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# An evaluation of intervention strategies for the control of insects on commercial swine farms

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## Introduction

Porcine respiratory reproductive syndrome virus (PRRSV) is an economically significant pathogen of the swine industry. It is possible to eliminate PRRSV from farms but these farms can become re-infected even with heightened bio-security, and the cause of the infection can not always be attributed to known methods of transmission. Vector competency and local spread of PRRSV by houseflies has been described (1,2). In this latter study, insects demonstrated capacity to transport PRRSV up to 2.44 km.

**Objective:** To assess the efficacy of various intervention strategies for controlling insects on a commercial swine farm.

**Hypothesis:** A combination of strategies will be more efficacious than a single strategy.

## Methods and Materials

The purpose of the study was to evaluate the effectiveness of 3 intervention strategies (treatments): insect screen, pyrethroid-based insecticide (Tempo SC Ultra premise spray (Bayer), 11.8% beta-cyfluthrin) and the combination of screen and insecticide. The study was conducted for an 8-week period and was carried out on a commercial finishing facility that contained 4 rooms (400 pigs/room). On day 0, rooms were randomly assigned a treatment: screen, insecticide, both screen and insecticide, or no treatment (negative control) for a 2-week sampling period. Following application of treatment, a calculated number of laboratory derived phenotypic mutant (ochre-eyed) house flies were released outside of each room of the facility. To evaluate the ability of each treatment to prevent fly entry into

the designated rooms, the population of marked house flies inside and outside of each room was evaluated biweekly for a 2-week period. Marked flies were collected using baited jug traps (2 traps per room and 2 traps outside of each room), and 2 white cards (7.6 cm x 12.7 cm) were also placed on the walls of each room to evaluate the number of fly specs. In addition, CO<sub>2</sub>-light traps were placed in each room to collect mosquitoes, and 4 pigs were randomly selected from each room and the number of insect bites counted. To monitor the effects of the various treatments on the animal environment, CO<sub>2</sub>, temperature and relative humidity measurements were recorded using a HOBO unit. After completion of the 2-week sampling period, the rooms were power washed and the treatments are randomly rotated to a different room to prevent room bias and the entire procedure repeated.

## Results

As of this writing, the study is in process. It is scheduled to be completed by the onset of the Leman conference.

## References

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