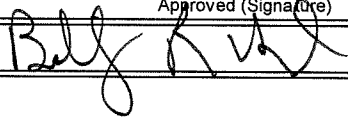


Plant Path

| U.S. Department of Agriculture Accomplishments Report AD-421 U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions | | | Date (Month, Day, Year) 03/23/2012 | |
|--|--|---|---------------------------------------|--|
| 1. Accession 0221563 | Agency Identification No. 2. NIFA 3. LA.B | 5. Work Unit/Project No. LAB94034 | 6. Status Annual Report | |
| 7. Title Improved management of plant-parasitic nematodes through modern diagnostic tools and increased use of host resistance | | | | |
| 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: Research data has documented reproductive and pathological differences in populations of reniform nematode for the first time in America. The same was true for our 2010 research with this nematode on cotton. Collaborative work by members of the (S-1046) regional project adds a significant molecular contribution to this research. A keynote presentation was delivered at the annual meeting of Society of Nematologists in Corvallis, Utah. A one month duration visit was made to the Terrestrial Microbial Ecology laboratory of the Division of Environmental Science and Technology at Kyoto University in Japan to evaluate the occurrence of reniform nematode on soybean. The trip to Japan was to consult, counsel and establish research links with nematologists in Japan. Five seminars were presented in Japan during my four week visit, introduced my "Introduction to Nematodes" presentation. This presentation has been translated in Japanese and posted on American nematology websites. | | | | |
| Outcomes/Impacts: During this period, I visited soybean and cotton fields at 11 locations in Louisiana and collected isolates of <i>Rotylenchulus reniformis</i> for use in ongoing studies of variation in reproduction and pathogenicity. As a group effort among members of Regional Research Project S-1046, individual mature females of this nematode have been dissected from plant roots and frozen at -80 degrees C in 1 M NaCl. Samples of frozen reniform nematode females from each state have been shipped to a USDA-ARS facility in Stoneville, MS. Sally Stetina and her colleagues extracted and amplified the DNA from geographic isolates of the nematode using a commercial kit (Genome Plex single-cell whole-genome amplification kit WGA4 from Sigma-Aldrich, St. Louis, MO). Microsatellite-enriched libraries have already developed for the nematode and have shown 192 simple sequence repeats (SSR). These SSR markers will be useful in evaluating the possible connection, if any, between these markers and the level of pathogenicity among populations in America and aid help in detecting the origin and spread of the nematode. Plant breeders can use information on variability in reniform populations to produce sustainable reniform nematode-resistant germplasm in both soybean and cotton. | | | | |
| Publications: McGawley, E.C., C. Overstreet and M.J. Pontif. 2011. Variation in reproduction and pathogenicity isolates of <i>Rotylenchulus reniformis</i> on soybean. <i>Nematotropa</i> 41:12-22. | | | | |
| Participants: E.C. McGawley (PI), LSU AgCenter; Members of Southern Regional Research Project S-1046 including Agudelo (Clemson), Chen (Minnesota), Davis and Timper (Georgia), Bernard (Tennessee), Robbins and Kirkpatrick (Arkansas), Koenning (North Carolina), Lawrence and Stetina (Mississippi), Nguyen (Missouri), Starr (Texas), Dickson (Florida) and Eisenback (Virginia). | | | | |
| Target Audiences: Nematologists, Plant Protection Professionals, and Plant Breeders. | | | | |
| Project Modifications: Nothing significant to report during this reporting period. | | | | |
| Approved (Signature)  | | Title | Date | |
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