DISTRIBUTION AND INTENSITY OF INFESTATION BY CASHEW STEM AND ROOT BORER, Plocaederus ferrugineus L. IN TAMIL NADU

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The stem and root borer, Plocaederus ferrugineus L. (Coleoptera : Cerambycidae) is the most important pest of cashew (Madhava Rao, 1955) as its damage results in death of trees. In India, its occurrence was observed in coastal areas of Cochin (Ayyar, 1942). Abraham (1958) surveyed the cashew growing areas of west and east coast of India and observed the pest more in coastal tracts than in hinter lands, particularly in South Kanara.

The intensity of damage ranged from 1.6 to 4.0 per cent in Kerala, Karnataka, Maharashtra and Tamil Nadu, but in certain neglected gardens damage was observed up to 10 per cent (Pillai et al., 1976). Choudhuri and Misra (1977) reported the distribution of P. ferrugineus in Bihar, Kerala, Karnataka, Pondicherry, Tamil Nadu and Uttar Pradesh. Misra and Choudhuri (1985) surveyed the plantations of forest department of Tamil Nadu and reported 30 to 35 per cent infestation. The present investigations were made to find out the distribution and infestation intensity of P. ferrugineus in different cashew growing districts of Tamil Nadu.

Survey was made in major cashew growing districts of Tamil Nadu viz., South Arcot, Tiruchirapalli, Chengalpet, Pudukkottai, Sivagangai, Thanjavur, Thirunelveli and Kanyakumari for the distribution, status and extent of infestation of P. ferrugineus from March to May, 1995. A minimum of five villages were selected in each district. In each location, a cashew orchard was observed and per cent infested trees was recorded for the whole orchard. The intensity of damage on all infested trees was scored based on symptoms of damage and crop stand as below:

<table>
<thead>
<tr>
<th>Symptoms of damage</th>
<th>Crop stand</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>No damage</td>
<td>Healthy</td>
<td>0</td>
</tr>
<tr>
<td>Gummy exudation from basal trunk</td>
<td>Healthy/Normal</td>
<td>1</td>
</tr>
<tr>
<td>Exudation of gummy frass from basal trunk</td>
<td>Healthy/Normal</td>
<td>2</td>
</tr>
<tr>
<td>Exudation of gummy and powdery frass around basal trunk</td>
<td>Normal or rarely with localised yellowing of branches</td>
<td>3</td>
</tr>
<tr>
<td>Exudation of powdery frass and coarse fibres around basal trunk</td>
<td>Trees with complete chlorosis and localised drying of branches; debilitative look</td>
<td>4</td>
</tr>
<tr>
<td>Exudation of powdery frass and coarse fibres around basal trunk; rotten frass inside loose bark</td>
<td>Complete defoliation and drying of all branches; dead trees</td>
<td>5</td>
</tr>
</tbody>
</table>

The data were subjected to statistical analysis for mean and standard deviation.
Present study revealed that stem borer was widely distributed in all cashew growing districts of Tamil Nadu. Cashew is grown under rainfed conditions as a pure crop, except in South Arcot and Thruchirapalli districts, where the orchards are inter-cropped with oilseeds (groundnut, castor and sesame), pulses (horsegram, redgram, blackgram and greengram) and millets (sorghum and cumbu) crops. Survey in Thruchirapalli district revealed that less than 5 per cent infestation of trees was recorded in all places except in TAFCORD (Tamil Nadu Forest plantations Corporation) Plantations, Andimadam, where a maximum of 30.4 per cent infestation with a damage score of 3.9 was recorded. At South Arcot, infestation ranged from 1.2 in Muthandikkuppam to 24.8 per cent in Muthanai. In these districts, 60 to 70 per cent cashew orchards were owned by farmers and maintained with good sanitation. Thus, there was less infestation in farmers holdings than TAFCORD Plantations.

