Effect of Monocrotrophos and Methamidophos on Jassid, *Amrasca devastans* (Distant) in Different Okra (*Abelmoschus esculentus* L.) Cultivars

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Abstract: Two commonly used insecticides, Methamidophos 60SL @ 1000ml/ha and Monocrotrophos 40WSC @ 1600 ml/ha were evaluated on *Amrasca devastans* L. during 1999 on Pusa Swani, Parbhani Kranti, Sabz Pari and Karishma okra varieties. Both insecticides provided effective control of jassid and kept the population below economic threshold level up to ten days after insecticidal application. However, Methamidophos 60SL proved better on Pusa Swani as compared to Monocrotrophos 40WSC, which decreased jassid population on Parbhani Kranti, Sabz Pari and Karishma, respectively.

Key words: *Amrasca devastans*, Methamidophos, Monocrotrophos, Okra varieties

Introduction

Okra (*Abelmoschus esculentus* L.) is an important warm and moist season vegetable grown in tropical and subtropical areas of the world. It is a rich source of vitamins A, B, and C, calcium, phosphorous and some other minerals (Bos et al., 1980). In Pakistan, its cultivation is extensive especially in cotton growing areas where it serves as a major source of pest infestation especially of jassid, *Amrasca devastans* (Distant) and spotted bollworms, *Earias insulana* (Bois.) and *Earias vitellae* (Fabr.) etc.

On okra, colton jassid (*Amrasca devastans* Dist.) sucks the sap and injects toxins turning leaves pale. In case of severe infestation, both leaf and fruit drops (Atwal, 1978). Arora et al. (1996) and Mahal et al. (1994 a, b) suggested an economic threshold level of 100% of plants with leaf injury to apply the control measures. They also observed an inverse relationship between cicadellid population and exposure period meaning more damage with the population in less time as compared to less population to require more time to damage the crop. By this relationship, use of insecticides can result 79% reduction in loss to seed yield. A blanket spray of Monocrotrophos (Nuvacron 38SL) on two okra varieties controlled the pest when applied at ten days interval. While Upadhyay (1995) observed 97.05 and 86.30% mortality with Monocrotrophos and Methamidophos respectively when eight insecticides were tested against jassid. Whereas Kumar et al. (1989) observed the lowest jassid infestation and the highest cost: benefit ratio by the application of Monocrotrophos 36EC.

In this study, our objective was to investigate the effect of Monocrotrophos 40WSC and Methamidophos 60SL against jassid on different okra varieties.

Materials and Methods

Methamidophos 60SL and Monocrotrophos 40WSC @ 1000 ml/ha and 1500 ml/ha respectively, were tested under field conditions against *Amrasca devastans* on four okra varieties viz., Pusa Swani, Parbhani Kranti, Sabz Pari and Karishma.

Untreated check was kept as control for comparison. Okra varieties were sown in April 1999 crop season at Vegetable Research Farm, University of Agriculture, Faisalabad. The trial was laid out in a Randomized complete block design (RCBD). The plot size was 8x7m and replicated three times. Spray application was made in August with the help of knapsack hand sprayer twice with ten days interval.

Adult and nymph pest population was counted from upper, middle and lower leaves on twelve randomly selected plants from each plot. Data were recorded from the central eight rows. Means population of jassid from each plot was taken and subjected to statistical analysis (Steel and Torrie, 1984).

Results and Discussion

Minimum jassid population (2.63 jassids/leaf) was observed in Parbhani Kranti as compared to that of maximum which is in Karishma i.e. 4.86 jassid/leaf at zero hour (Table 1). Whereas on other two varieties, the jassid population was in-between these two limits along with that of control. For the first three days after insecticidal application, Methamidophos proved better than that of Monocrotrophos by decreasing the pest population significantly in Parbhani Kranti, Pusa Swani whereas Monocrotrophos provided good control of jassid on Sabz Pari. Methamidophos 60SL provided better control and maintained the population at economic threshold level as described by Mahal et al. (1994 a) up to ten days after application in Pusa Swani while Monocrotrophos proved better on Parbhani Kranti and Sabz Pari.

The overall comparison of both insecticides showed good control of jassid up to ten days as compared to control. Though statistically Methamidophos 80 SL was better in Pusa Swani whereas Monocrotrophos 40WSC in Parbhani Kranti and Sabz Pari. Our results are in accordance with those of Arora et al. (1996), Upadhyay (1995), Kumar (1989) and Mahal et al. (1994 b) who found both Methamidophos and Monocrotrophos effective against jassid on okra.

It can be concluded that both Monocrotrophos 40WSC and
Ahmad et al.: Effect of insecticides on jassid in okra

Table 1: Mean Jassid population (leaf\(^{-1}\)) on different Okra varieties under Methamidophos 60 SL and Monocrotophos 40WSC treatments

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Insecticides</th>
<th>Dose (ml/ha)</th>
<th>Mean Jassid Population (leaf(^{-1}))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>0hr</td>
</tr>
<tr>
<td>Pusa Svanai</td>
<td>Methamidophos 60SL</td>
<td>1000</td>
<td>3.98(^{ab})</td>
</tr>
<tr>
<td>Pusa Svanai</td>
<td>Monocrotophos 40WSC</td>
<td>1600</td>
<td>3.39(^{b})</td>
</tr>
<tr>
<td>Parbhani Kranti</td>
<td>Methamidophos 60SL</td>
<td>1000</td>
<td>2.63(^{b})</td>
</tr>
<tr>
<td>Parbhani Kranti</td>
<td>Monocrotophos 40WSC</td>
<td>1600</td>
<td>2.69(^{b})</td>
</tr>
<tr>
<td>Sabz Pari</td>
<td>Methamidophos 60SL</td>
<td>1000</td>
<td>3.42(^{b})</td>
</tr>
<tr>
<td>Sabz Pari</td>
<td>Monocrotophos 40WSC</td>
<td>1600</td>
<td>2.98(^{b})</td>
</tr>
<tr>
<td>Karishma</td>
<td>Methamidophos 60SL</td>
<td>1000</td>
<td>4.86(^{a})</td>
</tr>
<tr>
<td>Karishma</td>
<td>Monocrotophos 40WSC</td>
<td>1600</td>
<td>3.39(^{b})</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td>3.45(^{b})</td>
</tr>
</tbody>
</table>

Means within a column not sharing a letter in common differ significantly (\(P = 0.01; DMRT\)).

Methamidophos 60SL can provide effective control of jassid population up to ten days to keep it below the economic threshold level.

Reference


