Terry Niblack

Project Title

Charcoal Rot and Soybean Cyst Nematode Interactions

Biography

Dr. Terry Niblack received her BS and MS degrees from the University of Tennessee, and her PhD in Plant Pathology from the University of Georgia. Following a two-year postdoc at Iowa State University, she joined the faculty at the University of Missouri at Columbia as an Assistant Professor. She remained at the University of Missouri for 13 years, rising to the level of full Professor before moving to the University of Illinois Urbana-Champaign, where she worked for an additional 10 years. In 2011, Dr. Niblack joined the Plant Pathology Department at The Ohio State University to serve as Chair. Her research has greatly improved the understanding of hatching behavior, dormancy, and overwintering in eggs of SCN, as well as environmental factors influencing sex ratio. Her numerous studies with resistant soybeans and their effect on SCN populations have led to more informed recommendations for deployment of resistance for managing SCN. She has authored at least 59 extension publications (not including short bulletins) and has published three web guides on SCN management. In addition to being named a Fellow of the Society of Nematologists, she has received many honors and awards for her work on soybean, including the Wyffels Award for Faculty Excellence, the Illinois Soybean Association Excellence in Soybean Research Award, and the United Soybean Board Outstanding Achievement Award.

Project Description

Current research for the OSC: 1) The fungus that causes charcoal rot of soybean (CR) and the soybean cyst nematode (SCN) are both soil-borne pathogens, but almost nothing is known about how they interact in the field. In collaboration with Dr. Anne Dorrance, Dr. Niblack conducted field trials on cooperators' fields in Pike and Brown counties, and highly controlled studies in the greenhouse and in the field at the Waterman Farm in Columbus and the Western Research station near South Charleston, Ohio. The research will be used to develop management recommendations for CR and SCN for use in Ohio. The studies will have an impact on future soybean profitability in Ohio. 2) Several companies are marketing or developing biological control organisms for use by farmers to manage SCN. SCN, however, has a built-in defense mechanism against such organisms. It's called the gelatinous matrix (GM), which females produce to protect eggs that are not encased in the cyst. The GM has remarkable antimicrobial properties, which may limit the effectiveness of biological control agents over time. She is studying the biochemistry of the GM to understand what it is and what it does, and find ways to

overcome its protective effects. 3) She is collaborating with Dr. Laura Lindsey and Dr. Chris Taylor. They are quantifying the SCN in field samples collected by Dr. Lindsey and her team, and determining the HG Type of SCN populations in the field. So far, they've found that 80% of the samples collected were infested with SCN and that most SCN populations in Ohio are HG Type 2 - which means that they will attack the most common resistant varieties.

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