

THIS TEST REPORT IS VALID UPTO 30.09.2032



KSR AGRO, KSR-CC-9ZT-1.0, 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

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

बिश्वनाथ चारिआलि, जिला - बिश्वनाथ(असम)

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[AN ISO 9001:2015 CERTIFIED INSTITUTION]

MISC/NERFMTTI, B. Chariali/ 02/02/548	KSR AGRO, KSR-CC-9ZT-1.0 CHAFF CUTTER	COMMERCIAL (INITIAL)
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1. SCOPE OF TEST

The scope of test was limited to check and assess the following:

- 1.1 Specifications and other data furnished by the applicant.
- 1.2 Conformity to requirements against the relevant Indian Standards.
- 1.3 Performance test to find out:
 - Quantity of work
 - Quality of work
 - Power consumption
 - Labour requirement
- 1.4 Wear analysis of critical components
- 1.5 Ease of operation and adjustments
- 1.6 Defects, breakdowns and repairs



2. METHOD OF SELECTION

The test sample was selected by the testing authority through random selection. The following test samples were presented by the applicant during the random selection.

Sr. No.	Serial No. of test sample	Remarks
1	KSR-CC-2025-26-330	Out of five samples, Sr. No. 5 sample was randomly selected.
2	KSR-CC-2025-26-331	
3	KSR-CC-2025-26-332	
4	KSR-CC-2025-26-333	
5	KSR-CC-2025-26-334	

3. TEST CODE/PROCEDURE

IS 11459:2024

: Power-Operated Chaff Cutter-Specification and Test Code

4. SPECIFICATIONS

- 4.1 **General:**
- Make : KSR AGRO
- Model : KSR-CC-9ZT-1.0
- Name and address of manufacturer : M/s. HUNAN GOODFORTUNE ELECTROMECHANICAL EQUIPMENT CO., LTD. Science and Technology Industrial Park, Shuangfeng County, Hunan Province, CHINA

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- Name and address of applicant : M/s K S R AGRICULTURAL IMPLEMENTS AND WORKS Plot No C-3, 11/42, Proddatur Road, Kothapalli Panchayat, Medameedapalli, Proddatur, YSR, Andhra Pradesh, 516362
- Name of machine : Chaff Cutter
- Type of machine : Power operated (electric motor), Cylinder type, Chute-fed, Throw away type
- Year of manufacture : 2025-26
- Serial no. of machine : KSR-CC-2025-26-334
- Country of origin : CHINA
- Suitability of machine (apa) : Chopping of green and dry fodder

4.2 Constructional details:

4.2.1 Main frame/Stand:

- Constructional details : It was fabricated from MS angle iron having 4 legs of size 555 x 38/38 x 3.3 mm. The legs were further supported with MS angle iron 275 x 38/38 x 3.3 mm (2 Nos.).
- For motor mounting : MS angle iron 485 x 38/38 x 3.0 mm (2 Nos.).
- Slot size (mm) : 80 x 8.9 - 4 Nos.
- Size of platform (mm) : 245 x 395
- Height of platform from ground level (mm) : 545

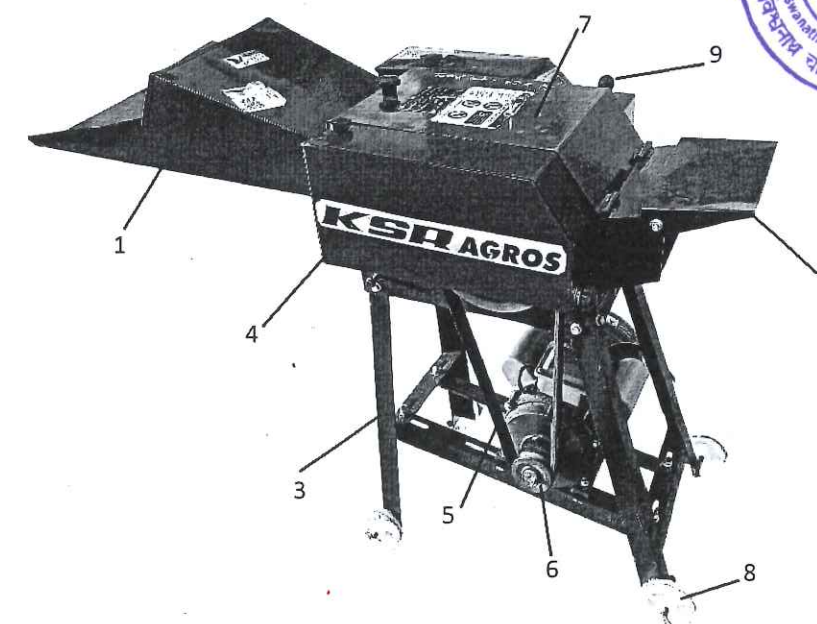


Fig.1. KSR AGRO, KSR-CC-9ZT-1.0, CHAFF CUTTER

7. FIELD PERFORMANCE TEST



7.1 Test at No-Load:

The chaff cutter was operated at no-load for 1 hour.

