Tests of Parathion for Control of the Little Fire Ant

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The little fire ant, *Wasmannia auropunctata* (Roger), is an important pest to workers in citrus and guava groves in southern Florida. In some groves great numbers of these ants are present on the trees and it is impossible for workers to pick fruit, prune, or spray without being covered with them and being stung many times. Fruit-picking crews have refused at times to work in infested trees. Additional information on the habits and importance of the little fire ant in citrus and guava groves has been published by Spencer (1941), Osburn (1945, 1948), and Wolfenbarger (1947). The use of DDT, chlordan, or toxaphene has prevented troublesome infestations of this ant when the material was thoroughly applied to the trunks and larger branches of citrus trees (Osburn 1948).

Parathion, one of the most potent of the new organic insecticides, was tested for its effectiveness against the little fire ant in St. Lucie County, Florida, during 1948. The results of these tests are reported in this paper.

The parathion was applied with a power sprayer to orange trees at two concentrations, 1 or 2 pounds of 25 per cent wettable powder per 100 gallons of water, and by two different methods. One method consisted of spraying the entire tree thoroughly and the other of covering only the tree trunk. The entire-tree coverage required 8 gallons of diluted material per tree and the tree-trunk treatment only about 2 gallons. The entire-tree coverage method was included in the experiment because of the recent promising results we had obtained with parathion for the control of several insects, other than the little fire ant, that infest citrus trees. We thought that if parathion proved to be satisfactory for control of the little fire ant, applications of the material to the entire tree might provide simultaneous control of several pests, and separate treatments for the ant might not be necessary.

The experimental design was that of randomized blocks. There were five replications for four treatments and a check, and a single tree in each block received each treatment. The treatments were evaluated at intervals after the applications by comparing the numbers of ants crossing 1-inch white bands that had been painted around each tree trunk before the sprays were applied. The data were analyzed statistically.

A summary of the results is presented in table 1. Highly significant differences were demonstrated between infestations in the check and those in each of the treatments on each observation date. There were no significant differences between any of the treatments. Even though all treatments were highly significantly better than the check on each date, none of them would be considered satisfactory from the standpoint of a grove worker after the first few weeks, since comparatively small numbers of the little fire ants may be troublesome. The 1-pound concentration applied to the tree trunks was satisfactory until July 26, whereas the same concentration applied to the entire tree and the 2-pound treatments applied by either method gave satisfactory reductions until August 24.

The results of tests of parathion against citrus pests other than the little fire ant suggest that this material may have a place in the regular citrus spray schedule if it can be used safely. If such should be the case, considerable incidental control of the little fire ant would probably result. Thorough application of parathion to the entire tree for other pests could be expected to take care of the little fire ant for about 8 weeks. This control would mean a considerable saving to some citrus growers. Of course, if the little fire ant is the only pest to be considered, the 2-pound concentration applied to the trunks would be the most satisfactory of parathion treatments tested.

Parathion is a highly toxic material. Spray crews should take every precaution to avoid breathing vapors of parathion and getting it on their skins. Shirts should be buttoned at the neck and sleeves rolled down and buttoned at the wrist. Immediately upon the completion of a spray operation, the hands and face should be washed thoroughly with soap and water. The clothing should be removed and washed before it is worn again.

LITERATURE CITED

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Table 1.—Numbers of little fire ants crossing sample areas on orange trees at intervals after treatment on June 28, 1948 with sprays containing parathion.

PARATHION, 25% WETTABLE POWDER PER 100 GAL.	PART OF TREE	JULY 12	JULY 26	AUG. 9	AUG. 24	SEPT. 7
2 lbs.	Entire tree	0	0	1	12	170
	Trunk only	0	0	2	12	145
1 lb.	Entire tree	0	0	2	21	209
	Trunk only	1	16	18	47	261
Check, unsprayed		436	782	351	330	889
Difference required for significance at 1% level		74	113	121	145	291