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The soybean cyst nematode (Heterodera glycines Ichinohe) (SCN) is distributed throughout soybean production regions of the United States and is of major economic importance. To assess the impact on yield of planting SCN-resistant and susceptible soybean cultivars in SCN-infested or -noninfested fields on soybean yield, research sites were established in 1994 and 1995 in 63 fields that were either SCN-infested or noninfested in 10 states in the north central USA. Eight SCN-resistant and eight SCN-susceptible public soybean cultivars representing maturity groups (MG) I to IV were planted at each site. Soil samples were taken at planting to determine initial nematode population density, SCN race, and soil classification. Soybean yields ranged from 658 to 3840 kg/ha overall. SCN-resistant cultivars yielded more than susceptibles in SCN-infested sites but not at noninfested sites. Highly significant interactions were measured among initial nematode population, cultivar, and location. Owing to the significance of location, no region-wide predictive equations could be developed for yield loss based on initial nematode population densities in the soil. Yield loss due to SCN was confounded by other stress factors which included temperature and moisture extremes.

TROPHIC CASCADES AND NON-TARGET EFFECTS OF AUGMENTING ENTOMOPATHOGENIC NEMATODE COMMUNITIES. **Duncan, L. W.,[1] J. H. Graham,[1] F. El-Borai,[1] and D. L. Porazinska.[2]** University of Florida, IFAS, [1]Citrus Research and Education Center, Lake Alfred, FL 33850, and [2]3205 College Ave., Fort Lauderdale, FL 33314-7799.

Augmentative biological control is employed to increase the mortality of a pest by temporarily increasing the numbers of a biocontrol agent beyond its equilibrium density. Implicit in this tactic is the expectation that numbers of the biocontrol agent will eventually decline to the equilibrium state, due in part to the effects of natural enemies. Trophic cascades resulting from EPN augmentation could affect pest control variously, depending on the strength of specific density dependent responses in the food web. Two weeks after augmenting the entomopathogenic nematodes (EPN) beneath citrus trees to control soilborne larvae of the weevil *Diaprepes abbreviatus*, there were significant increases in mortality of sentinel weevil larvae, prevalence of the nematophagous fungi *Arthrobotrys* sp. and *Dactylaria* sp., and prevalence of free-living bactivorous nematodes in cadavers of sentinel weevils. Six weeks following EPN augmentation, significantly fewer sentinel weevil larvae died in augmented compared to non-augmented plots. Application of composted manure as a mulch layer beneath trees decreased the prevalence of nematophagous fungi, increased the prevalence of endemic EPN, and increased the mortality of sentinel weevil larvae. In the laboratory, addition of *S. riobrave* to soil from the orchard increased the mortality of both *S. riobrave* and *S. diaprepesi* that were added to the soil seven days later. At the end of two weeks, greater numbers of nematophagous fungi and fewer EPN remained in soil that was augmented at the beginning of weeks one and two, than in soil that was augmented only in week two. These effects did not occur in soil that was air-dried to disrupt fungal activity prior to the experiment. *Heterorhabditis zealandica* was significantly less affected by pre-augmentation than were the steinernematid species. Apparently, effects of the post-application biology of EPN on biological control can be modulated in important ways by selecting appropriate species and cultural practices.

COLONIZATION OF PINE BOLTS, CANTS, SLABS, AND BOARDS WITH BARK BY *BURSAPHELENCHUS XYLOPHILUS* AND ITS *MONOCHAMUS* VECTORS. **Dwinell, L. D.** Southern Research Station, USDA Forest Service, Athens, GA 30602.

Wood packing material (pallets, packing cases, dunnage, etc.) (WPM) is a pathway for the introduction of invasive pests. The International Plant Protection Convention's ISPM-15 guidelines for treatment of WPM do not require treated wood to be bark-free. Some IPPC members, however, have unilaterally moved to include a bark-free requirement for WPM. The primary objective of this study was to determine if pine sawyers (*Monochamus* spp.) and the pinewood nematode (*Bursaphelenchus xylophilus*) (PWN) colonize heat-treated loblolly pine (*Pinus taeda*) slabs with surface bark and boards with edge bark. A second objective was to determine if these pests colonize heat-treated pine bolts. The experiment was established on October 1, 2004. Loblolly pines were felled and immediately sawn into 20 bolts, 6 cants, 32 boards and 32 slabs. Half of the bolts, slabs and boards were heated in an 85°C oven to a core wood temperature of 60°C. The samples were placed outdoors on two concrete pads for six weeks and then moved into a greenhouse. Colonization of the samples by pine sawyers and nematodes was assessed after 3 months. Pine sawyers and the PWN colonized all of the heat-treated and control bolts. *Pissodes nemorensis* (deodar weevil) colonized the control bolts, but not those that had been heat-treated. Some 6.25% of the slabs were attacked by sawyers and colonized by the PWN (one heat-treated and one control). The cants and boards with edge bark were not colonized by pine sawyers and/or the PWN. This study confirms that heat-treating fresh logs to a core temperature of 60°C does not prevent their colonization by pine sawyers and the PWN. Results of this study