

Manitoba Soybean Cyst Nematode Survey (2014/15)

SCN was not present in sampled soybean fields in Manitoba, but farmers should continue to monitor fields as the threat is imminent.



Dr. Tenuta describing root symptoms of SCN.

HETERODERA GLYCINES (Soybean Cyst Nematode, SCN) is recognized as the major pest of soybean worldwide. SCN has rapidly moved northward from the mid-U.S. and is now present in some counties in North Dakota and Minnesota, which border Manitoba. Recently, the Canadian Food Inspection Agency declassified SCN as a regulated pest in Canada, which means that surveying for SCN is no longer conducted by the federal agency. Since early detection and precise identification is important for timely control measures to be implemented, surveys were initiated by the Soil Ecology Laboratory in the Department of Soil Science at the University of Manitoba.

In 2014–2015, 28 commercial soybean fields most likely to be infested (i.e. along the Red River Valley, with a long/frequent history of soybean) were selected for sampling. Each field was sectioned into areas that could be responsible for SCN introduction such as entrance ways, headlands near ditches and depressions or drainage ways. From these fields, a total of 205 soil samples were taken to the lab for analysis for the presence of SCN. Nematode cysts were recovered from

32 soil samples; however, the samples yielded one to a few cysts each, with the majority of cysts being empty and broken. Furthermore, most cysts were round and not lemon-shaped, circumfenestrate rather than bifenestrate cone tops, the later possible indicators of SCN. Only six of these cysts samples yielded DNA suitable for molecular PCR (polymerase chain reaction) analysis and all DNA samples tested were negative for SCN.

Through the most recent and past (2012–2013) surveys, a total of 76 commercial soybean fields in Manitoba have been sampled and have all tested negative for the presence of SCN. Because SCN is present in neighbouring states,

surveys will continue to be conducted every two to three years, with the next survey commencing in summer 2017.

In addition, outreach activities will continue to ensure farmers are aware of how to scout for and identify SCN. Because SCN damages roots, nodulation and nutrient and water uptake will be impeded resulting in yellowed, stunted plants, which closely resemble symptoms of iron deficiency chlorosis (Figure 1). Ultimately, maturity and yield will be affected. To proactively manage SCN, the Soil Ecology Lab recommends to scout high risk fields regularly, (i.e. those with >3 years of soybean and focus your scouting on headlands, depressions and near fences, approaches and sloughs). Use of resistant soybean varieties and control of alternate host plants (e.g. chickweed, wild mustard, Shepherd’s Purse and other less common species) will help contain and slow the expansion of SCN-infected areas and maintain populations at levels that do not cause economic damage. ▀



Figure 1. SCN-damaged areas of the field.



White, lemon-shaped cysts on roots

Source: Albert Tenuta, OMAFRA



Adult soybean cyst nematode

Source: Kris Lambert, Univ. Illinois

PRINCIPAL INVESTIGATOR Mario Tenuta, Department of Soil Science, University of Manitoba

MPSG INVESTMENT \$15,333

CO-FUNDER \$30,667 – Western Grains Research Foundation, Growing Forward 2 Growing Innovation: Agri-Food Research and Development Initiative

DURATION 1.5 years