



Duck foot Cultivator (5 Tyne)



सत्तमेव जयते

भारत सरकार

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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
- Power requirement
- Ease of operation, maintenance and adjustments
- Labour requirement
- Defects, Breakdowns and Repairs

2. METHOD OF SELECTION

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

3. TEST PROCEDURES

The implement was tested in accordance with the following test codes:

- i) IS: 7565(Part-I)-1975 : Tyne for tractor operated cultivators (Rigid
 (Reaffirmed in Dec. 2004) Tines)
- ii) IS: 4468 (Part I)- 1997 : Specifications of Three-Point Linkage
 (Reaffirmed in 2001)

4. SPECIFICATIONS

4.1 General:

Manufacturer	: Shree Shivam Agro Industries Nr Maheshwari Proteens Nagra Road, Ratlam Madhya Pradesh - 457001
Name of machine	: Duck Foot Cultivator
Make	: SAI
Model	: 2014
Type	: 5 Tyne
Serial number	: Not specified
Year of manufacture	: Not specified

Working width of implement (mm) : 5 x 350
 Recommended power source : Not recommended
 Prime mover used during test : Swaraj 855 FE Tractor

Constructional Details (Refer Fig.1):

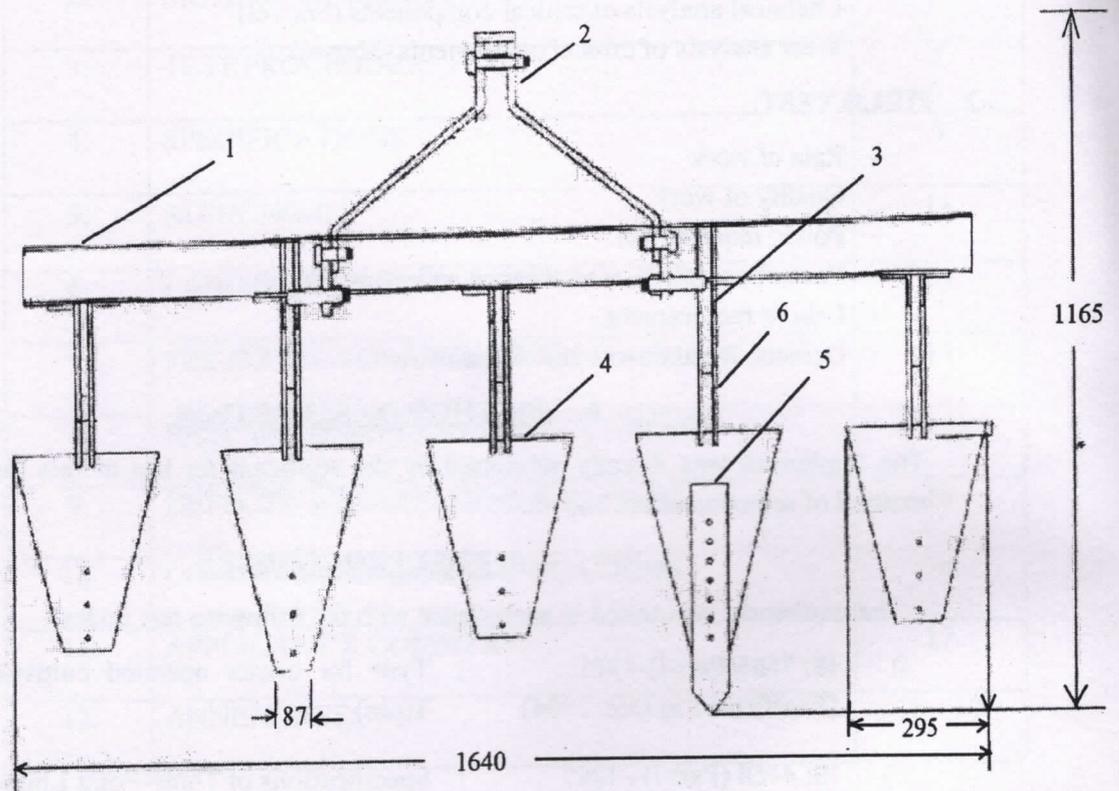


Fig.1: Duck Foot Cultivator (5 Tyne)

KEYWORDS

1. Mainframe
2. Hitch pyramid
3. Tyne support plate
4. Tyne
5. Shoe
6. Shovel

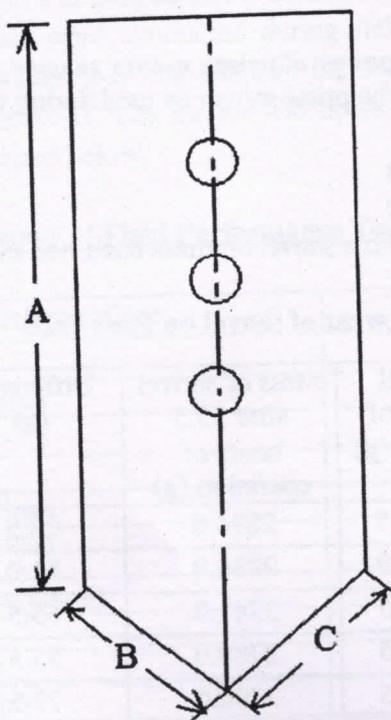


Fig. 6: Shovel

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWNS AND REPAIRS

No breakdown was occurred during 25.5 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). Hence, it is recommended to look into at production level for standardization.
- 10.2 The dimension of tynes does not conform with IS: 7565(Part-I)-1975 (Reaffirmed in 2004).
- 10.3 Chemical composition of shovel does not conform to relevant Indian Standards. This needs to be looked into for corrective action



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- 10.4 The rate of work was recorded as 0.289 to 0.332 ha/h and the speed of operation varies from 2.34 to 2.41kmph which is considered normal.
- 10.5 The depth of operation was recorded as 15.4 to 18.2 cm in the soil having 10 to 11% moisture which is considered normal for Duck Foot Cultivator operation.
- 10.6 The size of prime-mover (tractor) as used for the test was found adequate. No over loading of the prime-mover engine was noticed during the entire test.
- 10.7 The hourly rate of wear of the shovel on mass and dimensional basis was recorded as 0.04 to 0.11 and 0.21 to 0.66% respectively.
- 10.8 The manufacturer was recommended to provide labeling plate at suitable place on the implement. Which contains address of manufacturer, year of manufacture, serial number & size of Prime- mover etc.
- 10.9 **Technical literature**
No literature was supplied with the test sample. Hence, it is recommended that Operator's cum service manual and part catalogue should be provided with the implement. It is also recommended to bring out the manuals in Hindi and other vernacular languages as per IS: 8132-1999.

11. APPLICANTS COMMENTS

No comments have been received from the applicant on this machine.

TESTING AUTHORITY

P.P. RAO SENIOR AGRICULTURAL ENGINEER	
M. K. VISHWAKARMA DIRECTOR	

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