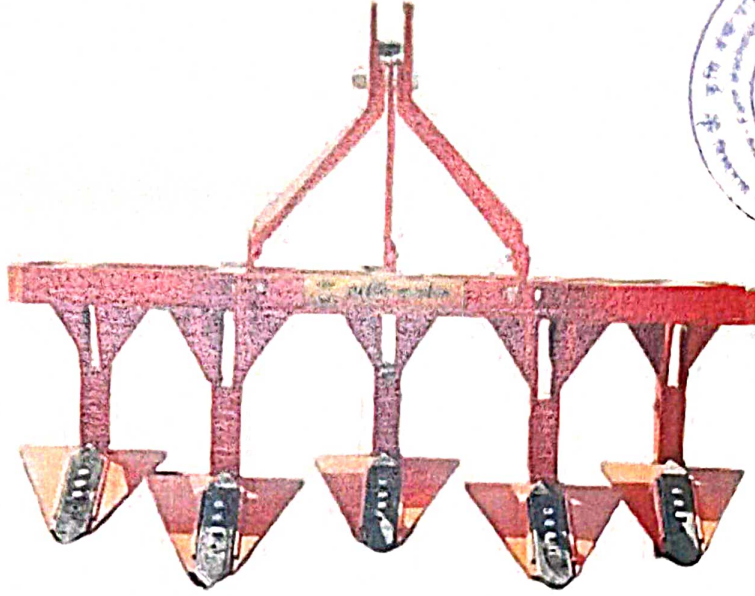




THIS TEST REPORT IS VALID UPTO 31.03.2029



**BHOOMI DARSHAN 5 BOTTOM DUCK FOOT CULTIVATOR
(Tractor Mounted)**



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिआलि, जिला-विश्वनाथ (असम)

BISWANATH CHARIALI: BISWANATH: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Imp.318/425	BHOOMI DARSHAN 5 BOTTOM DUCK FOOT CULTIVATOR (Tractor Mounted)	COMMERCIAL (Initial)
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1. SCOPE OF TEST

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

1.1 Laboratory Test:

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

1.2 Field Test :

- Rate of work
- Quality of work
- Ease of operation, maintenance and adjustments
- Labour requirement
- Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-1/2021-M&T (I&P), dated 03.02.2022, the random selection was exempted. Hence, the machine was directly submitted by the applicant at this Institute for test.

3. TEST CODE AND PROCEDURE

The following codes were referred for testing of 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. SPECIFICATION

4.1 General:

- | | |
|--------------------------------------|--|
| Name and Address of the manufacturer | : M/S Bharat Electric Welding Works,
Piplia Mandi Raod, Vill. Budha, Dist.
Mandsaur, Madhya Pradesh - 458556 |
| Name & Address of Applicant | : M/S Bharat Electric Welding Works,
Piplia Mandi Raod, Vill. Budha, Dist.
Mandsaur, Madhya Pradesh - 458556 |
| Make | : Bhoomi Darshan |

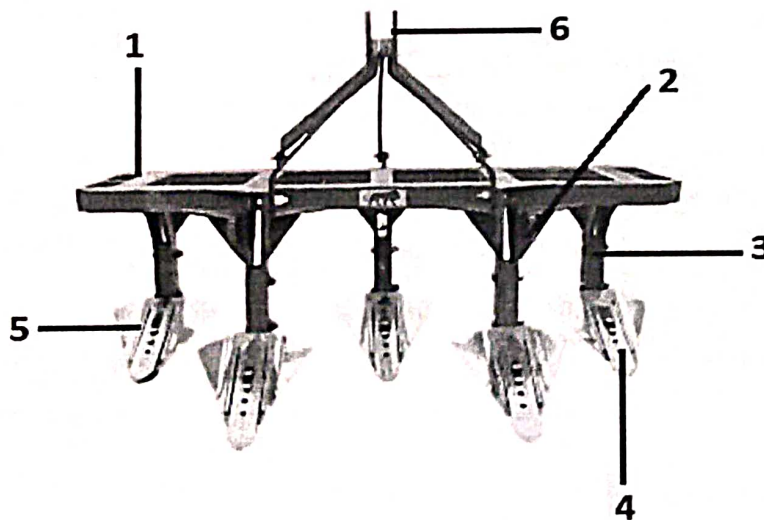
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Model : 2021
 Type : 5 Bottom, Duck Foot, Tractor Mounted
 Serial Number of machine : Not Provided
 Year of manufacture (apa) : 2021-22
 Size of implement (mm) : 5 × 348
 Working width of implement (mm) : 1720
 Country of origin : India
 Power Source as recommended, hp : 30-50

