Final Project Report
Spatial Variability of Reniform Nematodes
#04-474 AL

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Objectives:

The objectives of this project are to evaluate the spatial distribution of reniform nematodes (R. reniformis) within a field and to determine the effect spatial distribution has on yield. We also want to evaluate the potential for variable rate nematacide treatments.

Introduction:

Reniform nematodes have been reducing cotton yields in North Alabama for over ten years and are now beginning to spread to new areas. The reniform nematode has also plagued areas of South Alabama. The reniform nematode is capable of reducing cotton yields up to 60 percent. Nematacides are an expensive input for cotton producers. Depending on the amount of variability within a field, variable rate treatments could become feasible and hopefully reduce nematacide costs for producers.

Materials and Methods:

A producer cooperator was selected based on the following criteria: reniform nematodes were present on the farm and producer had a cotton yield monitor. A forty acre area of the field was selected for sampling. Nematode and soil test samples were taken on one acre grids 30 to 60 days after planting. After harvest, nematode samples were collected for a second time using the same one-acre grids.

Results and Discussion

During the early summer sampling, nematode populations ranged from 464-11,610 nematodes/150 cc soil (Figure 1). Nematode populations during the fall sampling ranged from 206 – 2,781 nematodes/150 cc soil (Figure 2). This data raises another important question: when is the best time to sample for reniform nematodes? Although both samplings indicate a population that will require treatment, the spring population numbers were much higher than the fall population numbers. Nematodes may have moved deeper in the soil during the dry weather of the fall, leading to lower populations during sampling.

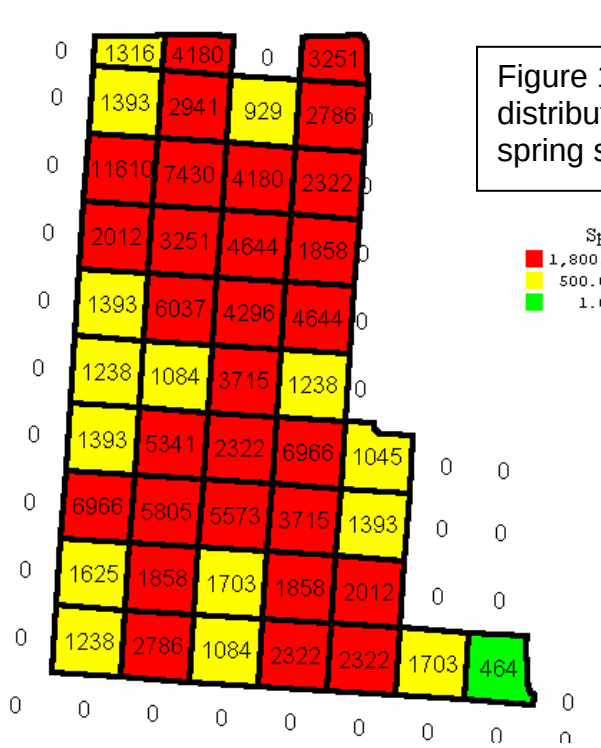

Figure 1. Nematode distribution during spring sampling.

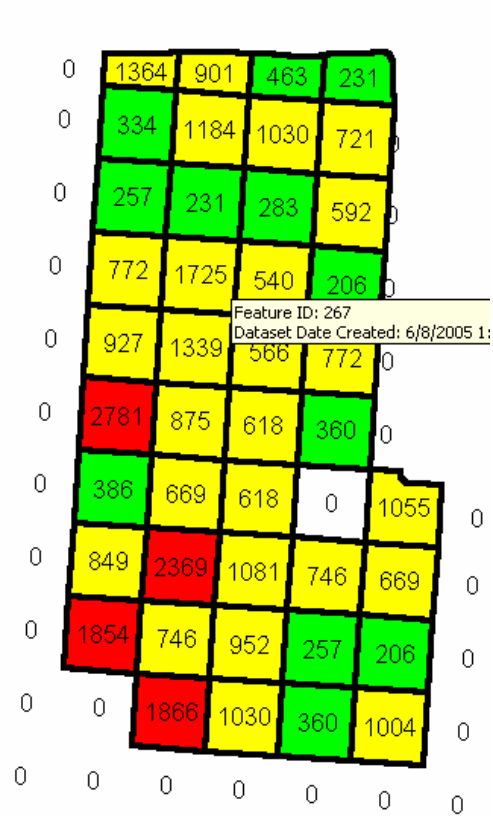

Figure 2. Nematode distribution during fall sampling.