

## **Evaluation of a staged loading procedure for the load-out of market pigs to prevent the transfer of swine pathogen-contaminated particles from livestock trailers to the barn**

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### **Industry Summary:**

The swine industry has focused much of its efforts on improving biosecurity in breeding herds; while little attention had been paid in wean-to-finish growing sites. One risk event that has the potential to introduce virus into grow-finish pigs is load-out during marketing. In order for the remaining pigs in the group to become infected during load-out, viral contamination must be transferred from the contaminated livestock trailer, driver or other carrying agents to the pigs in the barn. Unfortunately, little research has been done to assess how frequently this occurs or to assess alternative biosecurity measures to reduce the frequency.

The objective of this study was to evaluate if implementing a staged loading procedure when loading out market pigs is effective at preventing transfer of swine pathogen contaminated particle form livestock trailers to the barn using the fluorescent powder (Glo Germ). The study compared a conventional method of loading and a staged loading procedure.

In standard loading protocols, there is usually only one line of separation implemented between the livestock trailer and the end of the load-out chute, in which the load-out crew members cannot cross over into the livestock trailer and the driver cannot cross over onto the chute. In a staged loading protocol, a second line of separation is implemented in addition to the first line of separation within the standard loading protocol. One member from the load-out crew is stationed between the two lines of separation in which he or she cannot cross onto the livestock trailer or cross the second line of separation into the center alleyway of the barn. The remaining load-out crew members within the barn cannot cross the second line of separation into the load-out alleyway or chute. There was 10 replicates per loading procedure.

216 g of dry Glo germ was mixed with approximately 0.5L of OB gel and 0.25 kg of dry wood chips in a large plastic bag and spread evenly on the floor of the livestock trailer just inside the roll-up door that opens to the chute. The second line of separation was also determined within every replicate and appropriately marked within the replicates that were performing the staged loading protocol. The load-out was observed and when the load-out was completed, Glo germ contamination was evaluated using a 120 x 55 cm<sup>2</sup> grid that was divided into 264 5x5cm<sup>2</sup> squares at 8 different measuring points within the chute after the first line of separation, two within load-out alleyway before the second line of separation, and five within the center alleyway.

Four out of the five measuring points in the center alleyway of the barn, had a level of contamination that measured significantly lower ( $p < 0.05$ ) for the staged loading protocol compared to the conventional loading protocol. The difference at the fifth measuring point in the center alleyway of the barn was nearly significant ( $p = 0.0573$ ). The level of contamination measured at all other measuring points, in the chute and loadout alleyway, were not statistically significant between the two study groups ( $P > 0.05$ ).