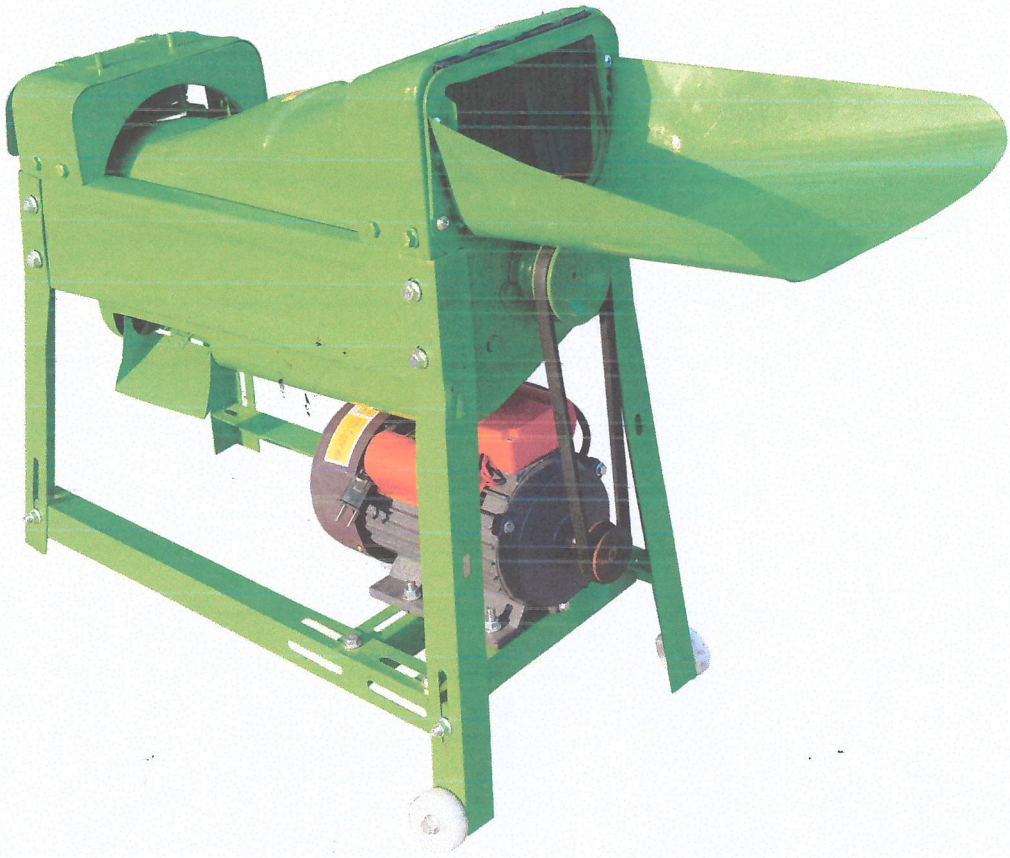
प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट संख्या/No. CSIR/CMERI/FMTTC/2024/034

INITIAL COMMERCIAL TEST REPORT माह/Month: June, 2024

THIS TEST REPORT VALID UP TO : 31ST MAY, 2031



GREENFARM CORN SHELLER (GF-CT-5TY)

सत्यमेव जयते
Goverment Of India

कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र

Farm Machinery Training and Testing Centre

सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान

CSIR - Central Mechanical Engineering Research Institute

महात्मा गांधी एवेन्यू, दुर्गापुर

Mahatma Gandhi Avenue, Durgapur

पश्चिम बंगाल - **713209**

West Bengal - 713209

Website: https://cmeri.res.in

E-mail: fmttc.cmeri@gmail.com

Telephone: 9434592007 / 7001361295

Fax: +91-343-2546745

4 SPECIFICATIONS

4.1 General

Name of Implement	:	Corn Sheller
Type	:	Motor operated, Hopper fed, cylinder type
Make*	:	Greenfarm
Model*	:	GF-CT-5TY
Serial No.	:	WV 23082333
Year of manufacture	:	2024
Power Source	:	Electric Motor (Normal operating power = 0.75 hp and Peak power = 1 hp)
Name & address of manufacturer	:	Greenfarm Machineries Pvt. Ltd. (A Group company of Sanatan Merchants Pvt. Ltd.) 16, Strand Road, Diamond Heritage, 9th Floor, Unit No. 901, Kolkata – 700001
Name & address of applicant	:	-do-
Crops to be processed	:	Maize
Overall dimension (L×W×H, mm)	:	860×355×640
Total weight (kg)	:	24.64

* As per data provided by the applicant

5 CONSTRUCTIONAL DETAILS

Main objective of the Manual Maize Sheller is to remove maize seeds from cubs without damage. It is achieved by pressing maize cubs firmly between rotating drum with spiral coil and rib on the wall of the chamber in the shelling chamber thus putting a shearing impact between cub and sheet. The drum rotates with power from electric motor through pulley and belt.

