

THE INSECTICIDAL VALUES OF TWO ISOMERS OF DDD

Following trials with DDD (TDE) for the control of the lucerne leaf roller (*Tortrix divulsana* (Walk.)) in the Lockyer Valley (to be published), the question of the relative toxicities of the *p.p'* and *o.p'* isomers arose. Technical grade DDD available in Queensland at the time was formulated as 30 per cent. total isomers, 20 per cent. being *p.p'* and the remaining 10 per cent. mostly the *o.p'* isomer. Overseas literature (Riemschneider 1950) indicates that the order of decreasing efficaciousness of DDD isomers is *p.p'*, *m.p'*, *o.p'*, *o.m'*, and *o.o'*.

During 1957, two trials each a 5×4 layout with plot size of 1/100 ac were established. Four samples of DDD with 30 per cent. total isomers were formulated with the same solvent and emulsifier. All differed, however, in the ratio of *p.p'* to *o.p'*. The dosage rate was 1 lb of total isomers in 100 gal per ac. Treatments were applied on April 23 (Trial 1) and September 11 (Trial 2). Pest populations were assessed from twelve $\frac{1}{2}$ sq. yd. quadrats per plot. Results are presented in Table 1.

Table 1

RESULTS OF 1957 TRIALS: LARVAL COUNTS

Treatment	Trial 1		Trial 2	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
	(22.iv.57)	(28.iv.57)	(10.ix.57)	(51.ix.57)
A. 27% <i>p.p'</i> , 3% <i>o.p'</i>	1,543	55	1,006	1
B. 20% <i>p.p'</i> , 10% <i>o.p'</i>	1,577	30	1,116	1
C. 13% <i>p.p'</i> , 17% <i>o.p'</i>	1,706	33	1,052	1
D. 6% <i>p.p'</i> , 23% <i>o.p'</i>	1,634	87	1,113	1
E. Untreated	1,729	683	1,053	430

All treatments were better than untreated, with no significant differences among treatments.

Using similar methods, a third trial was established in 1958. Dosage rate for treatment A was 1 lb per ac total isomers, and for treatments B-E $\frac{1}{2}$ lb per ac. Treatments were applied on October 30. Results are presented in Table 2.

Table 2
RESULTS OF 1958 TRIAL: LARVAL COUNTS

Treatment	Pre-treatment (29.x.58)	Post-treatment (5.xi.58)	Significantly exceeds	
			5% Level	1% Level
A. 27% p.p', 3% o.p'	843	14	B-E	C-E
B. 27% p.p', 3% o.p'	963	82	C-E	D-E
C. 20% p.p', 1% o.p'	930	173	E	E
D. 13% p.p', 17% o.p'	1,009	278	E	E
E. 6% p.p', 23% o.p'	846	593		
F. Untreated	(not used in	analysis)		

All treatments were obviously better than untreated, and with the lower dosage rate significant differences among treatments were obtained. Survival of larvae increased as *p.p'* isomer content decreased. This isomer therefore is the important active constituent of technical DDD, which is used in Queensland mainly for control of tortricids.

REFERENCES

- RIEMSCHEIDER, R. (1950).—Zur Kenntnis der Kontakt-Insektizide II. *Pharmazie* 9: 649-800. (Abs. in *Rev. App. Entom. Ser. A.* 40: 9.)

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