**SON Annual Meeting Sample Abstract**

Resiliency of a Nematode Community and Suppressive Service to Tillage and Nematicide Application.  **Timper, Patricia1, R.F. Davis1, and G. B. Jagdale2.** 1USDA ARS, P.O. Box 748, Tifton, GA 31793, 2Plant Pathology Dept., University of Georgia, Athens, GA 30602.

We hypothesized that populations of predatory and omnivorous nematodes would be slower to recover from conventional tillage and nematicide application than other nematode trophic groups, and that lower populations of predators and omnivores would lead to greater survival and reproduction of plant-feeding nematodes (i.e., pest resurgence). A field study was conducted from 2008-2010 with two tillage regimes (strip and conventional) and two nematicide treatments (the fumigant1,3-dichloropropene and a no-nematicide control) with six replications. Soil samples were collected pre-fumigation, post plant, and mid season during each year. Tillage had little impact on the nematode community, but 1,3-D reduced numbers of all trophic groups compared to the control at post plant and mid season. Omnivores and predators were not severely impacted by the nematicide treatment; populations of both groups repeatedly recovered by the following spring from the yearly application of 1.3-D, with the exception of predators in 2008. We used two bioassays to measure the suppressive service of the soil community: one determined survival of the reniform nematode (*Rotylenchulus reniformis*) and the other reproduction of *Meloidogyne arenaria* on peanut. Survival of *R. reniformis* was greater in defaunated compared to native soil indicating that the soil contained organisms that consumed nematodes. Application of 1,3-D led to an increase in survival of the *R. reniformis* from 53% in the control to 78% in treated plots at post plant, and from 55% in the control plots to 66% in treated plots at mid season. Likewise, reproduction of *M. arenaria* was greater in soil treated with the nematicide. At post plant, survival (%) of *R. reniformis* was negatively correlated with abundance of predators + omnivores. Organisms other than nematodes were likely involved in the suppressive service. This was particularly evident at pre-fumigation, when survival of *R. reniformis* was lower in plots previously treated with 1,3-D than in control plots. The nematicide may have altered the soil community to allow a fungal, bacterial, or invertebrate antagonist of nematodes to increase in abundance.