

PAMI researcher is presenting at international mycotoxin conference in the Netherlands

HUMBOLDT, SK – Charley Sprenger, B.E., M.Sc., is presenting at the World Mycotoxin Forum in Amsterdam, the Netherlands, March 13. The World Mycotoxin Forum is the leading international meeting series on mycotoxins where food and feed industry representatives meet with people from universities and governments from around the world.

“It is an honor to be among some the leading international experts in this area of research,” said Sprenger. “I am delighted to represent PAMI and Saskatchewan at this conference.”

Sprenger’s presentation topic is: *Effect of composting, combustion and anaerobic digestion of Fusarium-damaged grain and screenings on elimination of mycotoxins*. Her presentation is based on a PAMI study, funded by the Saskatchewan Ministry of Agriculture with an in-kind contribution from the Canadian Grain Commission, that looked at various ways producers might extract some value from affected crops which, when heavily infected with fusarium-produced toxins, are usually a total loss. It revealed that simple composting deactivated the most prevalent toxin.

Fusarium is naturally present in soil and high moisture levels trigger infestations. Infected kernels are lightweight, resulting in reduced yield and grade, added costs, fewer end-use opportunities and lost income. According to the Ministry of Agriculture and Forestry in Alberta, losses to fusarium head blight across Canada over the last two decades ranged from \$50 million to \$300 million a year, and future losses are projected to be as high as \$132 per acre.

In addition to composting, the study evaluated burning and anaerobic digestion as disposal options, but neither was found to be as effective at deactivating the fusarium toxin deoxynivalenol (DON) or as cost efficient as composting. The research involved monitoring compost piles of equal parts infested wheat and cow manure for 111 days between June and October 2016. Samples were then tested for the presence of DON “and we were very excited when we saw the numbers,” said Sprenger. The results showed no detectible level of DON.

It is an encouraging finding because crops so heavily infected with fusarium that they cannot be sold even as animal feed are generally dumped, bringing no value to producers. Sprenger does caution, however, that the findings are preliminary. Complete testing was not done to determine levels of fusarium-produced toxins other than DON or whether the fungus itself was eliminated, she said, so producers must still exercise caution to avoid spreading compost that may introduce the fungus to uncontaminated soil.

PAMI hopes to continue the research using new compost piles to validate the original results and to test composting amendments other than manure. The grain commission did measure concentrations of a number of other toxins in the compost samples but the time and scope constraints of the project meant only DON levels were addressed in the research report. That preliminary data forms the basis for further investigation of fusarium toxins besides DON, Sprenger said, and of whether composting may be effective at eliminating the fusarium spores.

Prairie Agricultural Machinery Institute (PAMI) is a leader in innovative solutions for agriculture and beyond, offering professional science and engineering services. Established in 1975 with a mandate of research and development for the Western Canadian agricultural sector, PAMI now applies the same research processes and expertise to initiatives in other industrial sectors, from manufacturing and mining to transportation and the military. PAMI has facilities in Saskatchewan and Manitoba.

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NOTE: Supporting photography is available upon request

FOR MORE INFORMATION: Carla Vipond, Communications Program Manager

W: (306) 682-5033 ext. 238 | M: (306) 370-2475 | Email: cvipond@pami.ca