

TECHNICAL NOTES

INSECTICIDAL CONTROL OF LEAF-MINER IN TOBACCO

The tobacco leaf-miner, *Gnorimoschema operculella* (Zell.), frequently occurs as a serious pest of tobacco in Queensland. Before the advent of DDT, larvae of this insect were partially controlled by the use of moth-proof covers in the seedbed and lead arsenate dusts in the field (Atherton 1936). Smith (1952) recorded the value of DDT in controlling leaf-miner in both seedbed and field, and further trials (Smith 1955 and 1960) demonstrated the extent to which dieldrin and endrin suppressed this pest.

During the tobacco seasons of 1957 to 1960, large populations of leaf-miner were present in the tobacco areas of North Queensland. Field spraying generally did not provide adequate plant coverage, and many farmers failed to achieve satisfactory control of this pest.

Three screening trials were carried out against leaf-miner larvae during the 1959-60 season at Mareeba (November 18-December 2), Parada (December 15-29) and Paddy's Green (January 11-25). The randomized block layouts, with a plot size of 10 plants in a row, were respectively 10 x 4, 8 x 4 and 8 x 4.

The following insecticides, at strengths (active ingredient) given in Figure 1, were applied with a knapsack as complete cover sprays:

DDT.—An emulsion concentrate containing 25 per cent. w/v *p.p'* isomer.

Diazinon.—An emulsifiable concentrate containing 20 per cent. w/v active ingredient.

Endrin.—An emulsifiable concentrate containing 20 per cent. w/v active ingredient.

Lindane.—An emulsifiable concentrate containing 16 per cent. w/v gamma isomer.

Methoxychlor.—An emulsifiable concentrate containing 22.5 per cent. w/v active ingredient.

Sevin.—A dispersible powder containing 50 per cent. w/w active ingredient.

"*Telodrin*" (WL1650).—An emulsifiable concentrate containing 20 per cent. w/v octachloro-tetrahydro-methanophthalan.

Thiodan.—An emulsifiable concentrate containing 20 per cent. w/v active ingredient.

Counts were made of living larval instars present in a leaf removed from each of the 10 plants per plot. Five samples, pretreatment and 1, 3, 7 and 14 days after treatment, were taken from the lower five leaves left after priming; leaves were taken progressively up the plant one position higher from one plant to the next, repeating the sequence for the second five plants per plot.

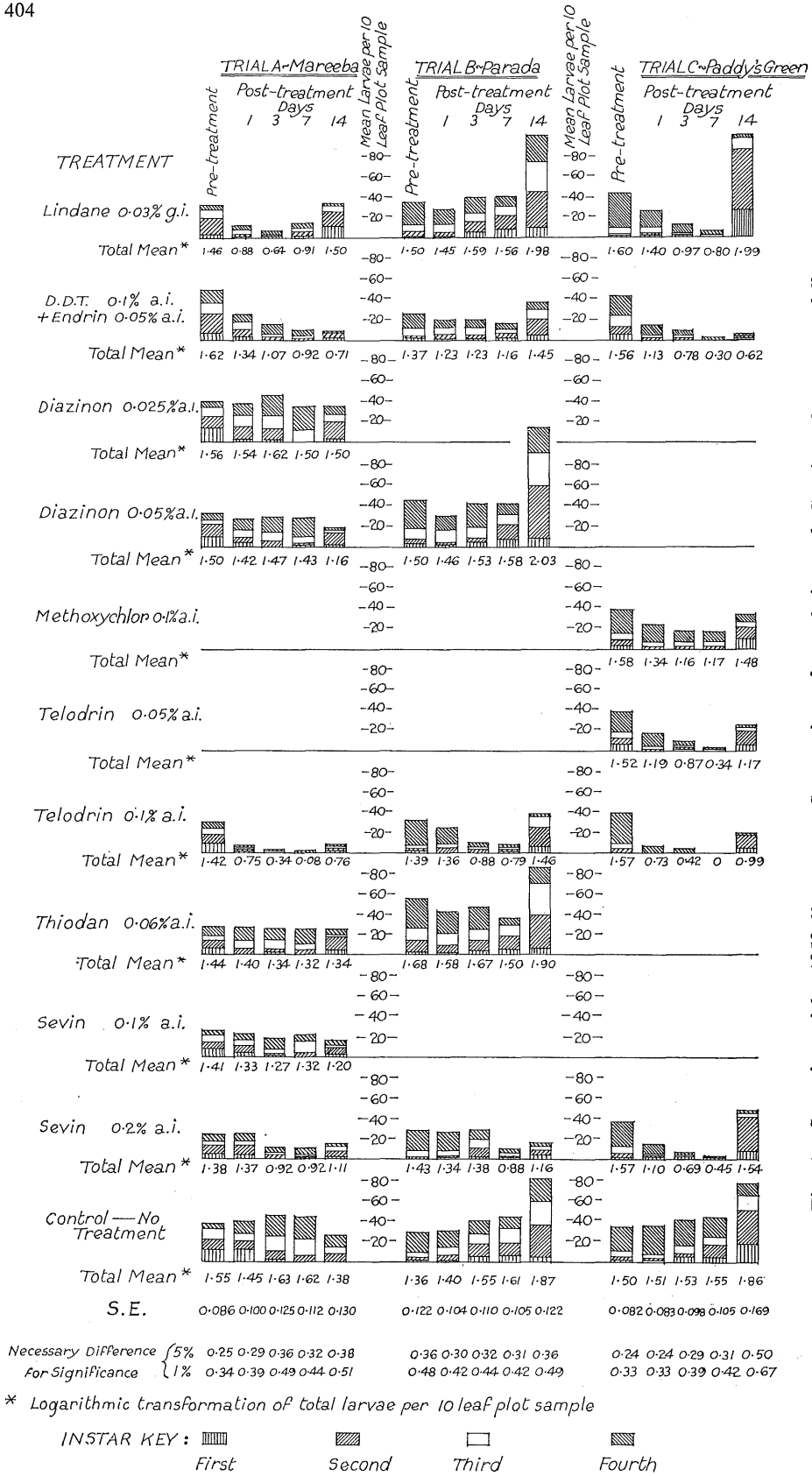


Fig. 1.—Screening trials, 1959-60 season. Suppression of populations of *Gnimoschema operculella*.

Results are represented in Figure 1. "Telodrin" 0.1 per cent. was the most efficacious in killing larvae in all instars and in suppressing established infestations, but did not provide the residual protection afforded by the standard DDT/endrin treatment. A visible residue was associated with the use of the dispersible powder, sevin. These results, and experience which indicated that "Telodrin" can be phytotoxic to young tobacco plants, are the basis for the supplementary recommendation that, as "Telodrin" kills leaf-miner more quickly than standard recommendations, it may be of special value as a spot treatment for leaf-miner should high activity be suspected or evident (Smith and Saunders 1961).

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