

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT



संख्या / No.: Imp-236/310
माह / Month: March, 2018



**GREENSYSTEM RC6005, FIVE TINE RIGID TYPE CULTIVATOR
(Tractor Mounted)**



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

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1. SCOPE OF TEST

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

1.1 Laboratory Test:

- a) Checking of specifications
- b) Hardness of soil engaging parts (Shovel)
- c) Chemical analysis of critical components (Shovel)
- d) Wear analysis of critical components (Shovel)

1.2 Field Test:

- a) Rate of work
- b) Quality of work
- c) Power requirement
- d) Ease of operation and adjustments
- e) Labour requirement
- f) Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

The implement was directly submitted for test by the applicant at this Institute. Hence, the method of selection is not known.

3. TEST PROCEDURE

The following codes were referred for testing of rigid tine cultivator.

i)	IS: 7565 (Part-I): 1975 (Reaffirmed Mar. 2009)	:	Specification for Tines for Tractor operated cultivators: Part 1 Rigid tines
ii)	IS: 4468 (Part I): 1997 (Reaffirmed Feb. 2012)	:	Agricultural wheeled tractors – Rear-mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4
iii)	IS: 3342:1998 (Reaffirmed Mar., 2009)	:	Soil Working Equipment – Cultivators, Animal Drawn - Specification

4. SPECIFICATIONS

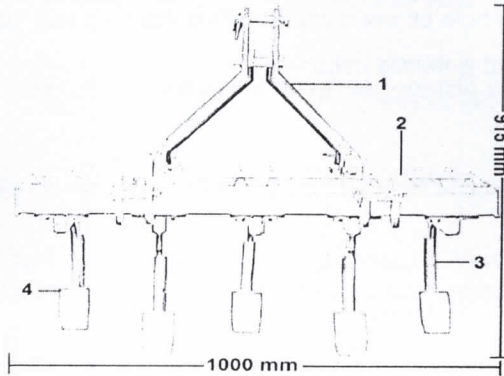
4.1 General:

Name and address of the manufacturer	:	M/s. Dasmesh Mechanical Works Village-langrain, Nabha- Malerkotla Road .Dist-Sangrur Punjab -148022
Test requested by (Applicant)	:	M/s. John Deere India PVT. LTD Gat#166-167,&271-291, off Pne – Nagar, Road Sanaswadi Pune Maharashtra - 412208
Name of machine	:	Cultivator
Make	:	GREENSYSTEM
Model	:	RC6005
Type	:	Rigid Tine, Tractor Mounted
Size (mm)	:	05 x 190
Serial Number of machine	:	1PYRC30EAJA000021
Year of manufacture	:	2018
Country of origin	:	Made in India



Power Source as recommended, hp : Not Provided
 Power source used during the test : Kubota B 2420 (Refer Annexure-II)

4.2 Constructional Details (Refer Fig.1):



KEYWORDS:			
1.	Hitch pyramid	3.	Tine
2.	Mainframe	4.	Shovel

Fig.1: SCHEMATIC VIEW OF GREEN SYSTEM RC 6005 RIGID TINE CULTIVATOR

4.2.1 Main Frame:

Constructional Details: Two MS square pipe of size 1000 × 72.25 × 72.25 mm covered at both end which is welded across with two nos. of MS square pipe of size 370 × 72.25 × 72.25 mm at a spacing of size 610 to 160 mm

Material : MS square pipe
 Dimensions of frame (mm) : 1000 x 535

4.2.2 Tine(Refer Fig.2):

Number(s) : 05 (five)
 Arrangement of tines : Two tines on front row and Three tines on rear row
 Material : MS flat

Dimensions (mm):

Front Tine :

Length
 - Curved : 700
 - Projected : 353

Width

- At top : 80
 - At bottom : 17

Thickness : 16.1

Rear Tine :

