

THE CHEMICAL CONTROL OF MANGO PESTS

W H Brooks, F P J Snyman and O van den Elzen
Agrihold, Silverton 0127, Pretoria

SYNOPSIS

Fenvalerate at 6 g ai/100 l, applied prior to and just after flowering, gave complete control of mango weevil in an orchard of 20-year-old mango trees. This treatment was ineffective against mango scale. The addition of Phenthoate at 75 g ai to Fenvalerate as a tankmix, applied at a similar stage, exhibited excellent residual scale control. Narrow range oil at one per cent and Prothiophos at 48 g ai, also gave good scale control.

INTRODUCTION

Fenvalerate is at present registered for use against mango weevil. Work was done over the past season to ascertain the feasibility of alternative application dates and dosage rates.

A number of other treatments were once more compared to Fenvalerate.

The whole mango scale scenario was also viewed critically over the past season with a view to determining whether Fenvalerate caused a build-up of mango scale, as well as to screen alternative treatments for the control of this pest.

EFFECT ON MANGO WEEVIL

Trial details:

Locality:

Ofolaco

Variety:

Paieri (20 years old)

Application dates:

86/04/22, 86/07/10, 86/09/30

Trial layout:

Nine tree plots were used. These plots were randomised in a block design containing four replicates. A total of 36 trees were thus included in each treatment.

RESULTS

See Table 1 and Figure 1

TABLE 1 Dosage rate and time of application of different insecticides.

No	Product	TREATMENTS	
		Dosage rate/100 l water (Active ingredient)	Application Timing
1	Monocrotophos	24g	April/July
2	Fenvalerate	6g	April/September
3	Prothiophos	48g	August/September
4	Fenvalerate	6g	August/September
5	Fenvalerate	3g	August/September
6	Control	—	—

TABLE 2 Dosage of insecticides and time of application in a trial at Nelspruit.

No	Product	TREATMENTS	
		Dosage rate/100 l water (Active ingredient)	Application Timing
1	Fenvalerate	6g	July/October
2	Fenvalerate + Phenthoate	6g + 75g	July/October
3	Phenthoate	75g	July/October
4	Prothiophos	48g	July/October
5	Cipron Oil	1%	July/October
6	Control	—	—

DISCUSSION

From the results it is clear that Fenvalerate at 6 g ai, applied in August and September, was the only treatment to give complete control of mango weevil. This is the only treatment which gives significantly better control of mango weevil than the untreated control.

Monocrotophos, applied in April and July (treatment 1), gave some suppression of weevil but no control.

Fenvalerate at 3 g ai did not give satisfactory control of mango weevil.

EFFECT ON MANGO SCALE

The results which will be discussed, were obtained from two trials: one in Nelspruit and one in Ofolaco.

The trials were laid out on a randomised block design containing five replicates. The treatments were applied in July and October, except for the Cipron Oil which was applied in July only.

Pre-spray scale counts were done by counting the number of live female scales on a random sample of 20 leaves per treatment. Post-spray counts to determine residual efficacy were conducted on a monthly basis, using the same technique.

RESULTS OF NELSPRUIT TRIAL

See Table 2 and Figure 2.

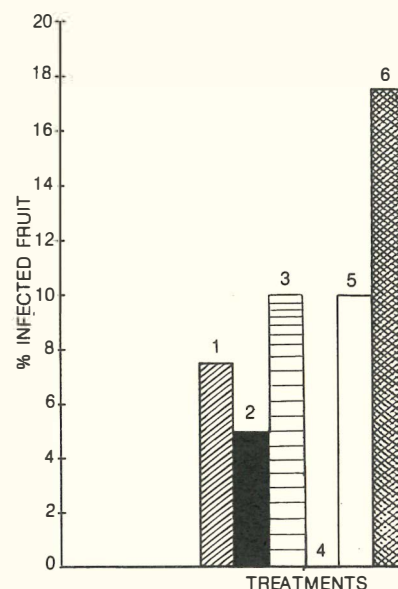


Fig 1 Mango weevil control.

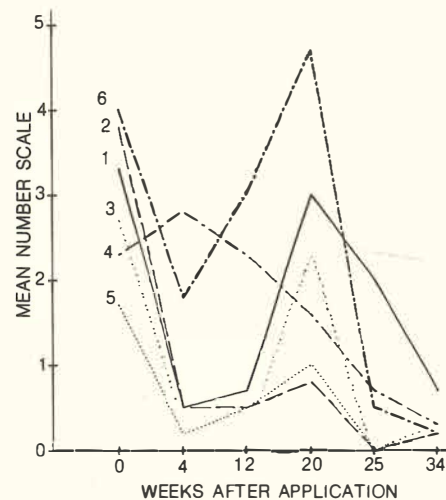


Fig 2 The effect of Sumicidin and Elsan on mango scale. Application dates: July and October.

