

A SURVEY OF WINTER ANNUAL WEEDS AND EARLY-SEASON PESTS IN MICHIGAN NO-TILL SOYBEAN. Kelly A. Barnett*, Christy L. Sprague, Christina D. DiFonzo, and Fred W. Warner, Graduate Student, Associate Professor, Department of Crop and Soil Sciences, Professor, Nematode Diagnostician, Department of Entomology, Michigan State University, East Lansing, MI 48824.

Winter annual weeds and early-season pests have become more prevalent in Michigan soybean fields due to the increase in reduced- and no-till systems. Control of winter annual weeds may be crucial to reducing early-season pests. In May 2008, a survey was conducted to determine what early-season pests of soybean may be associated with winter annual weeds present in no-till fields. Fifty-five fields were sampled in the main soybean producing regions of Michigan. Nineteen fields were sampled in the lower two tiers of counties (South), 17 fields were sampled in the next two tiers of counties (Central), and 19 fields were sampled in the next two tiers of counties (North). Fields sampled were selected based on the presence of no-till corn stubble and winter annual weeds. In each field, six soil core samples were taken with a 10-cm diameter golf-cup core cutter to a depth of 15-cm. Winter annual weeds were identified and root samples from each winter annual were analyzed for soybean cyst and lesion nematode using the root shake method. This method quantifies cyst nematodes in the J2 (juvenile) stage. Soil samples were analyzed for nematode communities and insects including grubs. Of the weeds sampled, 44% were common chickweed, 21% purple deadnettle, 12% shepherd's-purse, 7% field pennycress, 5% henbit, 3% purslane speedwell, 3% yellow rocket, 3% dandelion, 1% horseweed, and 1% annual bluegrass. Lesion nematodes with numbers ranging from 1 to 135 per 0.4g root tissue were found in forty-eight percent of the weeds sampled. Lesion nematodes had penetrated the roots of common chickweed, purple deadnettle, shepherd's-purse, henbit, field pennycress, purslane speedwell, dandelion, and yellow rocket. Only three root samples purple deadnettle (2 samples) and field pennycress had J2 cyst nematode present at low levels. From the soil samples only 4 fields sampled contain cyst nematode. European chafer, May/June beetle, Japanese beetle, and Asiatic garden beetle grubs were present in four percent of the samples.