	8.5	2.17	0.06
2.	Left	526.9	516.3	10.6	2.01	0.06
	Right	549.0	538.0	11.0	2.00	0.06
	Straight	391.3	380.4	10.9	2.79	0.08
3.	Left	564.4	552.7	11.7	2.07	0.06
	Right	545.0	533.7	11.3	2.07	0.06
	Straight	388.6	377.3	11.3	2.91	0.08
4.	Left	543.5	534.0	9.5	1.75	0.05
	Right	551.9	544.6	7.3	1.32	0.04
	Straight	387.4	377.2	10.2	2.63	0.08
5.	Left	553.4	545.7	7.7	1.39	0.04
	Right	567.2	557.2	10.0	1.76	0.05
	Straight	389.1	379.5	9.6	2.47	0.07

Percentage wear of Mulcher fixed knife blades on mass basis:

Sl. No.	Initial mass of blade (g)	Mass of blade after 34.71 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 34.71 hr.	Percentage of wear on hour basis (%)
1.	89.3	89.0	0.3	0.34	0.01
2.	84.0	83.8	0.2	0.24	0.01
3.	86.8	86.7	0.1	0.12	0.00
4.	86.9	86.7	0.2	0.23	0.01
5.	88.9	88.7	0.2	0.22	0.01
6.	89.6	89.4	0.2	0.22	0.01
7.	90.9	90.6	0.3	0.33	0.01
8.	86.5	86.3	0.2	0.23	0.01
9.	85.1	84.9	0.2	0.24	0.01
10.	87.7	87.4	0.3	0.34	0.01

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWN AND REPAIRS

No noticeable defect observed during field test

10. CRITICAL TECHNICAL SPECIFICATION

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

11. COMMENTS AND RECOMMENDATIONS

11.1 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.

11.2 The Dimensions 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.

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

11.4 Labeling plate should be riveted on machine with following information.

1. Name and address of manufacturer
2. Country of origin
3. Make
4. Model
5. Year of manufacturer
6. Serial number
7. Type
8. Size
9. Required size of prime mover (kW)
10. Weight (kg)

11.5 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

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY **DIRECTOR**	

Draft test report compiled by Manoj Sharma, B. Tech (Ag. Engg)

12. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant comments
12.1	11.1 to 11.5	We will take care the same in our regular production/vendor end.