

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



**SUPER KALSI, DOWN TRAY REVERSE FORWARD,
POWER OPERATED CHAFF CUTTER**



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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9.2	A plate having a “Danger Signal” shall be rigidly fixed near the blades of the chaff cutter.	Provided	Conforms
9.3	Each chaff cutter shall be provided with an operator’s manual in which all safety aspects are also to be highlighted along with the precautions to be taken for safe operation of chaff cutter	Provided	Conforms
10	WORKMANSHIP AND FINISH:		
10.1	All the components of the chaff cutter shall be free from cracks.	Satisfactory	Conforms
10.2	The cast iron components shall not be porous. Welding, if done, shall also not be porous.	Satisfactory	Conforms
10.3	All exposed metallic surfaces shall be free from rust and may be painted if required	Satisfactory	Conforms
10.4	Sharp corners and protruding fasteners shall be avoided	Satisfactory	Conforms
11	MARKING:		
11.1	Each chaff cutter shall be marked with the following particulars:		
	(a) Manufacturers name or recognized trade mark	Marked	Conforms
	(b) Code and batch number	Marked	Conforms
	(c) Model number	Marked	Conforms
	(d) Power rating, kW	Marked	Conforms
	(e) Rated input capacity	Marked	Conforms
	(f) Recommended rpm of fly-wheel or cylinder	Marked	Conforms
11.2	BIS Certification marking:	Marked	Conforms

8. RUNNING-IN

The chaff cutter was run-in for 0.5 hour before field performance test as recommended by the applicant. All the fasteners were checked and tightened thereafter.

9. FIELD PERFORMANCE TEST

9.1 Test at No Load: -

The chaff cutter was operated at no load for 0.50 hours.

9.1.1 Power Consumption: -

The No Load power consumption of chaff cutter was recorded as 0.90 kW.

9.1.2 Visual Observations: -

During the No Load test, the observations against the following points were made: -

S No	Parameters	Observations
(a)	Presence of any marked oscillation during operation	None
(b)	Presence of knocking or rattling sound	None
(c)	Frequent slippage of belts	None
(d)	Smooth running of shaft/shafts in their respective bearings	Smooth
(e)	Any marked unusual wear or slackness in any component	None
(f)	Any marked rise in bearing temperature	No
(g)	Other observations	None

9.2 Test at Load: -**9.2.1 Short Run Test: -**

Six trials of short run test were carried out for cutting Maize. The details of green fodder crop parameters are given in Annexure-I and summarized in Table-1. The detailed observations made during the test are given in Annexure-II and summarized in Table-2.

SUMMARY OF CROP PARAMETER

Table – 1

S. No.	Parameters	Observations
1	Type of fodder	Wet
2	Variety of fodder crop	Maize
3	Avg. length of stalk (cm)	176 to 275
4	Avg. dia. of stalk (mm)	13.40 to 21.04
5	Avg. moisture content (%)	78.36 to 81.4

SUMMARY OF PERFORMANCE RESULTS

Table – 2

Sl. No.	Parameters	Observations
		Maize
1	Feed rate (kg/h)	1027 to 1641
2	Quantity of cut (kg/h)	1027 to 1641
3	Quality of cut (1- σ)	0.37 to 0.75
4	Avg. length of fodder pieces (mm)	10.11 to 11.24
5	Power consumed (kW)	1.30 to 1.43
6	Quantity of cut per unit energy consumed (kg/kWh)	790 to 1148
7	Corrected quantity of cut (kg/h)	340 to 654
8	Corrected quantity of cut (kg/kWh)	262 to 460
9	Performance Index	425 to 813

9.2.1.1	Quantity of cut :-
	a) The feed rate was observed as 1027 to 1641 kg/h in Maize respectively.
	b) The corrected quantity of cut was recorded as 340 to 654 kg/h in Maize respectively.
9.2.1.2	Quality of cut :-
	The quality of cut was determined from the standard deviation of measured length of cut of plastic pieces. The quality of cut ranged from 0.37 to 0.75 in Maize respectively.
9.2.2	Long run test:-
	The chaff cutter was operated for a total duration of 27.0 hours for cutting Maize. No breakdown in the cutter head, feeding mechanism, transmission systems & body of the chaff cutter was noticed. No repair was done during the entire course of test.
9.2.3	Labour requirement:-
	Three labours are required for continuous operation of the chaff cutter. Three labours are required for feeding & supplying the fodder crop and one for handling the chaff.
9.2.4	Ease of operation, adjustments and safety provisions: -
	<ul style="list-style-type: none"> • The machine is easy for installation and operation. • The adjustment of clearance between fixed and rotating blade is easy to perform. • The cutter head & main power transmission are guarded by providing safety cover. • The feed rollers are provided with spring loaded arrangement. • The Chaff Cutter is provided with side plates and top cover plates to protect the feed rollers.

9.2.5		Wear analysis of blades :			
Sl. No.	Initial mass (g)	Mass after 27.5 h of operation	Loss of mass (g)	Percentage of wear	
				After 27.5 h	Per hour
1	1085	1035	50	4.64	0.17
2	1150	1145	05	0.43	0.02

10. EASE OF OPERATION & ADJUSTMENTS

No noticeable difficulty was observed during the operation and adjustment of the machine, when the following work rest cycle was followed:

2 hours work → 15 minutes rest → 1.5 hour work → 15 minutes rest → so on.

11. DEFECTS, BREAKDOWNS AND REPAIRS

The cross of feed roller drive shaft was observed broken during the test. It was replaced with new one.

13. SUMMARY OF OBSERVATION, COMMENTS & RECOMMENDATIONS

- 13.1** The modification/ improvement regarding safety and other requirement should be done in chaff cutter as per the requirement of IS : 15542-2005.
- 13.2** The provision for adjustment of the feed rate and length of cut is not provided. It **MUST** be provided.
- 13.3** This machine does not meet in full the requirement of IS: 11459-1985, IS: 1511-1979 and IS: 15542-2005. This **MUST** be looked into for corrective action.
- 13.4** **Technical literature:-**

The following literature is provided during the testing.


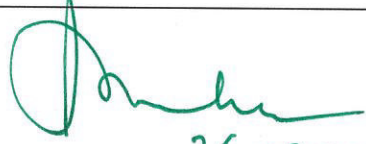
- i) Operation manual cum spare parts catalogue.

The following literature **MUST** be provided with machine.

- i) Service manual of chaff cutter.

The operation manual of chaff cutter should be updated as per IS : 8132-1999.

TESTING AUTHORITY:

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
DR. MUKESH JAIN DIRECTOR	 26.08.2022

The test report is compiled by Er. Sunil Patil, Senior Technical Assistant

14. APPLICANT'S COMMENTS

We will follow the recommendation in our future production.