COMMERCIAL TEST REPORT

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B.T. COTTON SEED CUM FERTILIZER PLANTER
(MALWA)

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

NORTHERN REGION FARM MACHINERY TRAINING AND TESTING INSTITUTE
TRACTOR NAGAR, SIRSA ROAD, HISAR-125001 (HARYANA)
7. FIELD TEST

Field test of B. T. Cotton seed cum fertilizer planter was conducted at HLRDC Hisar for 22.94 hours, consisting of 6 trials. The implement was used for sowing B. T. Cotton seed of different 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:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parameters</th>
<th>Range of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Av. Depth of seed &amp; fertilizer sowing, cm</td>
<td>8.62 to 9.50</td>
</tr>
<tr>
<td>2.</td>
<td>Av. Width of sowing, m</td>
<td>3.106 to 3.347</td>
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<tr>
<td>3.</td>
<td>Av. Forward speed, kmph</td>
<td>4.62 to 4.84</td>
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<td>4.</td>
<td>Av. Draft, Kgf</td>
<td>130 to 140</td>
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<td>5.</td>
<td>Field capacity, ha/h</td>
<td>0.860 to 1.127</td>
</tr>
<tr>
<td>6.</td>
<td>Field efficiency, %</td>
<td>57.68 to 71.44</td>
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<tr>
<td>7.</td>
<td>Seed rate, Kg/ha</td>
<td>0.775 to 1.191</td>
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<tr>
<td>8.</td>
<td>Fertilizer rate, Kg/ha</td>
<td>44.11 to 53.56</td>
</tr>
<tr>
<td>9.</td>
<td>Fuel consumption, l/h</td>
<td>1.254 to 1.756</td>
</tr>
<tr>
<td>10.</td>
<td>Av. Seed to seed spacing, cm</td>
<td>24.75 to 36.78</td>
</tr>
<tr>
<td>11.</td>
<td>Percentage variation in seed to seed spacing w.r.t. theoretical spacing</td>
<td>14.66 to 26.83</td>
</tr>
<tr>
<td>12.</td>
<td>Drawbar power requirement, kW</td>
<td>1.64 to 1.85</td>
</tr>
</tbody>
</table>

7.1 Quality of work:
Seed to seed distance during field test was observed from 24.75 to 36.78 cms against the theoretical distance of 29.0 cms. The percentage variation in seed to seed distance from minimum and maximum against the theoretical was observed from -14.66 to +26.83. Missing of seed dropping was observed Nil.
The average depth of seed and fertilizer placement was observed as 8.62 to 9.50cm. Seed and fertilizer rate was found 0.775 to 1.191 Kg/ha and 44.4 to 53.56 Kg/ha, respectively.

7.2 Rate of Work & Fuel consumption:
The average width of sowing was observed as 3.106 to 3.347 m. The area covered is 0.86 to 1.1272 ha/h and the fuel consumption varied from 1.254 to 1.756 l/h.

7.3 Field efficiency and labour requirement:
Field efficiency of Planter was observed as 57.68 to 71.44%. Two labours are required to operate the planter. One skilled labour to make adjustments or 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 0.04 to 0.16 % 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 22.94 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 2.08 to 8.87 Kg/ha by changing a sprocket of metering device.

iii) Fertilizer rate may be adjusted from 23.49 to 323.33 Kg/ha by using fertilizer metering device lever.

iv) Field efficiency of machine is ranging from 57.68 to 71.44 %.

v) The drawbar power requirement of tractor ranged from 1.64 to 1.85 kW as against the tractor drawbar power of 19.6 kW. Thus, only 8.37 to 9.44% of tractor drawbar power utilised during the field operation.

vi) Lifting and lowering of openers, provision for 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 placement as per sowing requirement recommended by agronomical practices was observed satisfactory.

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

ix) Identification plate should be provided on each machine on regular production level.