DISCUSSION

From the results it is clear that all treatments showed an initial reduction in scale numbers (except Prothiophos). Scale numbers start increasing 12 weeks after application in most treatments, but not to the same extent as observed in the untreated control. In the majority of treatments, scale populations started declining from 20 weeks. From the 25th week, scale numbers were higher in the Fenvalerate treatment than in the untreated plots, due to a slower rate of decrease. This decrease, nevertheless, continued for the duration of the monitoring period.

The Cipron Oil and Fenvalerate + Phenthoate treatments showed the least build-up of scale numbers following the initial reduction.

RESULTS OF OFCOLACO TRIAL

See Table 3 and Figures 3 and 4.

TABLE 3 Time of application and dosage rates of different insecticides: Ofcolaco Trial.

No	Product	TREATMENTS	
		Dosage rate/100 l water (Active ingredient)	Application Timing
1	Fenvalerate	6g	July/October
2	Fenvalerate / Phenthoate	6g + 75g	July/October
3	Phenthoate	75g	July/October
4	Cipron Oil	1%	July/October
5	Control	—	—

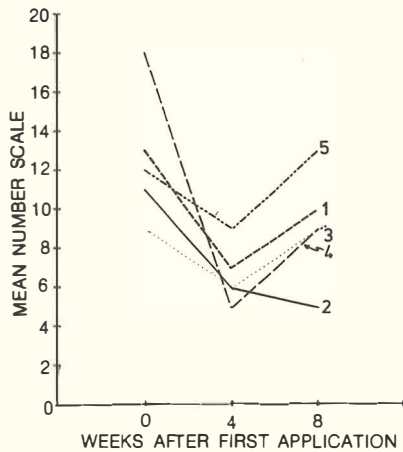


Fig 3 The effect of Sumicidin and Elsan on mango scale. Application date: July.

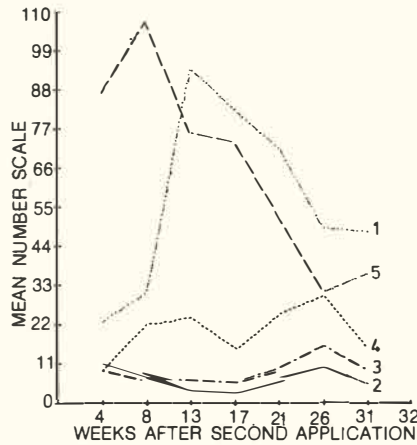


Fig 4 The effect of Sumicidin and Elsan on mango scale. Application dates: July and October.

DISCUSSION

The results in Figures 3 and 4 clearly indicate once again that all treatments

gave good initial control of mango scale, with a subsequent rise in population where higher counts were

recorded in the Fenvalerate treatment than in untreated plots. Populations however began to decrease at a rate similar to that exhibited in untreated plots. These scale numbers continued to decrease for the duration of the trial. In this trial it is again clear that Fenvalerate + Phenthoate showed a consistent control of the number of scale throughout the monitoring period.

CONCLUSIONS

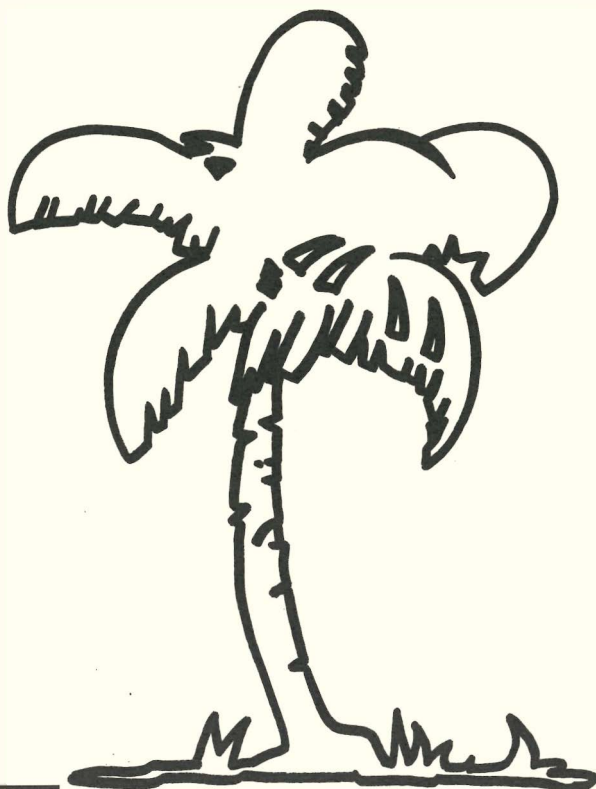
From the results contained in this report, it is evident that Fenvalerate at 6 g ai, applied just before and just after flowering, gives the best control of mango weevil.

It is evident that Fenvalerate at 6 g ai is ineffective as a control treatment for mango scale over a long period. In order to control mango scale, the mixture of Fenvalerate at 6 g + Phenthoate at 75 g would appear to be the most effective. The use of oil is also effective, but there are some reservations as to the safety of this application on mango trees with regard to phytotoxicity.

The use of Prothiophos must also not be excluded for mango scale control.

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