

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या / No. : IMP-558/1430
माह / Month : August, 2012



BALER
“MARKANT-55”



सत्यमेव जयते

भारत सरकार
कृषि मंत्रालय
(कृषि एवं सहकारिता विभाग)

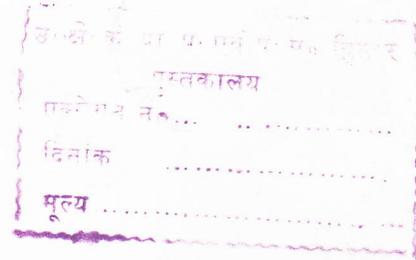
GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURE & COOPERATION)

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, सिरसा रोड, हिसार -125001 (हरियाणा)

NORTHERN REGION FARM MACHINERY TRAINING AND TESTING INSTITUTE
TRACTOR NAGAR, SIRSA ROAD, HISAR-125001 (HARYANA)

Telephone : 01662- 276824, 276172
Website : <http://nrfmtti/dacnet.nic.in>

Telefax No. : 01662-276984
E-Mail : fmti-nr@nic.in



7. FIELD TEST

The Baler is operated by M.F.-5245 (Mahan) tractor. During operation engine throttle was set corresponding to 1800 rpm was tested. The field of 37.2 hours comprised in paddy 21.7 h & sugarcane in 15.5 h straw fields. The field performance of baler was asses with regard to quality of work, rate of work, fuel consumption, safety and soundness of construction etc. The details of tractor used for field operation are given in Para 5.1.2 and Annexure I. The tractor pto speed was at 540 rpm during operation corresponding to 1800 rpm of tractor. The performance of implement are represented in Annexure-II and the summary of the field performance parameters are given in Table-5.

Table 5 : Summary of field performance :-

S.No.	Parameters	Observed values	
		Paddy Straw Field	Sugarcane straw field
1.	Tractor used	MF 5245 (Mahan)	
2.	Type of straw	Paddy straw	Sugarcane straw
3.	Avg. Straw moisture, %	20.5 - 28.9	17.9 - 20.2
4.	Avg. Speed of operation, kmph	2.43 - 3.08	1.36 - 1.90
5.	Area covered, ha/h	0.300 - 0.389	0.178 - 0.241
6.	Time required for one hectare, h	2.64 - 3.33	4.16 - 5.61
7.	Field efficiency, %	76.6 - 96.1	75.5 - 95.3
8.	Fuel consumption		
		l/h	2.84 to 5.19
		l/ha	8.62 to 14.55
9.	Avg. Weight of each bale, kg	11.0 - 15.6	14.4 - 17.0
10.	% variation in weight from the mean values	4.5 - 27.2	9.2 - 29.0
11.	No. of bales per hour	143 - 226	134 - 144
12.	Straw output, kg/h	2109 - 3180	1860 - 2590
13.	Straw recovery, %	82.2 - 94.4	88.6 - 92.1
14.	Bale density, kg/m ³	74.1 - 132.5	76.3 - 138.8
15.	Power consumption, kW	7.96	7.96
16.	Volume of bale, m ³	0.100 - 0.150	0.126 - 0.143
17.	Average size of bale (LxWxH), mm	849x463x360	829x455x360

6.1 Rate of work and fuel consumption

The rate of work for paddy & sugarcane straw were recorded as 0.300 to 0.389 and 0.178 to 0.241ha/h at the forward speed 2.43 to 3.08 and 1.36 to 1.90 kmph.

The time required to cover one hectare was recorded as 2.64 to 3.33 and 4.16 to 5.61 h.

IMP- 558/1430	BALER "MARKANT-55"	COMMERCIAL (ICT)	18
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9 LABOUR REQUIREMENTS

Prior to each test, about 2 man hour were required for daily maintenance of tractor and baler for operation otherwise one skilled operator is enough to operate tractor with baler.

10 DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS.

No breakdown was observed during 37.2 hrs. of field operation under test.

11 COMMENTS AND RECOMMENDATIONS

1. Quality of bale was observed to be satisfactory .
2. The field efficiency and straw of paddy and sugarcane straw recovery varied from 76.6 to 96.1 and 75.5 to 95.3 % & 82.2 to 94.4 and 88.6 to 92.1 % respectively.
3. Maneuverability of tractor with baler was found to be satisfactory and also the quality of work was observed to be satisfactory.
4. Dimensions of splined end of pinion shaft does not comply with the IS:4931-2004.
5. This should be incorporated at regular production level
Baler stand is provided with the implement.
6. The pto power requirement of baler was observed as 7.96 kW of straw of paddy crop which is 25.84% pto power of the tractor.
7. The hardness and chemical composition of the primary elements are not complying with IS:6690-2002.

12. Special feature :-

- i) It is a high density type rectangular baler suitable to make a bale from paddy and sugarcane crop residues.
- ii) It is trailed type machine
- iii) Provision for adjusting the length of bale
- iv) Provision for adjusting the density of bale is there.
- v) Bale counter unit is provided to show the operator the progress of bailing of straw/hey inside the chamber.
- vi) Baler can be easily transported by towing hook on swinging drawbar of the tractor..

13. SAFETY DEVICES :-

- i) Safety clutch for reel and main drive
- ii) Sheer bolt for fly wheel, feeder unit and knotter shaft clutch provided for safety (gear out put shaft of LHS)
- iii) Protection shield for all the rotary parts.
- iv) Safety cover for pto shaft.