

# Site-Specific Detection Of Root-Knot Nematodes in Cotton Fields

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**R**oot-knot nematodes (RKN) are present in many cotton fields in Northeast Arkansas and Missouri, and they reduce yields in some of these fields. Farmers have tolerated this yield loss because they have very few weapons to protect their crop from these yield robbing nematodes. There are no varieties resistant to RKN, and crop rotation, planting cover crops, and different tillage practices are not helpful for managing these nematodes. Nematicides such as Temik, Avicta, Aeris, and Telone are currently the only effective weapons available to farmers in their fight against these nematodes.

There is a problem with application of these nematicides; most farmers uniformly apply them over an entire field, but root-knot nematodes are not uniformly distributed within most fields. For example, we recently surveyed several southeast Missouri cotton fields and determined that RKN was present and was scattered in each field. Ninety percent of each field had no RKN. So, farmers waste money when they apply nematicides to areas of a field not infested with these nematodes. They could save some money if nematicides were only applied to sites where RKN was present, but the technology to do this site-specific application is currently very expensive. The equipment for this is expensive, and the costs are also high for developing maps of RKN distribution in fields for site-specific application

of these nematicides.

Cotton farmers need a reliable, inexpensive, and easy to use method for mapping root-knot nematode distribution in cotton fields for site-specific application of nematicides. We determined that these maps can be developed through nematode analysis of soil samples collected on a 0.25-acre grid. This method is somewhat reliable method for predicting RKN location, but it is very expensive, \$88/acre, and the maps are only useful for one year. There is an alternative method for mapping RKN distribution. We recently determined that rating post harvest cotton roots for RKN galls on a 0.25-acre grid was more accurate for predicting RKN location than soil analysis for nematodes, and it was less expensive, \$16/Acre. In addition, our results show that the map based on root gall severity could be used for two years to guide site-specific application of nematicides for RKN management, so the cost for developing a RKN distribution map this way could be spread over 2 years.

We are currently investigation other methods for mapping RKN distribution in cotton fields. We have not yet completed our research to determine if remote images of cotton growth and/or measurement of soil electrical conductivity with a devise manufactured by Veris are as useful for prediction RKN distribution as assessment of RKN caused root gall severity. Δ

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