

Investigating biosecurity risks associated with the delivery of feed to swine farmsC Dewey¹, K Bottoms¹, Z Poljak¹, K Richardson¹, N Carter¹¹Department of Population Medicine, University of Guelph, Guelph, ON, cdewey@uoguelph.ca**Introduction**

Biosecurity protocols reduce the introduction and spread of pathogens among swine farms. For pigs, biosecurity ensures market stability, maintains export opportunities, and controls spread of production and public health diseases. Salmonella, the second most common cause of bacterial foodborne illness, causes gastrointestinal illness. Pigs can be asymptomatic carriers of the bacteria and pork products are a known source of salmonellosis in humans. Salmonella have been isolated from pigs, boots, flies, rodents, bird feces, feed, feed-ingredients, and feed trucks. The objective was to identify management factors to reduce the risk of disease spread among swine farms through feed trucks.

Materials and Methods

The study was conducted in two phases - the first phase included a series of focus groups and key-informant interviews; discussions held with swine producers and feed company personnel explored the protocols currently in place that reduce the risk of disease spread through the delivery of feed. Participants were asked to identify possible management changes that could further reduce the risk, and to rate these ideas in terms of their effect on disease control, and feasibility based on implementation and economics. This information was used to structure the second phase of the study - a pilot study. The pilot study was conducted over 6 weeks in the winter of 2013, and included 40 feed truck drivers from 3 Ontario feed companies. Truck drivers filled out log sheets as they delivered feed to swine farms, and provided information about the prevalence of the identified biosecurity risks during the day-to-day delivery of feed. Drivers were randomly assigned to be in either the treatment or control groups. Drivers in the control group delivered feed as they normally do. Drivers in the treatment group were: i) asked not to enter the barn unless absolutely necessary, and ii) were provided with re-usable, washable rubber over-shoes and were asked to wear a clean pair at each farm when they felt safe doing so. Chi-squared tests were used to compare the usage of clean boots between drivers in the treatment and control groups.

In total, 40 drivers from 3 companies, delivering feed to 2202 farms over 6 weeks (in the winter) collected descriptive data on the factors and compared use of different boots.

Results

The factors followed by the proportion of farms and drivers where the factor was found were found as follows: Most farms were: keeping areas (driveway, feed bin and barnyard) clean of mud and manure (82%), and dead-stock (91%) was appropriately disposed of and not visible to the driver. Some farms had an outbuilding to

deliver bagged feed (24%). Other factors that were identified that producers should work on were to provide farm boots and coveralls for the driver if the driver needed to go into the barn, ordering the correct amount of feed to decrease the numbers of deliveries (or frequencies of deliveries) of feed, and notifying feed mill of a disease outbreak on the farm. Feed truck driver factors included wearing a separate pair of clean, disinfected, dried boots (25%) and gloves (50%) at each farm that is visited (even if the driver does not go into the barn, remaining outside the barn (92%); washing the steering wheel (49%), floor mat (77%) and outside of the truck (32%) every 24 hours. From these results, it may be advisable to increase the frequency of washing the truck. Another factor identified was for the driver to know and follow the farm biosecurity protocols. Half of the time, the driver left the feed bill outside barn (54%). Drivers given disinfected rubber boots were more likely to wear these on farms (42%) than plastic disposable boots (4%) ($P < 0.05$). These drivers were also more likely to wear disinfected rubber boots than the control drivers (11%) ($P < 0.001$).

Conclusions and Discussion

Biosecurity is a responsibility that is shared among all members of the industry. Feed personnel were encouraged to know more about disease transmission.

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