Prime Mover Used:
 Tractor : Kubota MU4501
 Chassis No./ Engine no. : BLQ4754/KBTM30TNHNT53229
 Max. PTO Power, kW : 30.7



4.2 Constructional Details (Refer Fig.1) :



- | | |
|--------------------------|------------------|
| 1. Mainframe | 3. Tyne |
| 2. Tyne Supporting Plate | 4. Shovel |
| 5. Shoe | 6. Hitch pyramid |

Fig.1: 5 BOTTOM DUCK FOOT CULTIVATOR

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7. FIELD PERFORMANCE TEST

The field test of the implement was conducted for 25.22hour in light soil to assess the performance of the implement. Total Four trials were conducted during field test. The performance of implement is reported as **Annexure-I** and are summarized in ensuing table

Summary of Field Performance Test

Sl. No.	Parameters/operations	Observations
		L-2
1.	Gear used	Light
2.	Type of soil	6.0 to 8.5
3.	Average soil moisture (%)	1.29 to 1.83
4.	Bulk density of soil (g/cc)	
5.	Engine speed (rpm) :	
	- No load	2691 to 2705
	- On load	2567 to 2581
		4.37 to 4.49
6.	Average speed of operation (kmph)	7.29 to 8.25
7.	Av. Wheel slip (%)	13.6 to 14.3
8.	Average depth of cut (cm)	161.2 to 173.0
9.	Av. Working width (cm)	0.5922 to 0.6921
10.	Area covered (ha/h)	1.44 to 1.68
11.	Time required for one ha (h)	81.36 to 92.29
12.	Field efficiency (%)	
13.	Fuel consumption	
	-l/h	4.46 to 5.10
	-l/ha	7.35 to 8.04
14.	Av. Implement draft (kgf)	261 to 368
15.	Drawbar Power requirement (kW)	3.19 to 4.57

7.1 Rate of work :

- a) The rate of work was recorded as 0.5922 to 0.6921 ha/h and the speed of operation vary from 4.37 to 4.49 kmph.
- b) The time required to cover one hectare was recorded as 1.44 to 1.68h.

7.2 Quality of work :

- a) The depth of cut was recorded as 13.6 to 14.3 cm.
- b) Average working width was observed as 161.2 to 173.0 cm.
- c) Field efficiency was observed as 81.36 to 92.29%.

7.3 Power requirement:

The Av. draft of implement was recorded from 261 to 368 kgf and Drawbar power requirement was calculated as 3.19 to 4.57 kW.

7.4 Labour requirement:

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

7.5 Adequacy of power of prime mover as used during test:

The power of the prime mover as used during test was found adequate.



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8. EASE OF OPERATION & ADJUSTMENTS

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

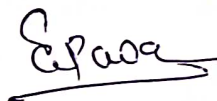
9. DEFECTS, BREAKDOWNS AND REPAIRS

No breakdown was occurred during 25.22 h of field test of the Implement.

10. COMMENTS AND RECOMMENDATIONS

- 10.1 The specifications of implement hitch, does not conform with IS: 4468-1997 (Part-1) (Reaffirmed Feb., 2012). Hence, it is recommended to look into at production level for standardization.
- 10.2 The specification of the reversible Straight shovel and tyne does not conform to IS: 3342-1998(Reaffirmed Mar., 2009)andIS: 7565 (PART I) - 1975(Reaffirmed Mar., 2009) respectively. This should be looked into at future production level.
- 10.3 Chemical composition and hardness of shovel does not conform to relevant Indian Standards. This needs to be looked into for corrective action.
- 10.4 Labeling Plates are not provided on the machine. Hence, the sufficient information provided as per the relevant codes. This should be looked into corrective action.
- 10.5 Provision was not made for adjustment of tyne spacing, which should be looked into for correction.
- 10.6 **Adequacy of Literature:**
An Operator cum Service Manual & Parts Catalogue was not provided along with the implement during the course of testing. Hence, to provide Operator cum Service Manual & Parts Catalogue in Hindi and other vernacular languages as per IS: 8132-1999.This should be looked into corrective action.

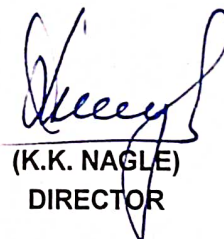
TESTING AUTHORITY



(S.G.PAWAR)
AGRICULTURAL ENGINEER



(J.P. MANDAL)
SENIOR AGRICULTURAL ENGINEER



(K.K. NAGLE)
DIRECTOR

Test report compiled by -

Shri Khagendra Bora
Sr. Technical Assistant

11. APPLICANT'S COMMENTS

No Comments