

EFFECTIVENESS OF FALLOW-LAND TREATMENT FOR CONTROL OF  
COTTON ROOT-KNOT NEMATODE

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Acreage planted to cotton in 1966 was sharply reduced. Several sandy textured, nematode-infested fields planted to cotton in previous years were fallow-land treated and periodically disked for control of weeds, nematodes, and certain diseases. Accordingly, an experiment was conducted in one field to determine the effectiveness and length of time required for this kind of treatment to control root-knot nematodes.

Sixty-four soil samples were collected from the field at monthly intervals, starting in May and extending through mid-October. Four soil samples were taken from each of four stations and at depths of 0-4, 4-8, 8-12, and 12-16 inches. One Delta Pine Smooth Leaf cotton plant was grown in each soil sample for a period of 3-4 weeks in a constant temperature tank. The plants were harvested and a root-knot index rating was given each plant to determine the extent of infection.

High soil temperatures reduced the nematode population in the surface 4 inches throughout the summer. However, the other three sampling depths had nematodes until mid-October, at which time the populations were effectively reduced at all levels from the soil surface to 16 inches.

This is a satisfactory method for controlling the cotton root-knot nematode provided the grower can justify summer-fallow treatment in certain of his fields.

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NEMATODE CONTROL AND VERTICAL MOVEMENT OF VOLATILE AND  
NON-VOLATILE NEMATOCIDES IN THE SOIL

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Experiments have shown that the commercially available, volatile nematocides satisfactorily control nematodes when used at economical dosage rates on many varieties, but that they are not entirely effective when used with Delta Pine and Pima cotton. While the volatile nematocides reduce the nematode population at the beginning of the season, they soon dissipate and the small percentage of nematodes left in the soil builds up rapidly on Delta Pine and Pima, and causes root damage and reduces yields later in the season.

Field experiments have shown that a non-volatile experimental nematocide (SD 7727) did not dissipate rapidly from the soil, gave yield increases, and reduced root-knot nematode damage over a two-year period. This chemical was carried to a depth of 12-15 inches and was effective against the nematode in bioassay studies 10 months after it was applied.