A maximum of 20.5 per cent of infested tree with 3.3 score and a minimum of 3.12 per cent with 2.5 score were noted in TAFCORD Plantations and National Pulses Research Centre, Vamban colony, respectively in Pudukkottai district. The infestation ranged between 1.5 per cent (with 1.7 score) in Thirukkanoorpatti and 6.5 per cent (with 2.7 score) in Gopalapuram in Thanjavur district. Here cashew orchards were owned and maintained with good sanitation by the farmers. In Sivagangai district, infestation ranged from 4.2 per cent in Kundrakkudi to 16.7 per cent in Pudhuvayal. In Chengalpet district, eight locations were surveyed, of which Kottamedu recorded 5.3 per cent infestation with 2.8 score of damage and Thiruppurur recorded maximum of 27.2 and 3.4. A total of five locations in Thirunelveli and six locations in Kanyakumari were surveyed. The infestation was generally low in these districts. The maximum infestation was recorded in Vadakkankulam (7.3 per cent with 2.6 score) of Thirunelveli district and Athikakkattuvilai (5.5 per cent with 2.3 score) of Kanyakumari district. Cashew orchards at Rajapudur of Thirunelveli district and Alankottai of Kanyakumari district were free from *Plocaederus* attack.

### Table 1. Intensity and distribution of stem borer in major cashew growing districts of Tamil Nadu

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>District</th>
<th>No. of locations surveyed</th>
<th>Age of orchards (Yrs)</th>
<th>Infested trees (%)</th>
<th>Damage Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Thiruchirapalli</td>
<td>7</td>
<td>15-22</td>
<td>1.4-30.4</td>
<td>7.4</td>
</tr>
<tr>
<td>2.</td>
<td>South Arcot</td>
<td>9</td>
<td>15-25</td>
<td>1.2-24.8</td>
<td>6.5</td>
</tr>
<tr>
<td>3.</td>
<td>Pudukkottai</td>
<td>11</td>
<td>11-26</td>
<td>3.1-20.5</td>
<td>10.8</td>
</tr>
<tr>
<td>4.</td>
<td>Thanjavur</td>
<td>6</td>
<td>14-20</td>
<td>1.5-6.5</td>
<td>4.8</td>
</tr>
<tr>
<td>5.</td>
<td>Sivagangai</td>
<td>5</td>
<td>14-22</td>
<td>4.2-16.7</td>
<td>9.1</td>
</tr>
<tr>
<td>6.</td>
<td>Chengalpet</td>
<td>8</td>
<td>18-22</td>
<td>5.3-27.2</td>
<td>13.6</td>
</tr>
<tr>
<td>7.</td>
<td>Thirunelveli</td>
<td>5</td>
<td>8-23</td>
<td>0.0-7.3</td>
<td>2.8</td>
</tr>
<tr>
<td>8.</td>
<td>Kanyakumari</td>
<td>6</td>
<td>16-22</td>
<td>0.0-5.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td>18.9 ± 1.2</td>
<td>7.2 ± 3.9</td>
<td>2.5 ± 0.7</td>
</tr>
</tbody>
</table>
The data on the mean infestation in each district showed that Kanyakumari recorded less infestation (2.5 per cent with 1.4 score) followed by Thirunelveli district (2.8 per cent with 1.7 score). In these districts, all cashew gardens were maintained with good sanitation by farmers and thus, lower incidence was noted. Besides, isolated cultivation of cashew might be the reason for low infestation in Thirunelveli district. Highest infestation of 13.6 per cent with 3.5 score of damage was recorded in Chengalpet district followed by Pudukkottai district (10.8 per cent with 3.1 score) (Table 1). Larger cashew areas in these districts were owned and maintained by TAFCORD and recorded more dead and severely infested trees which would have served as a source for spread of pest and high infestation.

Misra and Choudhuri (1985) recorded a maximum of 30 to 35 per cent infested trees in forest plantations of Tamil Nadu. The mean infestation was less than 10 per cent in other districts which was 4.8, 6.5, 7.4 and 9.1 per cent with mean score of 2.6, 2.5, 2.3 and 2.9 in Thanjavur, South Arcot, Tiruchirapalli and Sivagangai districts respectively. The overall mean infestation of different districts ranged from 2.2 to 17.4 per cent with a mean of 7.2 per cent in Tamil Nadu. The intensity of damage due to *P. ferrugineus* was reported 7 to 10 per cent in Kerala (Misra and Choudhuri, 1985) and 2 to 40 per cent in Andhra Pradesh (Arjuna Rao, 1978).

The study indicated that *P. ferrugineus* was widely distributed in all cashew growing areas in Tamil Nadu with intensity of infestation ranging between 0 to 30.4 per cent. The infestation in different districts ranged from 2.5 to 13.6 per cent with a mean of 7.2 per cent. The incidence of stem and root borer and its intensity of damage depended much on the maintenance of cashew orchards.

**REFERENCES**


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