Plant Path

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7. Title

Site-Specific Management of Southern Root-knot and Reniform Nematodes in Cotton

12. Investigator Name(s) (Last Name and Initials)

Overstreet, C.

20. Termination Date 12/31/2014

40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011

Outputs:

The information generated by this project was disseminated in 2011 through six presentations at national and international meetings and seven workshops, field days, or production meetings. Specific outputs include zone management delineation techniques that can be utilized for nematode management. Nematicide recommendations over changing soil textures have been identified through the use of soil electrical conductivity measurements.

Outcomes/Impacts:

Site-specific application of nematicides and their application were evaluated for management of plant-parasitic nematodes in cotton. Management zones were defined by the use of apparent electrical conductivity (EC) in Louisiana soils. The use of EC has been an excellent surrogate for measuring soil texture. Fields can be divided into a number of zones based on either the shallow or deep reading obtained from EC. Nematicide efficacy was greater in soils with higher percentages of sand through the soil profile than soils with less sand or a higher clay percent. These changes in soil texture have been best identified with the use of the deep EC readings at a depth of one meter beneath the soil surface. The soil fumigant Telone (1, 3-dichloropropene) was effective across a range of EC readings while the seed treatment nematicides appear to more effective as EC readings are increasing. Fertility studies combined with nematicides indicated that there may be some influence of nutrients on nematicide responses. The greatest responses in these fertility studies appeared to be from the nematicide. These findings indicated that the use of site-specific technology could be utilized by producers to better manage nematode problems in cotton as well as other crops in Louisiana. The variable soil textures found in most Louisiana soils could easily be characterized by the use of EC information. Nematicides could be applied to the specific areas within a field and would the most costs effective and efficacious use of these pesticides.

Publications:

Barbosa, R. N. and C. Overstreet. 2011. What is soil electrical conductivity? LSU AgCenter Pub. 3185, p. 4.

Overstreet, C. 2011. Management strategies and zone creation for site-specific application of nematicides in fields with multiple nematode pests. Fourteenth Annual National Conservation Systems Cotton & Rice Conference Proceedings, pp. 10-11.

Overstreet, C. and T. Kirkpatrick. 2011. Managing nematodes in the mid-South without Temik. 2011. Beltwide Cotton Conference Proceedings, p. 216.

Overstreet, C., R. Barbosa, D. Burns, R. L. Frazier, E. C. McGawley, G. B. Padgett, and M. C. Wolcott. 2011. Using electrical conductivity to determine nematode management zones in alluvial soils of the mid-South. Beltwide Cotton Proceedings, pp. 252-258.

Overstreet, C. 2011. Crop rotation against the Southern root-knot and reniform nematodes. Louisiana Crops Newsletter Vol. 2 Issue 2:3-4.

Overstreet, C. 2011. Managing nematodes in cotton for 2011. Louisiana Crops Newsletter Vol. 2 Issue 3:5-7.

Overstreet, C. 2011. Nematode problems in cotton. Louisiana Crops Newsletter Vol. 2 Issue 6:4-5.

Overstreet, C. 2011. Assessing nematode damage to cotton during 2011. Louisiana Crops Newsletter Vol. 2, Issue 10:10-11.

Overstreet, C. 2011. Soil sampling for nematodes. Louisiana Crops Newsletter Vol. 2, Issue 11:7-8.

Participants:

C. Overstreet (PI), E.C. McGawley, G.B. Padgett, R. Barbosa, D. Burns, R.L. Frazier, D.M. Xavier, M. Kularathna, C.M. Martin, LSU AgCenter; L. Domingues de Figueiredo, Brazil.

Target Audiences:

Other researchers, specialists, county agents, consultants, and producers.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date