5.1 Support Stand

It provides the stability to the machine. It is made up of MS flats and MS angle. The members are bolted with each other which acts as a stand on which the motor is fixed at bottom and Processing Chamber is fixed at top.

Weight (kg.)	:	2.460
Long vertical members	:	2 nos, Length - 490 mm, MS angle 36 × 36 × 2.2 mm
Short vertical members	:	2 nos. Length - 400 mm, MS angle 36 × 36 × 2.2 mm
Long horizontal bottom members	:	2 nos. Length - 580 mm, MS angle 36 × 36 × 2.2 mm
Short horizontal bottom members	:	2 nos. Length - 270 mm, MS angle 36 × 36 × 2.2 mm
Motor base angle	:	2 nos. Length - 280 mm, MS flat 36 × 36 × 2.2 mm
Slot on flat for motor	:	4 nos. 48.8 × 8.96 mm, c/c distance -84.3 mm
Holes on vertical frame for fixing Processing chamber	:	8 nos. each side 10.32 mm c/c distance - 43.46 mm

Table – 4 Machine Parameters

Sl. No.	Parameters		
1	Speed of Motor, rpm	No Load	2980
		On Load	2576
2	Speed of shelling drum, rpm	No Load	1910
		On Load	1873
3	Noise Level in (dbA)	No Load	On Load
	At 1 m distance	81.60	102.40
	At 4 m distance	72.50	96.30
4	Temperature (°C)	No Load	On Load
	Motor	40.5	47.8
	Feed cub	29.5	33.6
	Seed at output	28.6	31.8

Table –5 Data Sheet for TEST at LOAD

Item	1	2	3
Source of Power	Electric Motor		
Power rating (kw)	0.85	0.85	0.85
Type of Drive	Belt and Pulley		
Variety of Maze	Parjenta 7744		
Grain to cub ratio	0.90	0.85	0.81
Moisture content	6.6	7.3	7.1
Concave clearance (mm)	27.11 to 40	27.11 to 40	27.11 to 40
Atmospheric Temp (°C)	34	34	34
Humidity (%)	68	68	68
Atmospheric pressure (mm of Hg)	752.31	752.31	752.31

Report prepared by

Report verified by

9 SUMMARY OF OBSERVATION

9.1 Feeding is done manually and there is no feed regulator. Hence feed rate is dependent on the operator.

9.2 Moisture content of feed should be below 13.25% for better performance of the machine

9.3 Recommended feed rate is 7 q/h

9.4 Shelling efficiency is 99.97%.

9.5 Percent of unshelled grain is 0.04% at recommended feed rate.

9.6 Percent of cracked and broken grain is 0.04% at recommended feed rate which meets the performance requirement as per IS:7051-1973 (Reaffirmed 2012)

9.7 Total loss observed was 0.08% at recommended feed rate which meets the performance requirement as per IS:7051-1973 (Reaffirmed 2012)

9.8 Corrected output capacity observed is 786.97 kg/h.

9.9 Maximum diameter of cub that can (measured after shelling) be processed for better performance of the machine is 48.20 mm.

9.10 Feeding was needed to be uniform and maximum 3 to 4 cubs at a time for smooth as proper functioning of the machine.

10 COMMENTS & RECOMMENDATIONS

10.1 Operator manual should be provided as per IS: 8132 -1999.

10.2 Direction of rotation **MUST** be provided.

10.3 The machine is not provided with minimum cautionary notices as per IS:7051-1973 (Reaffirmed 2012). This **MUST** be provided.

10.4 Lever adjustment for small cub is difficult and to be looked into for corrective action.

Report prepared by

Report verified by

11 TECHNICAL LITERATURE

The operator, maintenance & parts manual of maize sheller was provided during the test which was found adequate, however, the manual should be updated as per IS: 8132:1999, with the inclusion of safety instructions regarding handling of machine.

TESTING AUTHORITY

Report Prepared by	Sr. Technical Officer, CSIR-CMERI Farm Machinery Testing Centre	28/06/2024
Report Verified & Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	28.06.2024
Report Approved for release by	Head, Business Development Unit, CSIR-CMERI, Durgapur	28/6/24

12 APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
12	10.1 to 10.4	We would like to confirm that we will comply with all your recommendations as stated in the DTR as soon as possible.

CSIR - Central Mechanical Engineering Research Institute * Durgapur-713209 * CSIR.IN

FARM MACHINERY TRAINING AND TESTING CENTRE CSIR-CMERI DURGAPUR