व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

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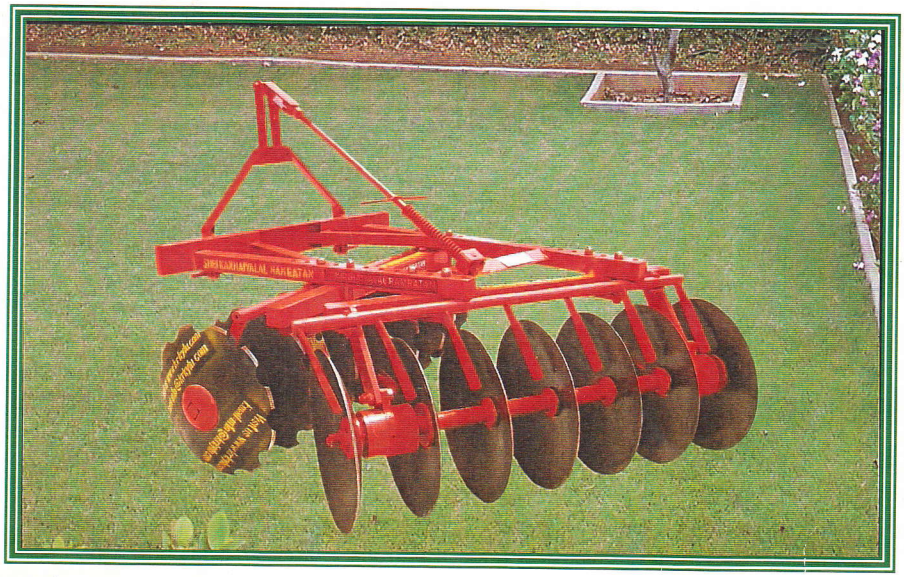

TRACTOR MOUNTED OFFSET DISC HARROW "FARM KING" (SKR-008)

सत्यमेव जयते

भारत सरकार
कृषि मंत्रालय
(कृषि एवं सहकारिता विभाग)

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURE & COOPERATION)

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
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Cl. 7.8	In trailed type harrows, the draw bar should be manufactured in such a manner that it should conform to the requirements of tractor drawbars as given in IS: 4931-1968.	Not applicable for mounted type harrow.	--
Cl. 7.10	Operation & maintenance manual and set of tools including adjustable wrench and grease gun should be provided.	Required operation and maintenance manual with tools is provided	Conforms
Cl. 8 Finish & workmanship Cl. 8.2	Welding of various parts shall be satisfactory in all respect.	Welding is rigid and satisfactory.	Conforms
Cl. 8.3	The components should be free from pits, and other visual defects.	The components are free from pits, and other visual defects.	Conforms
Cl. 8.4	The exposed metallic parts shall be free from rust and shall have protective coating.	Exposed metallic parts are painted	Conforms

Cl. 9.1 Marking Cl. 9.1.1	Each harrow shall be marked with the following particulars :-		
	a) manufacturer's name & trade mark if any	Marked with trade name "Kanhaiya Lal Ramratan" only	Conforms
	b) type and size	--	**Does not conform**
	c) Batch and code number	--	**Does not conform**

7. FIELD TEST

The field test of disc harrow was conducted at NRFMT&TI farm Hisar for 36.4 hrs. with Mahindra B 275 DI tractor as prime mover for operating the harrow. The working of disc harrow was observed satisfactory.

During the field test, data were collected and analyzed for quality of work, rate of work and fuel consumption of prime mover and draft of implement. The details of test results are given in annexure-II and summarized in Table I.

TABLE - I

Sl. No.	Parameter	Range
1.	Soil moisture , %	11.5 to 18.0
2.	Av. Wheel slip, %	7.25 to 11.0
3.	Av. Speed of operation, kmph	4.22 to 6.15
4.	Av. depth of cut, cm	9.8 to 12.9
5.	Av. width of cut , cm	
6.	Area covered , ha/h	0.421 to 0.667
7.	Fuel consumption l/h l/ha	4.08 to 5.06 6.24 to 11.78
8.	Av. Draft of implement, kgf	450 to 550
9	Soil type	Sandy & loam
10	Field efficiency, %	66.9 to 87.7
11.	Time taking for one ha, (h)	1.50 to 2.37

7.1 Rate of work

The speed of operation of the tractor with disc harrow ranged from 4.22 to 6.15 kmph in different gear of Mahindra B-275 DI tractor.

The area covered ranged from 0.42 to 0.66 ha/h while fuel consumption was observed to be 4.08 to 5.06 l/h. with average draft of 450 to 550 kgf.

7.2 Quality of work

Field performance of the harrow was observed to be satisfactory. Average depth of cut and average working width ranged from 9.8 to 12.9 cm & 1.24 to 1.36 m respectively.

8 EASE OF OPERATION AND ADJUSTMENT

The gang angle can be adjusted easily, and no difficulty was observed in operation and adjustment of harrow for field operation.

9 WEAR OF DISC

Initial and final weight of the discs of harrow before and after 36.40 hrs. of field test were taken. Wear in the disc was observed in the range of 2.53 to 2.85 %

Sl. No	Initial weight (gms)	Final weight (gms)	Weight loss (gm)	(%) wear on mass basis	(%) wear per hour
1.	6545	6445	100	1.53	0.04
2.	6441	6314	127	1.97	0.05
3.	6455	6304	151	2.34	0.06
4.	7025	6825	200	2.85	0.08
5.	6921	6760	161	2.33	0.06
6.	6738	6593	145	2.15	0.06
7.	6753	6582	171	2.53	0.07

10. LUBRICATION AND SERVICING

Before start of field tests, bolts and nuts were tightened and greasing was done to keep the machine in proper condition.

11. BRAKDOWNS AND REPAIRS

No breakdown was observed during 36.40 hours of field test.

12. COMMENTS AND RECOMMENDATIONS

12.1 The dimensions of three point linkage of the implement does not conform to IS:4468-March 2007(Part-I). Standard three point linkage system should be used at regular production level.

12.2 Maneuverability of tractor with harrow and quality of work were observed to be satisfactory.

12.3 The Hardness of disc is not conforming to IS : 4366 (Part I) – 1985 .

12.4 Carbon content is on lower side in discs of harrows against the recommended values in IS : 9442-1992. Standard discs should be used at regular production level.

12.5 The harrow should be marked as per Cl. 9.1.1. of IS:7640, December, 2004.