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Effect of Combined Use of Urea and Insecticides as Foliar Spray Against Green Peach Aphid *Myzus persicae* Sulz. on Chillies

N. DHANDAPANI[1] and T. KUMRASWAMI[2]

Studies on the combined use of urea 2% with some insecticides as foliar spray on chillies against green peach aphid *Myzus persicae* Sulz. revealed that methamidophos 0.06% was superior to all other insecticides with a 98.9 per cent reduction in population followed by FMC 35001 alone and FMC 35001 + urea. All the insecticides tested were compatible with urea and caused no phytotoxic symptoms and exhibited no significant reduction in their biological efficacy.

Foliar application of urea has long been recognised as an effective means to supplement nitrogen to the plant than the conventional method of soil application. Since a combined application of urea and insecticides may result in minimizing the cost of production of a crop, efforts have been made in recent years to mix insecticides with urea and use as a foliar spray (Metha, 1970; Saxena *et al*, 1972; Sekhawat and Chundawat 1971; Srivastava and Singh,1974; and Upadhyay *et al.*, 1979). It has been reported that a total of 35,000 tonnes dry chilli is lost due to this aphid and the estimated loss is 17.5 crores of rupees to Tamil Nadu cultivators (Hindu 16.5.79). Keeping in view these facts, a study was conducted on control of *Myzus persicae* with some new insecticides in combination with urea as a foliar spray

MATERIAL AND METHODS

The field trial was conducted in a randomized block design with 14 treatments replicated twice at Reddiyarchattram village of Madurai district. The plot size was 25m². The variety used in the experiment was a, Local Round Chillies'. Two sprayings were given (with a spray fluid 1000 l/ha) at an interval of 14 days starting from 3 months after transplanting, when aphid population was at its peak. The aphid population was recorded in five plants selected at random and tagged for each plot. In each plant, 15 leaves, stanrtified as 5 each from top, middle and bottom regions were observed to take into consideration any preference by the pest species for newer or old leaves. Counts were made prior to spraying and after one, three, seven and fourteen days. The average population per plant was worked out.

Department of Agrl Entomology Agricultural College & Res. Institute, Madurai-625 104

1 Assistant Professor, 2 Professor and Head, Department of Agricultural Entomology Coimbatore.

RESULTS AND DISCUSSION

All the insecticides tested in the experiment from the point of view of their toxicity, fit well with urea 2%. Since there was no symptom of phytotoxicity due to the combinations, it can be concluded that urea and these insecticides in the doses used are compatible as foliar spray.

On third day after first spraying the lowest population was observed in methamidophos 0.06% followed by FMC 35001 and methamidophos + urea treated plots. In general the aphid population increased on 7 days after first spraying. As the result of giving a second spray, the population in all the treatments decreased on the first day after treatment. The mean reduction in population after two sprayings was maximum (98 9%) in methamidophos followed by methamidophos and urea combination. Methamidophos, FMC 35001 and pirimicarb with and without urea were statistically on par. The effectiveness of methamidophos against this pest has been reported by Kareem *et al.* (1977) ,Saivarai *et al.* (1979), Basha and Balasubramanian (1980) and Reddy *et al* (1981). Dhandapani and Jayaraj (1981) have reported the efficacy of pirimicarb and FMC 35001 and in the present study also these chemicals are effective and is in conformity with the earlier studies.

Spraying with fenthion 0.1% + methyl demeton 0.025%, a combination found effective earlier (Kumaraswami *et al.*, 1979) has recorded only 69.21% + reduction in population. Monocrotophos 0.05% + dichlor vos 0.05% recorded 77.2 percent population reduction, this is in cnoformity with the results obtained by Basha and Balasubramanian (1980). The effectiveness of acephate 0.15% was in conformity with the results obtained by Reddy *et al.* (198)1.

Although the aphid population was slightly higher in insecticides + urea combinations than when insecticides alone were used in any pair, insecticide alone was on par with its combination with urea. Higher population of pests in plants treated with insecticides in combination with urea has been reported by Mahadevan *et al.* (1978). However present observations have definitely revealed that urea did not reduce the toxicity of any of the Insecticides used and hence can be safely suggested for adoption.

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Table 1: Efficacy of different insecticides alone and in combination with urea against *M. Persicae* on chillies.

Treatments	Mean aphid population per leaf (Mean of 45 observations)									Mean Per Year	% reduction in population
		Days after I Spray				Days after II Spray					
	Pre-count	1	3	7	14	1	3	7	14		
pirimicarb 0.1%	7.83	2.42	1.89	2.69	3 01	0.96	0.99	1.01	1.09	1.76	94 3
" + Urea 2%	7.69	1.84	1.79	2.45	2.78	0.87	0 86	0.92	0.92	1.56	95.3
Fenthion 0.1% + Methyl demeton 0 025%	7.76	4.31	3.71	4.22	5.59	3.60	3.79	4.16	4.33	4.22	69 2
Fenthion 0.1% + Methyl demeton 0 025% + Urea 2%	7.69	5.06	3 93	4 41	5.76	3.72	3.81	4.15	4.45	4.42	66 3
FMC 35001—0.048%	7.25	1.87	1.13	1.40	2.94	0.95	0.86	0.87	0.91	1.33	98.2
FMC 35001—0.048% + Urea 2%	7 83	3.37	1.39	1.24	3 29	0.98	0.89	0.90	1.09	1.65	94.4
Methamidophos 0 06%	7.17	1.14	1 26	1 04	1 08	0 71	0.71	0.71	0.71	0.92	98.8
Methamidophos 0 06% + Urea 2%	7.51	1.62	1.31	1.47	1.54	0.71	0.71	0.71	0.71	1.10	97.8
Monocrotophos 0.05% + Dichlorvos 0.05%	7.52	3.65	3.41	3.43	4.99	2.92	3.05	3.38	3.52	3.55	77.1
Monocrotophos 0.05 + Dichlorvos 0.05 + Urea 2%	7.49	3.71	3.01	3.32	4.83	2.62	2.95	3.14	3.45	3.38	78.8
Acephate 0.15%	7 58	3.21	2.03	2.82	3.78	0.92	1.08	0.97	0.71	1.94	91.7
Acephate 0.15% + Urea 2%	7.34	3.18	2 66	3.14	3.78	1.07	1.10	1 11	0.71	2.10	89.3
Urea 2%	7.66	7.80	7 73	7.85	7.83	7.68	7.82	7.88	7.87	7.82	
Control	7.70	7 85	7.81	8.06	8.05	8 05	7.99	7.98	7.94	7.97	
Transformed values											

CD (P = 0 05) Between treatments = 1.27 ; between periods = 1.01 ; Treatment X periods = 3.79