व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या / No. : IMP-560/1432
माह / Month : August, 2012

HAPPY SEEDER
"KAMBOJ(11-ROWS)"

सत्यमेव जयते

भारत सरकार
कृषि मंत्रालय
(कृषि एवं सहकारिता विभाग)

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

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F. Chemical composition of rotor blade

Sl. No.	Material	Requirement as per IS:6690-Jan. 2007 (% by weight)	As observed (% by weight)	Remark
1.	Carbon I	0.50 to 0.60	0.28	**Does not conform**
2.	Silicon(Si)	1.50 to 2.00	0.22	**Does not conform**
3.	Manganese (Mn)	0.50 to 1.00	0.53	Conforms
4.	Sulphur (S)	0.05 (max)	0.046	Conforms
5.	Phosphorous (P)	0.05 (max)	0.048	Conforms

9. FIELD TEST

Field test of happy seeder was conducted at HLRDC farm Hansi for 20.08 hours consisting of 5 trials.The implement was used for sowing Wheat (PBW-343 & WH - 711) after the harvest of paddy crop by the combine harvester and field was not given any cultivation or tillage . The detailed test results are given in Annexure-IV and are summarised as under:-

Soil moisture, % : 12.0 to 21.5

Straw moisture, % : 14.8 to 73.3

Summary of field test results:

Sl. No.	Parameters	Ranage of measurement
1.	Av. Depth of seed sowing, cm	5.7 to 7.6
2.	Av. Depth of fertilizer placement, cm	5.7 to 7.6
3.	Evenness in depth of sowing, %	86.8 to 94.0
4.	Av. Width of sowing, m	2.24 to 2.37
5.	Av. Forward speed, kmph	2.16 to 2.20
6.	Av. Draft, Kgf	550 to 650
7	Field capacity, ha/h	0.38 to 0.43
8.	Field efficiency, %	78.8 to 82.7
9	Seed rate, Kg/ha	87.27 to 95.60
10.	Fertilizer rate, Kg/ha	103.97 to 107.48
11.	Fuel consumption, l/h	3.33 to 4.50
12.	Av. Drawbar horse power requirement, kW(Ps)	3.61(4.91)
13.	Average rotational power for rotor unit, kW(Ps)	17.33(23.56)

14.	Av. Weight of swath/ stubbles before seeder operation, kg/m²	1.054 to 1.268
15.	Av. Weight of swath/ stubbles after seeder operation, kg/m²	0.278 to 0.376
16.	Av. length of stubbles before seeder operation, cm	34.3 to 40.3
17.	Av. Length of stubbles after seeder operation, cm	18.5 to 22.5
18.	Rotor blade speed index	71.9 to 73.2

9.1 Quality of work:

9.1.1 The average depth of seed and fertilizer placement was observed as 5.7 to 7.6 cm. Seed and fertilizer rate was found 87.27 to 95.60 Kg/ha and 103.97 to 107.48 kg/ha. respectively.

9.1.2 The weight of swath/stubbles before and after the seeder operation were observed as 1.054 to 1.268 & from 0.278 to 0.376 kg/m² respectively

9.1.3 The quality of multch & spreading of hay charge was observed uniform & satisfactory.

9.1.4 Height of stubbles before & after seeder operation were 34.3 to 40.3 cm & 18.5 to 22.5 cm respectively

9.1.5 The evenness of depth of sowing is 86.8 to 94.0%

9.2 Rate of Work & Fuel consumption :

The average width of sowing was observed as 2.24 to 2.37 m. The area covered was 0.38 to 0.43 ha/h and fuel consumption varied from 3.33 to 4.50 l/h.

9.3 Field efficiency and labour requirement:

Field efficiency of machine was observed as 78.8 to 82.7% .

Two labours are required to operate the drill. Out of two one skilled labour is required for adjustments & calibrate the seed drill and to operate the tractor and other unskilled to load the seed and fertilizer boxes, cleaning of furrow openers etc.

9.4 During field operation average drawbar & pto power of tractor were observed as 3.61 & 17.33 kW respectively ,Hence 10.8 % of the drawbar & 45.8 % of pto power of tractor were utilized during operation.

10. Wear of soil engaging component:

The wear of furrow openers & rotor blades on mass basis varied from 0.15 to 0.28 % & from 1.73 to 3.35% respectively, whereas wear of the rotor blade on dimension basis at tip & 45 mm from tip varied from 1.28 to 8.16 & 0.11 to 2.63 % respectively.

11. LUBRICATION & SERVICING

All lubrication points were lubricated/greased daily before starting the operation

12. EASE OF OPERATION AND ADJUSTMENT

Operation and adjustment of happy seeder was observed to be satisfactory. However, the driver has to get down from the tractor to do the adjustments on the machine.

13. SOUNDNESS OF CONSTRUCTION

No breakdown was observed during 20.08 hrs. of operation of happy seeder.

14. COMMENTS AND RECOMMENDATIONS

i) The dimensions of seed metering mechanism do not conform to the requirement of IS: 6813-2000. Metering mechanism complying with IS requirements should be used at regular production level.

ii) The accessories like suitable covering device, row marker, are not provided in machine. These must be provided as per requirement of IS :6813-2000.

iii) Dimension of three point linkage does not conform to the requirments of IS:4468-March 2007. Suitable improvement should be done at production level, to comply with BIS requirements.

iv) Wear of furrow openers was found normal.

v) Variation in fertilizer dropping due to the box filling at different depth conforms to IS: 6813-2000.

vi) The variation of dropping seed and fertilizer at individual outlets does not conform to IS: 6813-2000.

vii) The fertilizer rate was not adjustable upto 1000 kg/ha as specified in relevant BIS code ,which should be looked into at production level.

viii) The seed and fertilizer boxes are covered with common cover ,However a self locking mechanism should be provided on box to avoid entrace of water.

ix) Agritator and marker must be provided in the machine at regular production level.

x) All the seed drill should have an identification plate as Cl 14.1 of IS: 6813 at regular production level.

xi) Carbon and Silicon content of rotor blade do not meet the IS requirement and therefore, blade as per IS: 6690-Jan., 2007 should be used at regular production level.