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**INSECTICIDE TRIAL AGAINST THE COMMON
ARMYWORM, PSEUDALETIA CONVECTA
(WALKER) (LEPIDOPTERA: NOCTUIDAE)**

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SUMMARY

Seven insecticides were tested against a heavy infestation of *Pseudaletia convecta* (Walker) larvae in barley var. Clipper. All (expressed as g. a.c. ha⁻¹) were shown to be efficacious—chlorpyrifos 350, permethrin 45, sulprofos 360 (Bayer NTN 9306), acephate 300, trichlorfon 550, methomyl 225 and fenvalerate 45.

I. INTRODUCTION

An extensive outbreak of the common armyworm (*Pseudaletia convecta* (Walker)) occurred in South Queensland in September–October, 1978. Approximately 108 000 ha of winter cereals were treated with insecticide (Broadley, unpublished data).

Problems in supply of sufficient quantities of registered insecticides were experienced. Consequently, there was a need to evaluate alternative chemicals. This article describes the results of a trial in which both recommended and promising materials were tested.

II. METHODS

A crop of maturing barley var. Clipper with a heavy infestation of *P. convecta* larvae was selected for trial purposes at Mt. Maria, on the Darling Downs. Seven insecticides were tested (table 1). An 8 × 3 randomized block layout, with 10 m × 6 m plot sizes, was employed.

After a pretreatment count of larvae in two 0.25-m² quadrats per plot, insecticides were applied on 30 October 1978 at a volume of 170 l ha⁻¹, through a Rega pneumatic knapsack sprayer equipped with a 1.5-m, four-nozzle boom. Further counts of live larvae in two quadrats per plot were completed one and four days after spraying.

After the $\sqrt{x + 0.5}$ transformation was applied, data were subjected to analysis of variance and L.S.D. testing.

TABLE 1
MEAN NUMBER *P. convecta* LARVAE PER 0.25 m²

Treatment g a.c. ha ⁻¹	Pretreatment 30 October 78*	Post-treatment (1 day) 31 October 78*	Post-treatment (4 days) 3 November 78*
Chlorpyrifos 350	2.984 (8.40)	1.202 (0.94)	0.793 (0.13)
Permethrin (40:60) 45	3.127 (9.28)	1.612 (2.10)	0.966 (0.43)
Sulprofos ** 360	2.832 (7.52)	2.008 (3.53)	1.025 (0.55)
Acephate 300	2.864 (7.70)	2.226 (4.45)	1.388 (1.43)
Trichlorfon 550	2.937 (8.13)	1.937 (3.25)	1.840 (2.89)
Methomyl 225	3.098 (9.10)	2.000 (3.50)	1.911 (3.15)
Fenvalerate 45	3.251 (10.07)	2.773 (7.19)	2.110 (3.95)
Check	2.682 (6.69)	2.801 (7.35)	3.566 (12.21)
L.S.D. 5%	N.S.D.	0.748	0.959
1%		1.038	1.331

* The $\sqrt{X + 0.5}$ transformation was applied prior to analysis of data. Numbers in brackets are equivalent means.
** Proposed common name (= Bayer NTN 9306).

III. RESULTS AND DISCUSSION

Results are shown in table 1. Pretreatment larval counts demonstrated no significant differences between treatments, and populations increased in the untreated plots during the trial. This increase in numbers of larvae was probably the result of further egg hatch.

Larval population reductions ($P < 0.01$) were achieved at the 1-day post-treatment assessment with the treatments chlorpyrifos and permethrin. Rapid kill could be valuable when *P. convecta* larvae are severing heads in ripening crops, at which time severe damage can be inflicted in a short time.

At the final post-treatment count, 4 days after spray application, all chemicals achieved significant ($P < 0.01$) control of larvae. Chlorpyrifos at 350 g a.c. ha⁻¹ was superior ($P < 0.05$) to methomyl at 225 g a.c. ha⁻¹, trichlorfon at 550 g a.c. ha⁻¹ and fenvalerate at 45 g a.c. ha⁻¹, (table 1). In addition fenvalerate at 45 g a.c. ha⁻¹ was not as efficacious as either sulprofos at 360 g a.c. ha⁻¹ or permethrin at 45 g a.c. ha⁻¹ ($P < 0.05$).

Mortality rates observed in the trichlorfon, chlorpyrifos and methomyl treatments were similar to those obtained by Rimes (1977) and Rand and Wright (1978).

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