University of Lethbridge News Release

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Professor Dan Johnson and monitoring network keeping an eye out for potato 'zebra chip' disease

Very low levels of insecticide use by Alberta farmers may be keeping harmful insects at bay

Even though the insect vector that can spread the zebra chip pathogen in potatoes has been found in in Alberta, Prof. Dan Johnson at the University of Lethbridge isn't alarmed yet and recommends potato growers take no action at this time beyond field sampling.

Johnson, who co-ordinates the Canadian Potato Psyllid and Zebra Chip Monitoring Network and leads the Alberta research project on this topic, says the potato psyllid has likely been present in Alberta in very low numbers for decades but none of the insects found in Canada have tested positive for the bacteria that causes the zebra chip disease.

"The very low level of insecticide use, often none at all, in potato fields in Alberta allows the natural enemies of the potato psyllid to exist," says Johnson. "An insecticide program is costly and, in some cases, can work against other components of the crop ecosystem. When conditions permit, like in this case, a better scenario is to have healthy populations of insects that are enemies of potato psyllids and other small insects. In this situation, we may have strong natural controls in place that we can encourage."

Zebra chip has caused millions of dollars in losses for potato farmers in New Zealand and the United States. Warmer environmental conditions and insect movements in air and on transported plants are thought to be responsible for the expanded range of the insects. The potato psyllid, about the size of an aphid, feeds only on potato and tomato plants and some related wild plants, and can transmit bacteria that lead to zebra chip. Infected plants are affected in growth, yield and quality. Potatoes with zebra chip, while still edible, develop unsightly black lines that look like zebra stripes when fried, making them unsellable. Johnson has led the Canadian monitoring program since it began in

2013 in response to a proposal for collaboration. To test for the presence of the psyllid, sticky yellow cards are placed on stakes in potato fields. None were found in 2013 or 2014 but very small numbers were detected in 2015 and 2016.

“We’ve examined up to 2,000 cards a year at the U of L,” says Johnson. “Last year, we found small numbers of adult potato psyllids in Alberta but none tested positive for the pathogen that causes zebra chip.”

The DNA testing is conducted by Dr. Larry Kawchuk at the Lethbridge Research Centre. Scott Meers, with Alberta Agriculture and Forestry, is collaborating on field sampling and design of a management plan. The cross-Canada monitoring network is funded by Growing Forward 2 through Agriculture and Agri-Food Canada and Agri-Science clusters, managed by the Canadian Horticultural Council, with the participation of groups like the Potato Growers of Alberta.

To view online: http://www.uleth.ca/unews/article/johnson-and-monitoring-network-keeping-eye-out-potato-zebra-chip-disease

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