SOWING DATES: A MAJOR FACTOR ON THE INFESTATION OF INSECT PESTS AND FIBRE YIELD OF JUTE

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ABSTRACT

The study was undertaken to assess the infestation of yellow mite and semilooper on jute in different dates of sowing. The results revealed that the early sown crop suffered more with yellow mite infestation and there was no significant effect of sowing times on semilooper infestation. There was no significant effect of insect pest pressure on fibre yield of the jute crop. Crop grown on mid-April was found to be more optimum with maximum of 30.30 q/ha fibre yield.

Key words: Dates of sowing, Fibre yield, Jute, Semilooper, Yellow mite.

Jute, “the golden fibre of India”, though occupies only 0.47% of gross cropped area, provides livelihood to more than 40 lakh farm families. There are several constraints in increasing the productivity of jute, of which the loss due to insect pests is of major concern and hence, the ‘Jute Entomology” deserves more attention for economic production of the crop. Intensive cultivation of high yielding, fertilizer responsive cultivars of jute brought forth the problem of insect pests and mites. A few relatively less important pests turned to be major ones. Semilooper, Anomis sabulifera Guenee, stem weevil, Apion corchori Marshall, yellow mite, Polyphagotarsonemus latus (Banks), and the indigo caterpillar, Spodoptera exigua Hübner are the major pests and Jute girdler, Nupserha bicolor postbrunnea Dutt, red mite Oligonychus offaea Nietner, grey weevil Mylocerus discolor Boheman, scale insect, Pinnaspis sp., thrips, Ayyariachaetophora Karny, mealy bugs, Ferrisira virgata Ckl. and Pseudococcus filamentosus var. corymbatus are the minor pests of jute. Among the pest complex of jute, yellow mite, Polyphagotarsonemus latus (Banks) are considered as major pests of the crop (Rahman and Khan, 2006). Lefroy (1907) recorded semilooper, A. sabulifera is one of the most important foliage pests of the crop and occurs in all the jute growing tracts of India. Yellow mite, P. latus and semilooper, A. sabulifera Guenee, were reported to cause fibre yield loss to the tune of 10.00-42.00 and 50.00 % (Pandit et. al., 2002; Dutt, 1958) respectively.

It has been observed on farmer’s field that the pest infestation varies with the sowing date. The manipulation of sowing time helps to minimize pest damage by producing asynchrony between host plant and the pest. Due to staggered sowing, pests are able to complete 1-2 additional generations in the season. In order to avoid these generation, sowing dates of the crop can be adjusted. Tossa jute being most widely cultivated in all the jute growing areas, this investigation has been undertaken to determine the effect of early and late sowing of jute variety, JRO-8432 on yellow mite and semilooper infestation in the field condition.

A field trial was conducted at Central Research Institute for Jute and Allied Fibres (CRIJAF) research station, Nilgunj during kharif 2010 in randomized block design with variety, JRO-8432. The soil of the experimental plot was sandy loam and neutral in nature (PH 6.5-7.5). Standard agronomic practices were followed except advancing and delaying of sowing dates as required for different treatments. The treatment combinations comprised of 7 dates of sowing (March 15, April 1, April 15, April 3th, May 15, May 30 and June 15). A common basal dose of 60:30:30 kg/ha was applied to the field before sowing. A plant spacing of 30 X 10 cm
was maintained by thinning 15 days after germination. The per cent infestation level of the pest was recorded during peak infestation of 45 and 70 days after sowing (DAS) on yellow mite and semilooper respectively, based on the total number of plants and pests infested plants. No plant protection chemicals were applied.

Jute crop was sown on different dates from mid-March to mid-June to check the infestation time of yellow mite, *P. latus* and semilooper, *A. subulifera*. The observations recorded on these insect pests in terms of per cent infestation and yield is given in Table 1.

The results revealed that there was no significant difference in per cent infestation of yellow mite on 15th and 3rd April sown crop, with plant infestation of 26.09 and 27.22 per cent respectively. The earlier sown crop (15th March and 1st April) suffered maximum mite infestation i.e. 35.19 and 45.97 per cent respectively (Table 1). In general the earlier sowing revealed higher infestation of mite as compared to later sown crop. Hence, our findings are in confirmation with the earlier findings obtained by Dutt (1952), Das and Mallick (1988). It was observed that in May and June sown crop the yellow mite infestation was comparatively less than that of March and April sown crop, this might be due to higher rainfall. The dates of sowing did not significantly influenced on the infestation of semilooper across the different dates of sowing. Very early sown crop suffered highest infestation (15.98%) of semilooper (Table 1). Crop sown in mid-May showed least of 13.85% plant damage. Similarly the crop grown on mid-April suffered the damage of 14.70% and it has not influenced any impact on the fibre yield of jute. Tomar et al. (2000) also reported that the high pest population was found on the cotton sown in early season (20th February to 20th March) than that of sown in late season (20th April to 5th June).

Highest fibre yield of 30.30q/ha was recorded in April 15th sown crop and it was followed by April 1st sown crop (28.88q/ha). The results revealed that there was no significant effect of yellow mite and semilooper on fibre yield of the crop and delay in sowing (June 15th) time resulted in lower fibre yield (12.60 q/ha).

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### TABLE 1: Effect of dates of sowing during peak infestation of yellow mite and semilooper on jute

<table>
<thead>
<tr>
<th>Days of sowing</th>
<th>Yellow mite (%)</th>
<th>Semilooper (%)</th>
<th>Fibre yield Q/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.03.2010</td>
<td>35.19(36.35)*#</td>
<td>15.98(23.55)*a</td>
<td>28.45ab</td>
</tr>
<tr>
<td>01.01.2010</td>
<td>45.97(46.68)*a</td>
<td>15.28(23.15)*a</td>
<td>28.88ab</td>
</tr>
<tr>
<td>15.04.2010</td>
<td>26.09(30.66)*c</td>
<td>14.70(22.53)*a</td>
<td>30.30a</td>
</tr>
<tr>
<td>31.04.2010</td>
<td>27.22(31.44)*c</td>
<td>13.99(21.95)*a</td>
<td>25.93b</td>
</tr>
<tr>
<td>15.05.2010</td>
<td>16.74(24.10)*c</td>
<td>13.85(21.84)*a</td>
<td>27.80ab</td>
</tr>
<tr>
<td>30.05.2010</td>
<td>15.73(23.35)*d</td>
<td>15.37(23.08)*a</td>
<td>25.33b</td>
</tr>
<tr>
<td>15.06.2010</td>
<td>12.37(20.58)*c</td>
<td>14.03(21.94)*a</td>
<td>12.60c</td>
</tr>
<tr>
<td><strong>CD (0.05%)</strong></td>
<td><strong>2.86</strong></td>
<td><strong>1.62</strong></td>
<td><strong>3.25</strong></td>
</tr>
</tbody>
</table>

*Figures in the parentheses are arc sine transformed values
# Means in columns having same letter (s) did not differ significantly at 5 % by DMRT

**REFERENCES**


