

RESPONSE OF SOYBEAN CYST NEMATODE TO ANNUAL RYEGRASS, PURPLE DEADNETTLE, AND SOYBEAN COMBINATIONS. Valerie A. Mock*, J. Earl Creech, and William G. Johnson, Graduate Research Assistant, Graduate Research Assistant, and Associate Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907-2054.

In the Eastern Corn-Belt soybean cyst nematode (SCN) has become an increasing problem in soybean fields. Annual ryegrass (*Lolium multiflorum*) and SCN-resistant soybeans (*Glycine max*) are non-host species to SCN and are known to reduce the population density. SCN-susceptible soybean and the winter annual weed purple deadnettle (*Lamium purpureum*) are known hosts of SCN. The objective of this greenhouse experiment was to evaluate the influence of mixtures of these plant species on plant growth and SCN population density. This experiment was a factorial arrangement of three plant species, purple deadnettle, annual ryegrass, SCN-susceptible, and SCN resistant soybean. Each plant was present at two levels, one or zero per pot. Seeds were planted into one liter pots and allowed two weeks of growth to establish roots. Each pot was then inoculated with 10,000 SCN eggs, fertilized weekly, and watered when needed. Eight weeks after the experiment was initiated, the above ground dry matter was recorded. Roots were harvested to enumerate SCN cysts and eggs as well as root dry weight. The highest SCN egg and cyst counts occurred on purple deadnettle growing with SCN-susceptible soybean and purple deadnettle alone. The lowest counts occurred with the mixture of SCN-resistant soybean, annual ryegrass, and purple deadnettle. Annual ryegrass and SCN-resistant soybean were successful in reducing SCN population density. Total dry foliage weight was reduced when either soybean variety was combined with purple deadnettle. Dry root weight was highest in pots that contained annual ryegrass and lowest in pots with purple deadnettle alone. In pots that had only purple deadnettle or SCN-susceptible soybean, the purple deadnettle had the highest SCN per gram root dry weight. Purple deadnettle had a SCN egg density per gram of root dry of 170 eggs per gram of root, and the SCN-susceptible soybean had 42 eggs per gram of root.