MANAGING THE RENIFORM NEMATODE WITH NEMATICIDES

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Abstract

The reniform nematode *(Rotylenchulus reniformis*) has been identified in the eleven states that make up the southeast cotton belt. This includes all cotton producing states extending from Texas to North Carolina. In this region more than 11.7 million areas of cotton are produced annually. Texas alone produces more than 5.5 million acres of cotton leaving 6.2 million acres of production in the remaining ten states. Excluding Texas, it has been estimated that 1.2 million or 19% of the remaining acres are infested with the reniform nematode. The highest infestations occur in Georgia, Louisiana, and Mississippi in which this nematode has been identified in 29.6, 55.0, and 32.4 percent of the cotton acreage, respectively. In Texas only 2.7% of the 5.5 million acres are infested. The majority of reniform nematodes occur in the lower Rio Grande Valley, Brazos River Valley and Upper Gulf Coast counties.

Reniform population levels vary across the southeast cotton belt. Fall populations range from 45 per 500 cc of soil in Missouri to greater than 70,000 per 500 cc of soil in Mississippi. Reniform populations averaged 18,400 per 500 cc of soil across the southeast cotton belt. Reniform population levels are then used to establish critical nematode density for which nematode management is recommended.

At present, nematicides are the most widely used method of management for the reniform nematode in southeast cotton production. The nematicides most frequently used are Temik 15G, Telone II, and Vydate C-LV. Temik 15G is used in each state that the reniform populations reach the established critical threshold level. Temik 15G is used as an in-furrow treatment at planting at a rate of 3.5 to 7.0 pounds of formulated produced per acre. Telone II is used in Alabama, Georgia, and Mississippi. Telone II is injected at least 14 inches deep into the soil prior to planting at 3.0 gallons per acre. Vydate C-LV is applied for reniform management in Louisiana, Mississippi, and Texas. Vydate C-LV is applied at 8.5 to 17.0 fluid ounces as a foliar spray when cotton is at the pin-head square growth stage and a second application seven to fourteen days later.

Tests conducted across the southeast cotton belt using Temik 15G, Telone II and Vydate C-LV have resulted in a positive effect on cotton plant growth and yields. Results from each nematicide vary from state to state, however, when tests are averaged the actual benefits can be determined. In tests conducted with Telone II at 3.0 gallon per acre average seed cotton yields were improved 316 pounds per acre over the untreated control. Temik 15G over all rates averaged an increase of 270 pounds of seed cotton per acre compared with the untreated control. Two applications of Vydate C-LV in combination with an at-planting application of Temik 15G (3.5 lb/a) provided an average of 396 pounds of seed cotton per acre compared with an untreated control.

In addition to plant growth benefits, Temik 15G, Telone II and Vydate C-LV have been shown to reduce reniform population development. Tests established to follow reniform development across the growing season have resulted in fewer reniform numbers in the nematicide treated plots compared with the control.

Cotton production in the Southeast is currently dependent on the use of nematicides for the management of the reniform nematode. Until other management tactics are available, nematicides will continue to provide the cotton producers with an effective, although variable, means of reniform nematode management.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 1:100-101 (1999)
National Cotton Council, Memphis TN