

SWINE HEALTH

Title: Optimization of Methods for the Study of Swine Viral Pathogens in Aerosols – **NPB #03-038**

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Abstract: The specific objective of this proposal was to optimize the methods to sample viruses in aerosols, including optimization of medium and comparison of two air samplers (AGI-30 and SCK-biosampler®). The long-term goal of this project is to provide producers the information they need to predict the likelihood of virus transmission between herds under specific atmospheric conditions (temperature, relative humidity, sunlight, wind).

An apparatus was designed and constructed to conduct the air sampler optimization studies consisting of a nebulizer (24-jet Collison nebulizer, BGI Incorporated Waltham MA) capable of aerosolizing 16.5 ml of liquid per hour at 40 psig connected to an 25 liter glass cylinder (aerosol reservoir). The aerosol reservoir was equipped with 6 ports to which impingers (AGI-30's or SKC-biosampler's®) could be connected for air-sampling. The capacity to simultaneously sample the same "cloud" with up to 6 impingers allowed for direct ("head-to-head") comparisons of media treatments, sampling times, and impingers.

Specific accomplishments achieved in this project include: 1) an antifoam with minimal cytopathogenic properties was identified; 2) a effective sorbent for inclusion in the medium was identified; 3) it was determined that ethylene glycol could be included in sampling medium, thereby providing the ability to collect air sample at temperatures below freezing; and 4) infectious virus was detected using both the AGI-30 and the SKC-biosampler® authenticating their use for PRRSV.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed

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