Length
 - Curved : 955
 - Projected : 353



1	2	3	4	5	6	7
2	A	150	147	3.00	2.00	0.07
	B	69.43	68.98	0.45	0.65	0.02
	C1	9.11	8.82	0.29	3.18	0.11
	C2	9.62	8.56	1.06	11.02	0.40
	C3	7.28	6.59	0.69	9.48	0.34
3	A	148	146	2.00	1.35	0.05
	B	69.32	68.88	0.44	0.63	0.02
	C1	9.1	8.67	0.43	4.73	0.17
	C2	9.65	8.78	0.87	9.02	0.32
	C3	7.2	6.73	0.47	6.53	0.23
4	A	149	145	4.00	2.68	0.10
	B	69.35	68.93	0.42	0.61	0.02
	C1	9.08	8.74	0.34	3.74	0.13
	C2	9.7	8.97	0.73	7.53	0.27
	C3	7.23	6.79	0.44	6.09	0.22
5	A	147	143	4.00	2.72	0.10
	B	69.37	68.89	0.48	0.69	0.02
	C1	9.13	8.81	0.32	3.50	0.13
	C2	9.66	8.93	0.73	7.56	0.27
	C3	7.16	6.64	0.52	7.26	0.26

Remarks: The hourly wear percentage of shovel on dimensional basis was recorded as 0.02 to 0.40.

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWNS AND REPAIRS

No break down was occurred at 27.8 h of field test.

10. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

- 10.1** The specification of tine does not conform to IS: 7565 (PART I) – 1975 (Reaffirmed Mar., 2009). This should be improved and provided as per the requirement of Indian Standard.
- 10.2** The dimension of hitch pyramid of the implement does not conform to IS: 4468-1997 (Part-1) (Reaffirmed Feb., 2012). This should be looked into for corrective action for standardization.
- 10.3** The percentage of carbon and manganese in the shovel was not within its required range as per IS: 3342:1998. Therefore it is recommended to looked into for corrective action.
- 10.4 Performance of the cultivator:**
- 10.4.1** a) The area cover was recorded as 0.418 to 0.468 ha/h at the speed of operation from 5.07 to 5.19 km/h.
- b) The time required to cover one hectare area was recorded as 2.14 to 2.39h.
- 10.4.2 Quality of work:**
- a) The depth of cut was recorded as 8 to 11cm.
- b) Average working width was observed as 102 to 108cm.
- c) Field efficiency was observed as 77.6 to 85.3%.



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10.4.3 Power requirement:

The draft of implement was recorded from 331 to 356 kgf and power requirement was calculated as 4.67 to 4.99 kW.

10.4.4 Labour requirement:

One skilled operator was needed to operate the tractor with the implement.

10.5 Wear Assessment:

The hourly rate of wear of the shovel on mass and dimensional basis was recorded as 0.18 to 0.29.% and 0.02 to 0.40% respectively.

10.6 As the implement is rigid tine type, it is not suitable for root & stone infested lands.

10.7 Labelling plate:

Manufacturer's name, Type, Model, serial no. and year of manufacture were indicated on the labeling plate. However, it is recommended to specify size and number of tines as per Indian Standard.

10.8 Technical literature:

Parts Catalogue was provided along with the machine during the course of testing. It is further recommended to bring out these manual and Operator cum Service Manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY

S. G. PAWAR AGRICULTURAL ENGINEER	
A.K. UPADHYAY SENIOR AGRICULTURAL ENGINEER	
K.K. NAGLE DIRECTOR	

Draft test report compiled by -

Sh. Abhishek Tiwari & Sh. Sandeep Kumar

**11. APPLICANT'S COMMENTS**

Para No.	Our reference	Applicant's Comments
11.1	10.1	We agree with the recommendations and will look in to providing shovels for cultivator conforming to Indian Standards IS: 7565 (PART I) – 1975 and IS: 3342 - 1998
11.2	10.2	We agree with the recommendations and will look in to providing hitch pyramid for cultivator conforming to Indian Standards IS: 4468 – 1997 (PART I).
11.3	10.3	We agree with the recommendations and will look in to providing shovels with correct chemical composition for cultivator conforming to Indian Standards IS: 3342 - 1998
11.4	10.6	We agree with the recommendations and we will provide contact angle of shovel with tine as per recommendation of IS: 6638 - 1972
11.5	10.8	We agree with the recommendations and we will mention size and number of tines on serial number on the serial number plate as per Indian Standard.
11.6	10.9	We agree with the recommendations and we will provide manual in Hindi and other vernacular languages as per IS: 8132 - 1999