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COMMERCIAL TEST REPORT

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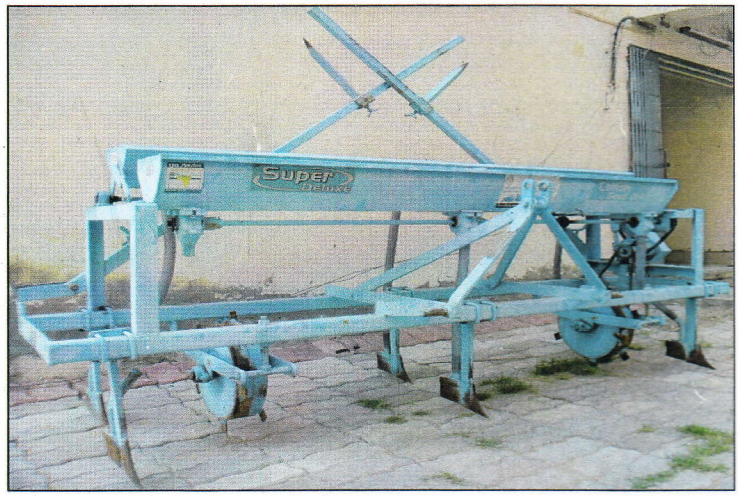

B. T. COTTON SEED CUM FERTILIZER PLANTER "BHULLER"

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6. LABORATORY TEST

A. Seed specifications:

Variety	Bulk density gm/cc	No. of seeds in one Kg. Sample	Moisture content (%)	Broken (%)
Non B.T. Cotton seed	0.604	12390	8.1	NIL

B. Fertilizer specifications :

Type	Bulk density, g/cc
D.A.P.	0.982

C. Wear of soil engaging component:

The test implement was operated for 20.16 hours. Wear of soil engaging components (furrow openers) is given in Table-1.

TABLE-1 : Wear assessment of furrow openers on mass basis.

Furrow opener	Initial mass of furrow opener before test, g	Final mass of furrow opener after test, g	Loss in mass, g	Wear, % by mass	Wear % /hr
1	5268.6	5258.7	9.9	0.19	0.009
2	5086.6	5080.3	6.3	0.12	0.006
3	5297.7	5290.1	7.6	0.14	0.007
4	41.4	5232.9	8.5	0.16	0.008
5	5185.5	5179.0	6.5	0.13	0.006
6	5283.3	5274.0	9.3	0.18	0.009

7. FIELD TEST

Field test of B. T. Cotton seed cum fertilizer planter was conducted at HLRDC Hisar for 20.16hours., consisting of 5 trials. The implement was used for sowing B. T. Cotton seed of BG-II (6488) variety in field. The detailed test results are given in Annexure-IV and are summarised as under in Table-2:-

Table-2 : Summary of field test results:

Sl. No.	Parameters	Ranage of measurement
1.	Av. Depth of seed & fertilizer sowing, cm	6.9 to 7.4
2.	Av. Width of sowing, m	3.21 to 3.29
3.	Av. Forward speed, kmph	3.92 to 4.74
4.	Av. Draft, Kgf	210 to 220
5.	Field capacity, ha/h	0.91 to 1.05
6.	Field efficiency, %	62.4 to 83.3

7.	Seed rate, Kg/ha	1.72 to 2.52
8.	Fertilizer rate, Kg/ha	72.91 to 96.98
9.	Fuel consumption, l/h	1.40 to 1.65
10.	Av. Seed to seed distance, cm	29.0 to 47.3
11.	Percentage variation in seed to seed spacingg w.r.t. theoretical spacing	-16.63 to 23.60
12.	Draw bar power requirement, kW	2.27 to 2.82

7.1 Quality of work:

Seed to seed distance during field test was observed from 29.0 to 47.3 cms against the theoretical distance of 33.9 to 45.1 cms. The percentage variation in seed to seed distance from minimum and maximum against the theoretical was observed from -16.63 to + 23.60. Missing of seed dropping was observed Nil.

The average depth of seed and fertilizer placement was observed as 6.9 to 7.4 cm. Seed and fertilizer rate was found 1.72 to 2.52 Kg/ha and 72.91 to 96.98 Kg/ha. respectively.

7.2 Rate of Work & Fuel consumption :

The average width of sowing was observed as 3.21 to 3.29 m. The area covered is 0.91 to 1.05 ha/h and the fuel consumption varied from 1.40 to 1.65 l/h.

7.3 Field efficiency and labour requirement :

Field efficiency of Planter was observed as 62.5 to 83.3 %. Two labours are required to operate the planter. One skilled labour to make adjustments / calibration of the planter and operate the tractor and other unskilled to load the seed and fertilizer boxes and cleaning of furrow openers as and when required

7.4 Wear of soil engaging component :

The wear of furrow openers varied from 0.12 to 0.19 % by mass basis which is normal.

8. LUBRICATION & SERVICING

Greasing was done daily before starting the operation.

9. EASE OF OPERATION AND ADJUSTMENT

Operator has to get down from the tractor to make adjustments on planter.

10. BREAKDOWN AND REPAIRS

No critical or major breakdown was observed during 20.16 hrs. of field operation of cotton planter.

11. COMMENTS AND RECOMMENDATIONS

i) Dimension of three point linkage do not conform to the requirements of IS:4468-2007. Standard 3 point linkage system comply with BIS requirement should be used at regular production level

ii) Range of seed rate is adjustable from 1.09 to 3.55 Kg/ha by changing gears of metering device, by using seed metering lever.

iii) Fertilizer rate may be adjusted from 38.38 to 142.15 Kg/ha by varying the length of the flutes to the fertilizer hopper outlet and the depth of fertiliser in fertilizer box.

iv) Field efficiency of machine is ranging from 62.5 to 83.3 %.

v) During field operation 8.16 to 10.14 % of draw bar power of the tractor was utilised

vi) Closing seed discharge,seed covering arrangement and safety arrangement for moving parts have not been provided in machine. The same may be provided as per requirement of IS : 6813- Feb,2005.

vii) Observation on seed and fertilizer placementas as per sowing requirement recommended by agronomical practices was observed satisfactory.

viii) The cover should be provided on seed & fertilizer box

ix) During the entire field tests, no overloading of tractor was observed.

x) Identification plate is provided on the machine.

12. LITERATURE :

The manufacturer has developed the literature of machine in a single booklet containing brief but specification of machine, operating instructions and part's catalogue. However, it need to be modified as per IS: 8132-1983 incorporating the information on detailed specification, servicing and maintenance instructions and spare parts list for guidance of users and service personals.