INTRODUCTION

Melon fruit fly, Bactrocera cucurbitae (Coquillet) (Diptera: Tephritidae) is a serious pest of cucurbitaceous vegetables in Kerala (South India). Fruit flies have already been reported as pests of vegetables and fruit crops in South Asia (Kapoor, 1989). They are often managed by traps containing pheromone lures or food baits which are used in male annihilation of fruit flies or bait application for both sexes. To increase the efficiency of these traps it should be kept at an optimum height for getting maximum trap catch. In studies using methyl eugenol to attract Bactrocera species, the peak catches corresponded with a zone below the canopy crown (Hooper and Drew, 1979; Madhura and Viraktamath, 2001; Siddiqui et al., 2003). In a study of height distribution of the melon fly, Bactrocera cucurbitae (Coquillet), among low lying vegetation, Holbrook and Fujimoto (1969) found that most flies were attracted to the pheromone cue lure relatively close to the ground. In bitter gourd the optimum height (1.36m) for maximum catch was below the height of the pandal and vegetation (Jiji et al., 2005). The experiment described here assessed bait trap catches of melon flies in a field of cucumber grown on ground without pandals.

MATERIALS AND METHODS

The experiment was carried out at the College of Agriculture, Vellayani, southern Kerala, (South India) in a field of cucumber, that grows and produces fruits at ground level. Traps were installed at four different heights (30 cm, 60 cm, 90 cm, and 120 cm) above the ground level. Each
trap was made up of plastic bottle (1 litre) containing a ripe, soft 20-g piece of banana, 10 gm of jaggery and 0.1 g of carbofuran granules. Melon fly catches were counted for four weeks between 10th April and 8th May 2007. The mean temperatures fluctuated approximately between 26.6 and 32.2°C, RH between 78 and 97% and evaporation rate between 2.7 and 4.2. The four heights (Table 1.) were replicated five times. Observations were recorded in every seven days. Baits were replenished weekly and observations were recorded for a period of four weeks. The experiment was laid out in a completely randomized design (CRD). The data were subjected to ANOVA, with CD as a test criterion.

Table 1. Total catches of melon flies in ripe banana fruit-jaggery traps at different heights (mean of 5 replications x 4 sets)

<table>
<thead>
<tr>
<th>Height (cm)</th>
<th>Trap catches for seven days</th>
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<tbody>
<tr>
<td>30 (T1)</td>
<td>2.13 (*1.77)</td>
</tr>
<tr>
<td>60 (T2)</td>
<td>1.38 (*1.54)</td>
</tr>
<tr>
<td>90 (T3)</td>
<td>0.81 (*1.34)</td>
</tr>
<tr>
<td>120 (T2)</td>
<td>0.81 (*1.34)</td>
</tr>
<tr>
<td>CD (.05)</td>
<td>0.19</td>
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*Values in parentheses are values after $\sqrt{x+1}$ transformation.

RESULTS AND DISCUSSION

Analysis revealed that there was significant difference among the treatments. The maximum trap catch was recorded in the traps kept at a height of 30 cm from the ground level (Table 1.) and this was significantly superior to all other treatments. The lowest trap catch was recorded at a height of 120 cm.

The significant difference in trap catches at short vertical distances of 30 cm among treatments suggests that the choice of an optimum trap placement height is critical. Cucumber is a crop generally spread on ground, and not on pandal. Hence, it would be ideal to set the trap close to the crop canopy. In bittergourd, the optimum height for maximum catch (1.36m) was below the height of the pandal and vegetation. It can therefore be concluded that it would be ideal to standardize the height of trap placement for a crop and geographic location to exert maximum control, depending on crop canopy and other ecological factors.

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REFERENCES


