

MORPHOLOGICAL DIAGNOSTICS OF POTATO CYST NEMATODES  
(*GLOBODERA* SPP.) **Handoo, Z.A.<sup>1</sup>, L.K. Carta<sup>1</sup>, A.M. Skantar<sup>1</sup>, and D.J. Chitwood<sup>1</sup>.** <sup>1</sup>Nematology Laboratory, USDA, ARS, Building 010A, BARC-West, 10300 Baltimore Avenue, Beltsville, MD 20705.

Potato cyst nematodes (*Globodera* species) are economically important pests of solanaceous crops including tomato, eggplant and especially potato. The potato cyst nematodes (PCN) *Globodera rostochiensis* and *G. pallida* are regulated pathogens of potato, an extremely important commercial crop in the United States with over 1 million acres planted at a value of nearly \$3.9 billion. Another PCN (*G. ellingtonae*), recently described from Oregon in the United States, triggered a quarantine of the location from where it was isolated to prevent its spread. Although PCN can reduce crop yields worldwide, methods for identification are often difficult to implement due to variations noted in life stages among various populations. We summarize the diagnostic morphological features for distinguishing the above three PCN species on potato and compare them with the closely related species complex, the tobacco cyst nematode (TCN) or *G. tabacum* complex and other round cyst nematode species. In addition, photomicrographs and drawings illustrating key diagnostic characters of all life stages (cysts, females, males and juveniles) are provided together with information on host and geographic distribution. A brief summary of comparative diagnostic characters of all life stages is presented in a tabular form, along with general information on the economic impact of PCN, TCN and other closely related species.