Plant Path

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1. Accession	Agency Identification No.	5. Work Unit/Project No.	6. Status
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7. Title

Identification, Biology, and Management of Agriculturally Important Plant Parasitic Nematodes

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

McGawley, E. C.

20. Termination Date 09/30/2014

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

Outputs:

A graduate level course was taught in Plant Nematology with 11 students and served as major professor for one student conducting a survey of nematodes associated with residential turf ecosystems. I also served as a committee member for four graduate students (one as major advisor) conducting research with nematodes important in Lousiana agriculture. A keynote presentation was delivered at the annual meeting of Society of Nematologists during a visit to the Terrestrial Microbial Ecology laboratory of the Division of Environmental Science and Technology at Kyoto University in Japan. Services with a small company, CAI, in North Carolina supported registration thru an IR-4 Project of a promising new material (Agri-Trap) for the management of plant parasitic nematodes. A major section on "Molecular Diagnostics" was added to an on-line multimedia production entitled, "Introduction to Nematodes." Collaboration with Japanese scientists has helped to establish a screening method to detect reniform nematode in soybean and to quantify virulence phenotypes.

Outcomes/Impacts:

Field research evaluated the efficacy of eight new nematicide seed-treatments against root-knot nematode. Microplot and greenhouse-based experiments evaluated genetically modified soybean for resistance to soybean cyst and reniform nematodes, respectively. Seed treatment evaluation studies have shown that only two materials are effective against the most common species of root-knot nematode, Meloidogyne incognita, found in Louisiana. Results of microplot and greenhouse studies with the genetically modified soybean events, products of Bayer CropScience, are very encouraging and showed that these modified genotypes do inhibit cyst and reniform nematode reproduction via an introduced protein secreted by the root systems. If commercialized, such introductions will allow for production in nematode infested fields with minimal if any nematicide usage. Results of these studies have identified promising new materials for the management of root knot nematode and evaluated genetically modified soybean plants to withstand parasitism by the soybean cyst and reniform nematodes.

Publications:

McGawley, E. C., C. Overstreet and M. J. Pontif. 2011. Variation in reproduction and pathogenicity of geographic isolates of Rotylenchulus reniformis on soybean. Nematropica 41:12-22.

Participants:

E.C. McGawley (PI), LSU AgCenter.

Target Audiences:

Nematologists, plant protection practitioners, and agric. industries.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
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