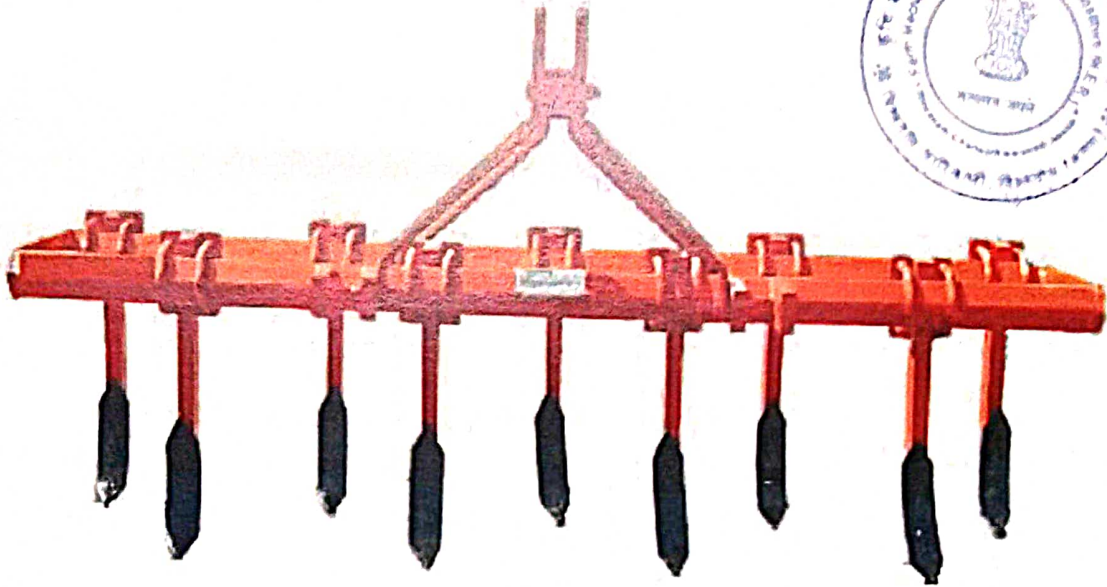




THIS TEST REPORT IS VALID UPTO 31.03.2029



**BHOOMI DARSHAN 9-TYNE RIGID TYPE 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. 317/424	BHOOMI DARSHAN 9-TYNE RIGID TYPE 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<br>(Reaffirmed Mar. 2009) | : | Specification for Tines for Tractor operated cultivators: Part 1 Rigid tines                    |
| ii)  | IS: 4468 (Part I): 1997<br>(Reaffirmed Feb. 2012) | : | Agricultural wheeled tractors – Rear-mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 |
| iii) | IS: 3342:1998<br>(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,<br>PipliaMandiRaod,Vill. Budha, Dist. Mandasaur,<br>Madhya Pradesh - 458556 |
| Name & Address of Applicant          | : | M/S Bharat Electric Welding Works,<br>PipliaMandiRaod,Vill. Budha, Dist. Mandasaur,<br>Madhya Pradesh - 458556 |

