

SHOOT TO KILL
T.L. Kirkpatrick
University of Arkansas
Southwest Research & Extension Center
Hope, AR

In the mid-South the reniform nematode and the root-knot nematode are economic pests of cotton. Both these species are common inhabitants of cotton fields in the region, although in general, the reniform nematode is more prevalent in the southern states (Mississippi and Louisiana) than in Arkansas and Tennessee. Root-knot is widespread throughout Arkansas and the Missouri bootheel and can be found in areas with sandy soil throughout the entire mid-South region. The most consistent and accurate means of determining if nematodes are present in fields is through soil sampling and nematode assay. Suggested guidelines for sampling procedures and timing of samples are available through county extension service offices in all four states. Nematode assay services are available from any one of several public and private laboratories located in the region, for a nominal fee. Proper sampling and care in handling soil samples for nematode assay are vital to accurately determining the nature and extent of a nematode problem in a particular field and in planning appropriate control strategies. In cotton, two general approaches to nematode management are available. Crop rotation using resistant or non-host crops has been used to a limited extent for nematode management in the mid-South. Where reniform nematodes occur, rotation to corn, grain sorghum, rice, or one of a limited number of resistant soybean cultivars may lower nematode populations and improve yield for a subsequent cotton crop. With root-knot, rice or grain sorghum are the most feasible crops to grow in rotation with cotton for nematode management. Grower experience indicates that the effect of a rotation crop is relatively short-lived, however, and generally only a single year back in cotton is required for nematode populations to rebound to pre-rotation levels. There are currently no reniform or root-knot nematode resistant cultivars that are commercially available for production in the mid-South. By far the most popular management strategy for nematodes is the application of nematicides, and the most widely used nematicide is aldicarb (Temik). A second material which is applied in some areas where nematode problems are extremely severe is 1, 3-dichloropropene (Telone II). Temik is generally applied at rates ranging from 5 to 7 lb per acre in the planting furrow, although under severe infestations, an additional 5 lb per acre applied shortly before pinhead square as a sidedress application has shown significant yield improvement. An additional supplemental foliar treatment with oxamyl (Vydate) relatively early in the growing season has been used by some growers with variable results in nematode damage suppression. In fields with extremely high nematode population densities, preplant soil fumigation with Telone II has been used effectively. Soil fumigation requires specialized equipment and is relatively expensive, but results from four years of trials in Arkansas indicate that lint yields are improved by 10-15% where nematode problems are severe. Nematode control strategies must be developed on a farm-by-farm and even a field-by-field basis with consideration given to the species of nematode present, the severity of the infestation, and the economics and practicality of the tactics that are available.