

Understanding Nematode Pests in Pulse Crops

Preventative research that will help strengthen prairie pulse crops



When researcher Dr. Mario Tenuta, from the University of Manitoba, set out to determine the importance of plant parasitic nematodes to Canadian pulse crops, he was building on his previous research project completed in 2013.

Tenuta's previous project focused on determining the strain of stem and bulb nematode that was affecting field peas in the Canadian Prairies, which was identified to be *Ditylenchus weischeri*.

Dr. Tenuta's current research project is looking for three key outcomes. "The first outcome is to determine that the stem and bulb nematode (*Ditylenchus weischeri*) found in pea harvest grain due to Creeping Thistle (*Canada Thistle*) contamination does not pose a market access problem for our pea growers," says Dr. Tenuta.

"The second outcome will be to survey other pulse crops (lentils, chickpea, and fababeans) for any potential issues with plant parasitic nematode pests. This is an activity that is proactive to address any potential

problems with nematode pests that may be important in the future," explains Dr. Tenuta, who also notes that this may result in what he refers to as bonus information that will be able to aid in the determination of nematode pests that may be an issue for rotation crops such as spring wheat and canola.

The third outcome that Dr. Tenuta is looking for, is to develop a rapid and accurate test for soybean cyst nematode pest (SCN). "This is the most serious problem for yield loss of soybean in other regions. Soybean production is expanding rapidly in the Canadian Prairies, and the testing for SCN is expensive, often inaccurate, and there are few laboratories able to do the analysis. We are developing a rapid and very accurate test for SCN based on the DNA of the nematode extracted from soil."

Dr. Tenuta believes results of this project will provide significant value to pulse growers in Saskatchewan. "The work with pea should insure open market access for our grain, meaning more profitability because access issues

often mean higher costs throughout the handling/processing/exporting chain. These costs are then passed on to growers or result in reduced volumes."

There are other project outcomes related to SCN, such as helping growers identify the nematode earlier, and use tolerant varieties, rotation, and nematicides to keep levels low. "The project will give growers a tool to track the presence of SCN in soybean fields. So far we have not found the nematode in Manitoba, but it is surely to come across the border from North Dakota and Minnesota. This is important for soybean growers because SCN robs yields silently, bit by bit, over years and usually becomes diagnosed when fields are heavily infested."

Funding for this research is provided by Agriculture and Agri-Food Canada's AgriInnovation Program, under the *Growing Forward 2* policy framework. The Program has made a \$15 million investment in a collaborative pulse research cluster that brings together expertise from government and industry.