

P-11

Lesion nematodes (*Pratylenchus spp*): the obscure nematode pest of soybean in the North Central U.S.

*Ann MacGuidwin**, Department of Plant Pathology, University of Wisconsin-Madison, Wisconsin, USA

Ibrahim Saeed, Department of Urology, University of Wisconsin-Madison, Wisconsin, USA

Kanan Kutsuwa, Department of Plant Pathology, University of Wisconsin-Madison, Wisconsin, USA

Lesion nematodes, *Pratylenchus spp.*, are widely prevalent in the North Central region according to recent surveys. Two of five species reported to damage soybean, *P. scribneri* and *P. penetrans*, were recovered from 93% of the soybean fields assayed for pest nematodes in Wisconsin from 2013-2016. Many attributes, including a broad host range and the ability to persist in dead root fragments, make Lesion nematodes an enduring constraint to soybean production. Crop damage is related to nematode population densities, which can only be diagnosed by soil testing. We collected data from seven soybean fields infested with *P. penetrans* and developed a composed error model to estimate the damage caused by a single nematode. Based on the model and soil test results from 2013 to 2016, we estimate that 11 percent of the soybean fields in Wisconsin have 5% or greater yield loss due to Lesion nematodes. Even so, grower awareness of this pest is low. Root necrosis caused by Lesion nematodes using visual inspection is indistinguishable from that caused by fungi. Above ground symptoms are often lacking. Under controlled conditions, *P. penetrans* increased ($P = 0.05$) the allocation of biomass to shoots for soybean seedlings at V2. In the same experiments, *P. penetrans* decreased ($P = 0.05$) nodulation, suggesting one means by which the nematode suppresses plant growth and yield. There is no host resistance to Lesion nematodes so growers must mitigate the build-up of nematode population densities through the selective use of crops and cover crops. Seed treatments show promise for reducing infection and the increase of Lesion nematodes in seedlings. The widespread distribution of Lesion nematodes and their capacity to increase justify including this pest in soybean research and education initiatives.