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 **MANA**
Crop Protection

MAKES SENSE.

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2000 midseason



2000 late season



M. incognita juveniles
/ 100cm³ of soil

< 100
100-300
300-500
>500

PHOTO BY BRADIA ORTIZ

ZONE IN ON NEMATODES: The zones in this cotton field in Colquitt County, Ga., were determined based largely upon the conductivity of the soil. Higher soil conductivity and lower nematode populations were found in MZ 1; lower soil conductivity and higher nematode populations were found in MZ 3.

New tactic, old pest



From the Turnrow

By BOB KEMERAIT

Key Points

- Fumigation is the most effective treatment to kill nematodes.
- Seed and soil treatments are cheaper and more convenient than fumigation.
- Variable-rate application makes fumigation effective and economical.

WHETHER because of stunted cotton, dropping yields, slick advertisements or the distant drone of the Avicta Complete Cotton blimp, growers know their crop is at risk to an unseen foe: the nematode.

Southern root knot, reniform, Columbia lance and sting nematodes cause damage to root systems that translates into poor growth, premature cutout and yield loss. Significant losses in a field often occur because of:

- inadequate crop rotation with non-host crops or resistant varieties
- failure to use an appropriate nematicide, poor application, or use of an inadequate rate

Nematicides can't completely overcome the negative impact of poor rotation; however, effective use of nematicides may be the best hope to achieve the highest possible yields.

The availability of nematicidal seed treatments has sparked tremendous interest and spirited debate over the merits and efficacy of products such as Avicta Complete Cotton, AERIS Seed-Applied System and Temik 15G. However, one very effective nematicide, Telone II, seems to have been kept on the sidelines. Growers recognize that fumigation with Telone II is likely the most effective treatment in fields with the highest levels of plant parasitic nematodes. However, some growers who could benefit from Telone II continue to see this product as too expensive for their production budget.

Researchers at Louisiana State University, Clemson University, the University of Arkansas, and now the University of Georgia are making progress in an effort that should rekindle interest and excitement in Telone II.

Most cotton growers who use Telone II will treat the entire field with a single rate to achieve the benefits and significant yield increases from fumigation. However, growers often suspect that some parts of the field need more nematicide while other parts of the field need much less, if any, nematicide. Growers would be more enthusiastic about use

of a top product like Telone II if they could accurately target specific areas that warranted fumigation.

Southern root knot nematodes are most numerous in the sandiest areas of a field; the population tends to decline as the clay content in the soil increases. If growers could accurately map the soil types within a field and confirm that nematodes were distributed according to soil types, then they should be able to target high-risk regions for fumigation. Such a strategy would ensure effective control of nematodes across the field while minimizing costs.

University researchers use "Veris rigs" to measure soil electrical conductivity. Sandier soils, with larger soil particles, will have a lower conductivity than will loamier soils with smaller particles. Differences in soil conductivity can be mapped and used as a guide for intensive nematode sampling and for identifying zones at greatest risk to losses from nematodes.

Brenda Ortiz, a doctoral student at the University of Georgia, developed the maps and management zones (1-3) presented in this article based largely upon soil conductivity within a cotton field in Colquitt County, Ga. From soil samples collected to determine nematode populations, it is clear that the most damaging populations of Southern root knot nematodes are found in Zone 3 (lower soil conductivity) and the smallest populations are found in Zone 1 (higher conductivity). Research confirmed that the greatest economic advantage to Telone II over Temik 15G was found in Zone 3.

As the relationship among soil conductivity, damage from nematodes and effects on yield continues to be studied, cotton growers will gain a new and promising strategy to effectively manage nematodes, maximize yields and minimize production costs.

Kemerait is an Extension plant pathologist for the University of Georgia. Brenda Ortiz contributed to this article.