

INSECTICIDE TAIN T TRIALS IN TOBACCO, 1961-1963

New insecticides likely to be of value against tobacco pests in Queensland are first submitted to taint trials by the Queensland Department of Primary Industries. These trials detect materials which, when applied to the growing plant, produce objectionable taints in the cured leaf. Following on the work of Smith (1961) and Saunders and Bengston (1961), a further series of four trials has been completed, viz. Trials 1 and 2 at Millaroo (1961-62 and 1962-63 respectively), Trial 3 at Parada (1962-63) and Trial 4 at Beerburrum (1963).

Materials

Azinphos-ethyl.—An emulsifiable concentrate containing 40 per cent. w/v active constituent.

BHC.—Emulsifiable concentrates containing 7 per cent. w/v gamma isomer in technical BHC imported from South Africa (Formulation A) and England (Formulation B).

Dimethoate.—A concentrate containing 30 per cent. w/v active constituent.

Fenthion.—An emulsifiable concentrate containing 55 per cent. w/v active constituent.

Lindane.—An emulsifiable concentrate containing 7 per cent. w/v active constituent.

Malathion.—An emulsifiable concentrate containing 50 per cent. w/v active constituent.

"*Mevinphos*".—A concentrate containing not less than 60 per cent. of the alpha isomer of 2-carbomethoxy 1-methylvinyl dimethyl phosphate and not more than 40 per cent. of active related compounds.

Phosphamidon.—A water-soluble concentrate containing 50 per cent. w/v active constituent.

"*Telodrin*".—An emulsifiable concentrate containing 15 per cent. w/v 1,3,4,5,6,7,8, 8-octochloro-1,3,3a,4,7,7a-hexahydro-4, 7-methanoisobenzofuran.

"*Zectran*".—An emulsifiable concentrate containing 22.3 per cent. w/v 4-dimethylamino-3, 5-xyllyl N-methylcarbamate.

The spray concentrations of active constituents used in the trials are shown in Table 2.

Methods

Test treatments were applied within 5-6 days of leaf harvest. Locality and layout data are given in Table 1. In the field, overall treatments of insecticides not causing taint were used only when necessary to prevent destruction of plot leaf by insects in Trials 1, 2 and 4. In Trial 3 routine spraying with such insecticides ceased two weeks before the application of the chemicals under test.

TABLE 1
LOCALITY AND LAYOUT DATA

Trial No.	Locality	Layout— Randomized Blocks	Plants per Plot
1	Millaroo, 1961-62	8 x 3	40—single row
2	Millaroo, 1962-63	7 x 6	40—single row
3	Parada, 1962-63 ..	7 x 6	30—single row
4	Beerburum, 1963	5 x 4	80—double row

Test treatments giving a thorough coverage of plants were applied with hand-operated knapsack sprayers in Trials 1, 2 and 4 and a power sprayer in Trial 3. Screens and guard rows were used to prevent spray drift.

Two samples for taint testing were taken from each plot in Trial 1, one from each plot in Trials 2 and 3 and three from each plot in Trial 4. These were flue-cured in the usual way and graded to remove trashy or insect-damaged leaf. Each was then wrapped in "Cellophane" with an identifying number and submitted for taint testing according to the procedure outlined by Saunders and Bengston (1961).

Results

The results of the trials are given in Table 2. The technical BHC formulations used did not taint as heavily as the formulations used in the trials reported by Saunders and Bengston. These earlier formulations are no longer available. This indicates that variability in technical BHC from different sources makes this insecticide unsuitable for use as a standard in taint trials. Of the other materials tested, only dimethoate appeared to be unsuitable for use in tobacco.

TABLE 2
RESULTS OF TAINT TRIALS, 1961-1963

Treatment	No. of Samples Tested	Taint Results No. of Samples with—				Percentage of Samples with Distinct Taints
		Nil	Suspected Slight	Slight	Distinct	
Azinphos-ethyl 0.1% ..	6	Nil	Nil	6	Nil	Nil
Azinphos-ethyl 0.05% ..	24	24	Nil	Nil	Nil	Nil
BHC (formulation A) 0.03%	12	6	2	4	Nil	Nil
BHC (formulation B) 0.03%	12	7	Nil	5	Nil	Nil
Dimethoate 0.1%	6	Nil	Nil	1	5	83.3
Fenthion 0.1%	6	1	Nil	3	2	33.3
Fenthion 0.05%	6	5	Nil	1	Nil	Nil
Lindane 0.03%	6	2	Nil	3	1	16.6
Malathion 0.05%	6	6	Nil	Nil	Nil	Nil
Mevinphos 0.1%	6	6	Nil	Nil	Nil	Nil
Phosphamidon 0.1% ..	6	6	Nil	Nil	Nil	Nil
Telodrin 0.1%	6	3	Nil	3	Nil	Nil
Zectran 0.1%	6	3	Nil	3	Nil	Nil
Untreated	35	30	Nil	4	1	2.9

The insecticide tested most extensively in these trials was azinphos-ethyl. In 30 samples no distinct taints were found, and slight taints only in samples treated at greater than the normal concentration. This contrasts with azinphos-methyl, which, as a wettable powder, tainted severely (Saunders and Bengston 1961).

REFERENCES

- SAUNDERS, G. W., and BENGSTON, M. (1961).—Pesticide taint trials in tobacco. *Qd J. Agric. Sci.* 18:497-8.
- SMITH, W. A. (1961).—Tobacco leaf-pest control investigations, 1949-1955. *Qd J. Agric. Sci.* 18:33-56.

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(Received for publication July 31, 1963)