SEED TREATMENT NEMATICIDES AGAINST ROOT-KNOT NEMATODE IN NORTHEAST LOUISIANA

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Abstract

Seed treatment nematicides are extensively used in Louisiana now. Temik 15G has been the producer standard in the past. Comparisons of Avicta Complete Cotton and Temik 15G are necessary across a range of soil types and population levels. This study was conducted in a field with three soil types including a Rilla silt Loam, Hebert silt Loam, and Portland silt. Root-knot nematode populations were low-moderate at the beginning of the test and increased across all treatments at mid-season and harvest. Wet weather during harvest prevented the collection of yield. Producers should know about both nematode populations and damage potential when choosing which nematicide to use.

Introduction

Northeast Louisiana is where the majority of cotton production occurs in our state. Both the Southern root-knot nematode and reniform nematode are extremely common in many fields. Reniform nematode has become the dominant nematode in many areas but may still occur with the Southern root-knot in the same field. In a number of areas, root-knot still remains the primary nematode of concern. The use of seed treatments for nematode management has become widely accepted in Louisiana. Seed treatment nematicides currently include Avicta Complete Cotton and Aeris seed-applied insecticide/nematicide. Both nematicides are intended for use when nematode populations are low-moderate. Figure 1 shows some examples of different levels of nematode damage that are experienced in Northeast Louisiana. Low populations of nematodes may be difficult to recognize and may not cause serious losses. High populations of nematodes in certain soil types can lead to extensive damage. It is important to evaluate these nematicides in a number of different soils and nematode population levels in Northeast Louisiana and compare them against Temik 15G which has been a producer standard for the past 20 years.

Materials and Methods

A nematicide trial was planted on May 1, 2009 to evaluate a seed treatment nematicide (Avicta) against either Temik 15G at 3.5 or 4.0 lb/a. The test field was located in Ouachita Parish in a field that is composed of three different soil types. Although none of the soil types are widespread in Louisiana, they are present in Northeast Louisiana. The seed treatment nematicide was on the seed and both rates of Temik applied in the furrow. The cotton variety was Phytogen 375WRF. The treatments were replicated four times and ran the entire length of the field. Nematode samples were collected at-planting, mid-season, and after harvest. After planting heavy rainfall was recorded and got the plants off to a rough start. Severe drought was observed during the growing season. Unfortunately, the fall was very wet and the test could not be harvested for plot weights.

Results and Discussion

The field that was selected for this study during 2009 has had a history of light nematode problems. The Southern root-knot nematode is the major nematode pest in this field. The field has three different soil types present including a Hebert silt loam, Rilla silt loam, and Portland silt (Figure 1). The Rilla silt loam is a well-drained soil that has been found to be seriously injured by either of the two major nematode pests of cotton. Populations of the Southern root-knot nematode started off in what would normally be considered to be in the low to moderate range at the time of planting. However, the mid-season counts were very high with all three treatments. Populations had declined after harvest but still remained relatively high. There were no significant differences with nematode populations at any of the sampling times. There was very little visual difference observed across the treatments during the growing season. There were a few spots in the field that were showing some stunting of plants but seemed to be irrespective

of treatments. Although the test was planned on being harvested using a weigh wagon, heavy rainfall in the fall reduced the amount of time for the harvest season. We did not want to slow the producer down during the limited time he had to harvest cotton. We did not visually see much of a difference in plant growth, boll load, or opening.

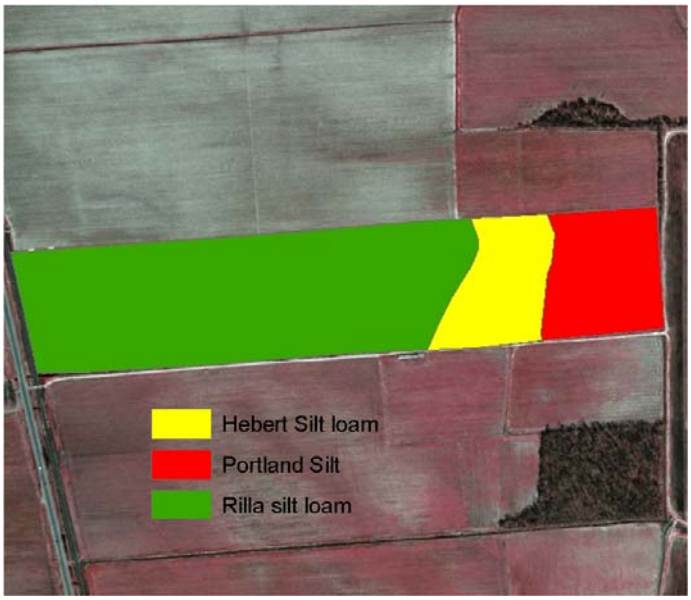

Figure 1. The test field is composed of three different soil types with a Rilla silt loam being the dominant soil in this field.

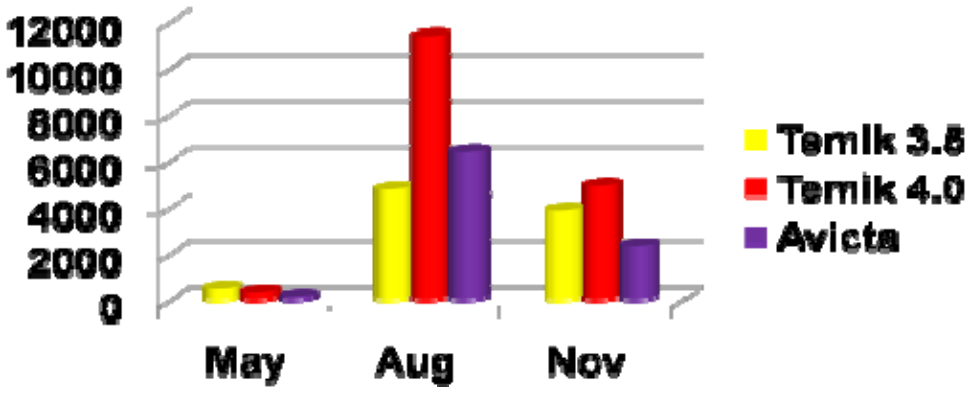

Figure 2. Population levels of the Southern root-knot nematode throughout the growing season at three sampling times during 2009.

Summary

The nematode population present in this field at the beginning of the growing season and the fact that it has not had a history of serious nematode issues makes fields like these good candidates for using seed treatment nematicides. Although population levels increased on either Temik 15G or Avicta later in the growing season, no significant differences were observed among treatments. Fields that have had a history of serious nematode problems may require a different management plan than seed treatment nematicides or low rates of Temik 15G applied at the time of planting. Producers should have a good idea of damage potential from nematodes before choosing which nematicide to use in their fields.