Prevalence of Environmentally Important Parasites and Bacteria in Alberta Hogs

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Background: There is an increasing concern about the generation of fecal waste by swine and the distribution of waste on fields. One of the major concerns is the transmission of certain parasitic (*Giardia lamblia, Cryptosporidium parvum*, *Ascaris suum*, and *Isospora suis*) and bacterial (*E. coli* O157:H7 and *Salmonella* spp.) pathogens to humans and other animals. This research will provide information to assure the public that hog production is environmentally sustainable and does not place the public at risk.

Methods: Alberta hog operations (n=90) were visited and samples were collected from all age groups of hogs. Fecal samples from individual pens and slurry samples from indoor barn pits and outdoor lagoons were collected. Water provided to the hogs was sampled and soil from the site of most recent slurry spread was collected. *Giardia* and *Cryptosporidium* were recovered by sucrose centrifugation and stained with monoclonal (FITC) antibodies. *A. suum* and *I. suis* were isolated using sodium nitrate floatation. Bacteria (*E. coli* O157:H7 and *Salmonella* spp.) were isolated on selective media and typed.

Results: *Giardia* and *Cryptosporidium* were recovered from only 11% and 3.5% of the collected samples, respectively. Both parasites were isolated more frequently from the younger animals than the older breeding stock. *Ascaris* was isolated from 9% of the fecal samples and was most prevalent in the finishing hogs. *Isospora* was recovered from less than 2% of the fecal samples. Neither *E. coli* O157:H7 nor *Salmonella* spp. were isolated from any of the fecal and environmental samples.

Conclusions: Due to the overall low prevalence of the parasitic and bacterial pathogens, swine fecal waste and the distribution of it on fields may not pose a significant threat to humans and other animals.

Implications: Some of the parasitic and bacterial pathogens found in pigs are potentially infectious to humans however, there is a low risk of transmission.

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