

Effect of Monocrotophos 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 Monocrotophos 40WSC @ 1500 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 Monocrotophos 40WSC, which decreased jassid population on Parbhani Kranti, Sabz Pari and Karishma, respectively.

Key words: *Amrasca devastans*, Methamidophos, Monocrotophos, 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, phosphorus and some other minerals (Boss *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* (Dist.) and spotted bollworms, *Earias insulana* (Bois.) and *Earias vitella* (Fabr.) etc.

On okra, cotton jassid (*Amrasca devastans* Dist.) sucks the sap and injects toxins turning leaves pale. In case of severe infestation, both leaf and fruit drops (Atwal, 1976). 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 Monocrotophos (Nuvacron 36SL) on two okra varieties controlled the pest when applied at ten days interval. While Upadhyay (1995) observed 97.05 and 86.30% mortality with Monocrotophos 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 Monocrotophos 36EC. In this study, our objective was to investigate the effect of Monocrotophos 40WSC and Methamidophos 60SL against jassid on different okra varieties.

Materials and Methods

Methamidophos 60SL and Monocrotophos 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 Monocrotophos by decreasing the pest population significantly in Parbhani Kranti, Pusa Swani whereas Monocrotophos 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 Monocrotophos 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 60 SL was better in Pusa Swani whereas Monocrotophos 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 Monocrotophos effective against jassid on okra.

It can be concluded that both Monocrotophos 40WSC and

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Table 1: Mean Jassid population (leaf⁻¹) on different Okra varieties under Methamidophos 60 SL and Monocrotophos 40WSC treatments

Varieties	Insecticides	Dose (ml/ha)	Mean Jassid Population (leaf ⁻¹)					
			0hr	24hr	48hr	72hr	168hr	240hr
Pusa Swani	Methamidophos 60SL	1000	3.98ab	0.39ab	0.15a	0.64a	0.80ab	1.05ab
Pusa Swani	Monocrotophos 40WSC	1500	3.39b	0.72ab	0.40a	0.53a	1.04ab	1.69a
Parbhani Kranti	Methamidophos 60SL	1000	2.63b	0.22b	0.26a	0.43a	0.69b	1.16ab
Parbhani Kranti	Monocrotophos 40WSC	1500	2.69b	0.75a	0.46a	0.78a	1.15ab	1.15ab
Sabz Pari	Methamidophos 60SL	1000	3.42b	0.64ab	0.49a	0.54a	0.75b	0.98b
Sabz Pari	Monocrotophos 40WSC	1500	2.98b	0.44ab	0.42a	0.58a	0.94ab	1.51ab
Karishma	Methamidophos 60SL	1000	4.86a	0.60ab	0.30a	0.87a	1.30a	1.40ab
Karishma	Monocrotophos 40WSC	1500	3.39b	0.68ab	0.42a	0.54a	0.93ab	1.53ab
Control			3.45b	3.98c	4.08b	4.34b	7.61c	11.21c

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.

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