

**To: AASV Foundation**

**From: Dr. Cate Dewey**

**Title:** Reducing pathogen spread during farm feed delivery

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### **Background information**

The current proposal grew out of a request from the feed-mill personnel and swine producers involved with the original project (Dewey C, Bottoms K, Carter N, et al. A qualitative study to identify potential biosecurity risks associated with feed delivery. *J Swine Health Prod.* 2014;22(5):232-243.). During the key-informant interviews and focus groups the researchers were asked if we could provide simple, easy to read, easy to access, information about the epidemiology of zoonotic diseases and pig pathogens. Specifically, they are interested in pig diseases, how diseases move from one farm to another and how long they last in the environment. They also wanted to know if feed, trucks, clothing, other fomites, people, animals or birds are important in the spread of the disease agents.

We as researchers were impressed by how committed the participants were to biosecurity. They did want to know whether or not what they were doing for biosecurity was scientifically sound and not just cosmetically appealing. They asked us to provide biosecurity information that was based on science.

Although the spread of disease through feed delivery is certainly not the same risk as breeding stock acquisitions or trucks that haul pigs, it must not be assumed to be no risk at all. Feed truck drivers go from farm-to-farm and with that goes the potential risk of carrying pathogens from one site to another.

Most feed companies plan their deliveries according to the health status of the herds, but of course this is not always possible. If a high health herd runs out of feed, they will need a delivery on a Friday morning or a herd with poor health status might need feed delivered on a Monday. Also, feed companies are often not told when herds experience a new disease outbreak. Although our research findings were that feed truck drivers entered the barn on only 4% of swine herd visits, those that do are typically not required to wear or even provided with barn specific boots and coveralls. One main concern we heard from truck drivers were having to drive or walk through dead stock or run-off from dead stock. This happened on 3% of the farm visits. Similarly, there was a concern about driving or walking through manure runoff, which, in the winter, did occur on 1% of the farm visits. Therefore, while risk of disease transmission is high when trucks drive through dead stock or manure, the prevalence of these problems is low. If farm properties are kept clean the chances of a truck or truck driver carrying pathogens to the next farm is limited but if dead stock, manure management or feed spillage is not taken care of the possibility of a driver or truck picking up bodily fluids that could contaminate the next farm are much higher. It must be noted that this project was conducted in winter only and the prevalence of these biosecurity breaches might be higher in the spring or fall.

Many feed truck drivers were not aware of the diseases that can be spread from farm to farm or how to lessen the potential of doing so. On the other hand, many of them are interested in understanding biosecurity and how they can be proactive in ensuring the safety of the farms that they visit. Even with our very short pilot project we discovered that with providing additional resources (washable boots) some behaviors were changed. [Canadian Veterinary Journal "Investigation of biosecurity risks associated with the feed delivery: A pilot study." Bottoms K, Dewey C, Richardson K, Poljak Z. Can Vet J. 2015 May;56(5):502-508.] We are therefore confident that increasing knowledge can lead to more compliance. Both the truck drivers and the producers were cognizant of how the other might be affecting their chance of spread of disease. The drivers were concerned about manure and dead stock

and the producers were concerned about drivers not wearing plastic boots and walking in areas that were not necessary.

Before we started to develop the fact sheets, we attended a meeting with the Feed Industry Division personnel at the OABA (Ontario Agricultural Business Association) to discuss the expectations of the industry personnel. They asked that the information be provided in a simple, short and straightforward manner.

We chose to concentrate on 10 diseases that are of concern for human health or pig production. These are: *Actinobacillus pleuropneumoniae*, *Brachyspira hyodysenteriae*, *Lawsonia intracellularis*, Influenza A Virus, *Mycoplasma hyopneumoniae*, Porcine Epidemic Diarrhea, Porcine Reproductive and Respiratory Syndrome Virus, Salmonella, *Streptococcus suis*, and Transmissible Gastroenteritis. We also developed two “pages” that present general information on Biosecurity Facts and Disinfection and a page of Web site references that could be found by anyone with internet access.

Information was collected from the Diseases of Swine, and Swine Disease Manual textbooks and reading scientific articles that supported the information collected.

The sheets include the AASV Foundation and University of Guelph logos. When we had finalized a few of the sheets (Biosecurity, Disinfection, TGE, Salmonella) we sent these sheets out to managers, dispatchers and drivers from feed company personnel for their comments and suggestions. Originally we had graphics (clipart) on the factsheets but ultimately removed these because the majority of the participants preferred the sheets without the images (although one felt very positively towards the clipart). Initially, we had one sheet directed at educating the truck driver, but then we decided that the managers and feed sales people as well as some of the drivers, may want additional information so we added a second sheet (detailed) with a little more information provided.

Here was an email provided from one of the original truck drivers from the pilot project:

“I have read, and re-read your fact sheets quite a few times, and found them extremely informative! Sheet 1 of the pathogen info is very handy for those that are looking for a little basic info. I had my wife read them, and as someone who knows very little about pigs she could tell me the basics of how to stop disease spread. As someone who personally grew up on a "farrow-to-finish" hog farm, I found sheet 2 of the pathogen info really informative as well! It is great to have a little extra knowledge as well from a delivery driver perspective. Personally, as someone that can never get enough information, I would even like to see a sheet 3 of even more in-depth info on how the bugs affect the animals, but I don't know that it is truly necessary for those of us visiting the farms! I must say, you have a very handy little info package there! I wouldn't change much at all.”

We made up a list of potential reviewers for each pathogen wanting one scientific expert as well as one practicing veterinarian. This list was presented to Dr. Terri O’Sullivan editor of JSHAP for approval and further recommendations. She agreed with the choices of reviewers and suggested that we put a date on the bottom of each sheet so that readers would be aware of when the information was collated.

The basic and detailed sheets for each pathogen (2 sheets) were sent out for review, all the practitioners (5) and scientific experts (10/10) reviewers were members of the AASV. We incorporated most of the recommendations to the best of our ability given some space constraints.

Originally we had thought that we would produce a chart with all the pathogens mentioned above on it and present the information in a succinct format, but in hindsight we have decided that creating that might detract some people from reading at least the one-page basic factsheet so would prefer not to distribute one. We worry that a chart with a few bullet points per disease agent would be misleading.

**Plan to apply results for maximum return to swine veterinarians, veterinary students or both**

These packages of the materials will be sent to all the feed companies that participated in our original project as well as being put on the AASV Web site for downloading by members. Given that Ontario Association of Business Association and Ontario Pork helped us with recruitment for the original research project we will also make the material available to them. It is our hope that they will be given to truck drivers so they can have them in their binders in the truck and will be used during meetings or training sessions.

We will also distribute copies at a variety of producer meetings in Ontario (University of Guelph Swine Research Day {a combination of Mike Wilson Day and Centralia swine research day}, Ontario Pork Congress, and encourage others to do so in their own geographic regions.

We appreciate the funding support by the AASV foundation, the time and knowledge of the reviewers, and the input from the people working in the feed industry.