7.1.1 Power Consumption:

The no load power consumption of chaff cutter was recorded as 0.6 kW.

7.1.2 Visual Observations:

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

Sr. No.	Parameters	Observations
(a)	Presence of any marked oscillation during operation	No
(b)	Presence of knocking or rattling sound	No
(c)	Frequent slippage of belts	No
(d)	Smooth running of shaft/shafts in their respective bearings	Satisfactory
(e)	Any marked unusual wear or slackness in any component	No
(f)	Any marked rise in bearing temperature	No
(g)	Motor Speed (rpm)	2980
(h)	Fly wheel/ cylinder speed (rpm)	1024
(i)	Feed roller speed (rpm)	257.5

7.2 Tests at Load:

7.2.1 Short run test:

Four tests of short run were carried out for cutting Napier grass. The detailed parameters of fodder crop 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 FODDER CROP PARAMETER

Table - 1

Sr. No.	Parameters	Observations
1	Name of fodder crop	Napier grass
2	Av. length of stalk (m)	2.0 to 2.7
3	Av. dia. of stalk (mm)	11.7 to 14.5
4	Av. moisture content (%)	63 to 67

SUMMARY OF PERFORMANCE RESULTS

Table - 2

Sr. No.	Parameters	Observations
1	Feed rate (kg/h)	319.4 to 332.5
2	Quantity of cut (kg/h)	309.5 to 321.5
3	Quality of cut	-3.74 to -5.84
4	Av. cut length of fodder pieces (mm)	19.3 to 21.7
5	Power consumed by chaff cutter for cutting of fodder (kW)	0.3 to 0.4
6	Total power consumed at load (kW)	0.9 to 1.1

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7	Quantity of cut chaff per unit energy consumed (kg/kWh)	811.9 to 1100.0
8	Corrected quantity of cut (kg/h)	100.4 to 117.0
9	Corrected quality of cut (kg/kWh)	257.8 to 390.1
10	Performance Index	-4114.0 to -6376.1

7.2.1.1 Quantity of cut:

- The feed rate was observed as 319.4 to 332.5 kg/h.
- The quantity of cut fodder received was measured as 309.5 to 321.5 kg/h.
- The corrected quantity of cut was recorded as 100.4 to 117.0 kg/h.
- The quantity of cut per unit energy consumed was recorded as 811.9 to 1100.0 kg/kWh.
- The corrected quality of cut per unit energy consumed was recorded as 257.8 to 390.1 kg/kWh.

7.2.1.2 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 was ranged from -3.74 to -5.84.

7.2.1.3 Power requirement:

The power consumed by the chaff cutter was calculated after deducting the no-load power consumption of chaff cutter from the power consumption on load and it was measured as 0.3 to 0.4 kW.

7.2.1.4 Performance index:

The overall performance of the chaff cutter was determined by its performance Index and it was calculated as -4114.0 to -6376.1.

7.2.2 Long run test:

The chaff cutter was operated for a total duration of 25.17 hours for cutting Napier grass. No breakdown in the cutter head, feeding mechanism, transmission systems and body of the chaff cutter was noticed. No repair was occurred during the entire course of test. Percent variation in length of cut was observed as 16.0 to 21.5.

7.2.3 Labour requirement:

Three labours are required for continuous operation of the chaff cutter. Two labours are required for feeding and supplying the fodder crop and one for handling the chaff.

7.2.4 Ease of operation, adjustments and safety provisions:

- The machine is easy for installation and operation.
- The adjustment of clearance between shear plate and rotating blade is easy to perform.
- The cutter head and main power transmission are guarded by providing safety covers.
- 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.



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7.2.5 Wear analysis of blades:

Sr. No.	Initial mass (g)	Final mass (g)	Loss of mass (g)	Percentage of wear	Percentage of wear per hour after 25.17 h of operation
1	557.59	555.38	2.21	0.40	0.02
2	553.19	551.75	1.44	0.26	0.01
3	557.39	555.02	2.37	0.42	0.02
4	555.63	553.32	2.31	0.42	0.02

8. EASE OF OPERATION AND ADJUSTMENTS

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

9. DEFECTS, BREAKDOWNS AND REPAIRS


No defects and breakdowns were observed during the entire test.

10. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's letter No. 13-9/2019-(M&T) (I&P)-Part dated 26.04.2019)

Sr. No.	Type	Specifications	Observed	Remarks
1	2	3	4	5
1	Type	Power operated	Power operated	Conforms
2	Basis of cutting mechanism type	Fly wheel or cylinder	Cylinder	Conforms
3	Basis of cut chaff dropping position type	Let fall, throw away or blow	Throw away type	Conforms
4	Material of blade	Mn42	Carbon steel	Does not conform
5	Hardness of blade	48-52 HRC	19.7 HRC	Does not conform
6	Length of conveyor, mm	1200 (Min.)	NA	--
7	Length of chute, mm	900 (Min.)	620	Does not conform
8	Thickness of chute sheet, mm	>1.6	1.2	Does not conform
9	Covering of chute or conveyor, mm	450 (Min)	350	Does not conform
10	Height of feeding unit, mm	750 to 1100	755	Conforms

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1	2	3	4	5
11	Cautionary notice	Must be provided	Provided	Conforms
12	Marking/labeling of machine 	The labeling plate should be riveted on the body of the machine having name and address of manufacturer, country of origin, make, model, year of manufacture, serial number, Type, Require size of prime mover (kW)	Name and address of manufacturer, country of origin, and type were not provided.	Does not conform
13	Literature	Operator manual, service manual and parts catalogue should be provided.	Provided	Conforms

11. COMMENTS AND RECOMMENDATIONS

- 11.1 Following modifications/improvements are required as per IS 11459 : 2024.**
- 11.1.1** A warning roller with spring was not fitted before the feeding rollers to warn the operator while feeding the fodder crop into the chaff cutter. This should be looked into for corrective action.
- 11.1.2** A suitable arrangement was not provided for clutching or declutching of drive in transmission system. This should be looked into for corrective action.
- 11.1.3** Provision for adjustment of feed rate and direction of rotation of feed rollers should be provided.
- 11.1.4** The power source shall be mounted on a frame made of MS angle with minimum thickness of 5 mm. This should be looked into for corrective action.
- 11.1.5** Pulley diameter of power source shall be of 100 mm. This should be looked into for corrective action.
- 11.1.6** Diameter of cylinder pulley shall be minimum 265 mm. This should be looked into for corrective action.
- 11.1.7** The minimum length of feeding chute shall be 900 mm. This should be looked into for corrective action.
- 11.1.8** The chute shall be covered up to a minimum of 450 mm near feed roll side. This should be looked into for corrective action.
- 11.1.9** Provision to change the direction of rotation of feed rolls should be provided.
- 11.1.10** Hooks at suitable places may be provided for lifting the chaff cutter for easy movement.
- 11.1.11** The thickness of the chute cover shall not be less than 1.6 mm.
- 11.1.12** The hardness and chemical composition of blade was not met with the requirement of IS 11459 : 2024. This should be looked into for corrective action.

11.2 Marking /labeling:

The labeling plate was not provided with information such as name and address of the manufacturer, code and batch number, rated input capacity, country of origin and type of chaff cutter. This should be looked into for corrective action.

11.3 Adequacy of Literature:

The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-2023.

TESTING AUTHORITY

(M.R. PATIL)
SENIOR AGRICULTURAL ENGINEER

(P. KAMALABAI)
DIRECTOR

Draft test report compiled by - Sh. D. Deori, Technical Assistant

12. APPLICANT'S COMMENTS

We have gone through your comments and recommendations we will do the corrective action in future products.

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ANNEXURE - I

FODDER CROP PARAMETERS

Place of test: Kanyaka Farm, Jamugurihat, Dist. – Sonitpur, Assam

Sr. No.	Parameters	No. of tests			
		I	II	III	IV
		12.09.2025	16.09.2025	17.09.2025	18.09.2025
1	Date of test				
2	Name of the fodder crop	Napier grass			
3	Moisture content of fodder crop (%)	65	67	63	67
4	Av. length of stalk (m)	2.18	2.72	2.59	2.07
5	Av. dia. of stalk (mm)	12.1	14.5	12.8	11.7

ANNEXURE - II

PERFORMANCE TEST RESULTS

Place of test: Kanyaka Farm, Jamugurihat, Dist. – Sonitpur, Assam

Sr. No.	Parameters	No. of tests			
		I	II	III	IV
		12.09.2025	16.09.2025	17.09.2025	18.09.2025
1	Name of the crop	Napier grass			
2	Date of test	1.02	1.05	1.01	1.00
3	Duration of test (h)	319.39	326.25	330.0	332.53
4	Feed rate (kg/h)	309.51	315.76	317.2	321.52
5	Quantity of cut (kg/h)	-5.38	-5.07	-5.84	-3.74
6	Quality of cut	19.33	20.79	20.71	21.70
7	Av. cut length of fodder pieces (mm)	0.3	0.4	0.3	0.3
8	Power consumed by chaff cutter (kW)	1058.0	811.9	1091.8	1100.0
9	Quantity of cut per unit energy consumed (kg/kWh)	114.94	103.1	117.04	100.37
10	Corrected quantity of cut (kg/h)	383.13	257.75	390.13	334.57
11	Corrected quality of cut (kg/kWh)	-5692.04	-4116.3	-6376.11	-4114.0
12	Performance Index				

