

FIRST DETECTION OF *PRATYLENCHUS SCRIBNERI* ON POTATO AND *P. NEGLECTUS* ON WHEAT IN NORTH DAKOTA. Yan, G.<sup>1</sup>, A. Plaisance<sup>1</sup>, D. Huang<sup>1</sup>, and Z.A. Handoo<sup>2</sup>. <sup>1</sup> North Dakota State University, Department of Plant Pathology, Fargo, ND 58108, <sup>2</sup> USDA-ARS, Nematology Laboratory, Beltsville, MD 20705.

Root-lesion nematodes (*Pratylenchus* spp.) are the most common nematode pests of field crops. In 2014 and 2015, 54 soil samples were collected from a potato field in Sargent County, ND to investigate the occurrence of root-lesion nematodes. Nematodes were extracted from each soil sample, and 48 of the samples contained root-lesion nematodes with population densities ranging from 125 to 1,900/kg of soil. The root-lesion nematodes were identified as *Pratylenchus scribneri* using morphological and molecular methods. One soil sample with 1,540 root-lesion nematodes/kg soil was used to inoculate potato cultivar All Blue. After ten weeks of growth at controlled greenhouse conditions, the population of root-lesion nematodes was found to have increased substantially (average = 9,163/kg soil + 48/g roots), indicating that this root-lesion nematode reproduced well on this potato cultivar. Root-lesion nematodes extracted from both soil and potato roots in the greenhouse were tested and confirmed as *P. scribneri*. Similarly, five soil samples were collected in 2015 from a wheat field in Walsh County, ND and were found to have root-lesion nematodes from 125 to 1,044/kg soil. Morphological and molecular examinations identified the root-lesion nematodes as *P. neglectus*. One soil sample with 500 root-lesion nematodes/kg soil was used to inoculate hard red spring wheat cultivars Glenn and Faller. After 10 weeks of growth, wheat roots were harvested and washed, and the root-lesion nematodes were able to be recovered from the root tissues. Averages of 24 and 20 root-lesion nematodes per g were found in the roots of Glenn and Faller, respectively. Nematodes were isolated from both soil and wheat roots, and were confirmed as *P. neglectus*. In comparison, the sequence of 28S D2/D3 expansion domain of *P. neglectus* had 79% similarity with that of *P. scribneri*, demonstrating that these two species have a big variation in this genomic region. The key morphometric differences between these two species from North Dakota were the percentage of position of vulva (V%) from anterior end to the total body length (*P. neglectus*: range = 81.0 to 85.0%, mean = 82.8%; *P. scribneri*: 75.5 to 78.7, 77.2) and tail length (*P. neglectus*: 16.0 to 22.0 mm, 18.8 mm; *P. scribneri*: 25.0 to 28.0, 25.6). Other morphological measurements between adult females of these two species overlapped to some extent, including body length, stylet, body width, anterior end to basal bulb, total body length divided by maximum body width (a), total body length divided by pharyngeal length (b), and total body length divided by tail length (c). Several *Pratylenchus* species including *P. scribneri* are detrimental to potato. *P. neglectus* has been reported as a damaging pathogen that affects wheat production in the Pacific Northwest. This represents the first occurrence of *P. scribneri* and *P. neglectus* in North Dakota.