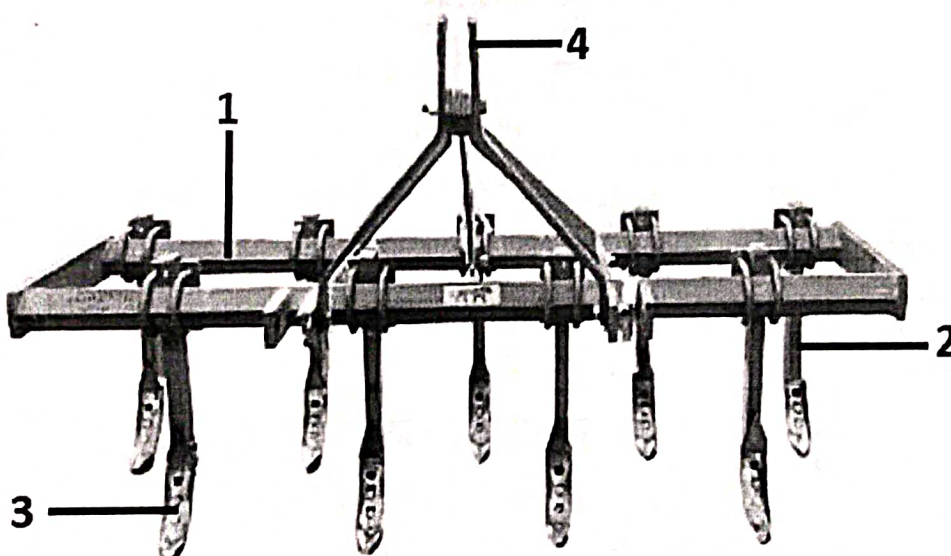
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Make : BhoomiDarshan  
 Model : 2021  
 Type : Rigid tyne, Tractor Mounted  
 Serial Number of machine : Not Provided  
 Year of manufacture (apa) : 2021-22  
 Size of implement (mm) : 9 × 223  
 Working width of implement (mm) : 1830  
 Country of origin : India  
 Power Source as recommended. hp : 30-50

**Prime Mover Used:**

Tractor : New Holland 5500  
 Chassis No./ Engine no. : 2109731/031070N  
 Max. PTO Power, kW (Ps) : 36.3 (49.4)

**4.2 Constructional Details (Refer Fig.1) :**



- |               |                  |
|---------------|------------------|
| 1. Main Frame | 3. Shovel        |
| 2. Tyne       | 4. Hitch Pyramid |

**Fig.1: BHUMI-DARSHAN 9- TYNE RIGID TYPE CULTIVATOR**



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### 7. FIELD PERFORMANCE TEST

The field test of the implement was conducted for 25.4 hour 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
1.	Gear used	L-3
2.	Type of soil	Light
3.	Average soil moisture (%)	7.0 to 8.1
4.	Bulk density of soil (g/cc)	1.29 to 1.83
5.	<b>Engine speed (rpm) :</b>	
	- No load	2766 to 2785
	- On load	2650 to 2683
6.	Average speed of operation (kmph)	6.38 to 6.93
7.	Av. Wheel slip (%)	2.37 to 13.7
8.	Average depth of cut (cm)	6.60 to 7.77
9.	Av. Working width (cm)	192 to 199
10.	Area covered (ha/h)	1.027 to 1.25
11.	Time required for one ha (h)	0.800 to 0.973
12.	Field efficiency (%)	79.4 to 92.8
13.	<b>Fuel consumption</b>	
	-lit/h	4.73 to 6.05
	-lit/ha	4.56 to 5.14
14.	Av. Implement draft (kgf)	244 to 352
15.	Drawbar Power requirement (kW)	4.66 to 6.20

#### 7.1 Rate of work :

- The rate of work was recorded as 1.027 to 1.25 ha/h and the speed of operation vary from 6.38 to 6.93 kmph.
- The time required to cover one hectare was recorded as 0.800 to 0.973 h.

#### 7.2 Quality of work :

- The depth of cut was recorded as 6.60 to 7.77 cm.
- Average working width was observed as 192 to 199 cm.
- Field efficiency was observed as 79.4 to 92.8 %.

#### 7.3 Power requirement:

The Av. draft of implement was recorded from 244 to 352 kgf and Drawbar power requirement was calculated as 4.66 to 6.20 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 cultivator.

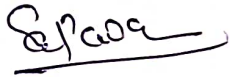
### 9. DEFECTS, BREAKDOWNS AND REPAIRS

No breakdown was occurred during 26.4 h of field test of the cultivator.

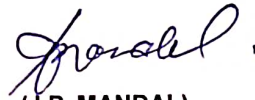
### 10. COMMENTS AND RECOMMENDATIONS

- 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 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 **Adequacy of Literature:**  
An Operator cum Service Manual & Parts Catalogue was not provided along with the implement during the course of testing. Hence, it is mandatory 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 COMMENT'S

No Comments