



UNIVERSITY OF MINNESOTA

Swine Disease Eradication Center

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SDEC Partners Research Update

Project Update: Is PED virus airborne and infectious?

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Background

- PEDV rapidly spread within the US after first diagnosed in May 2013
- PEDV results in tremendous economic losses for swine producers
- Airborne transmission of PED viral particles from fecal origin has not been proven yet

Objectives

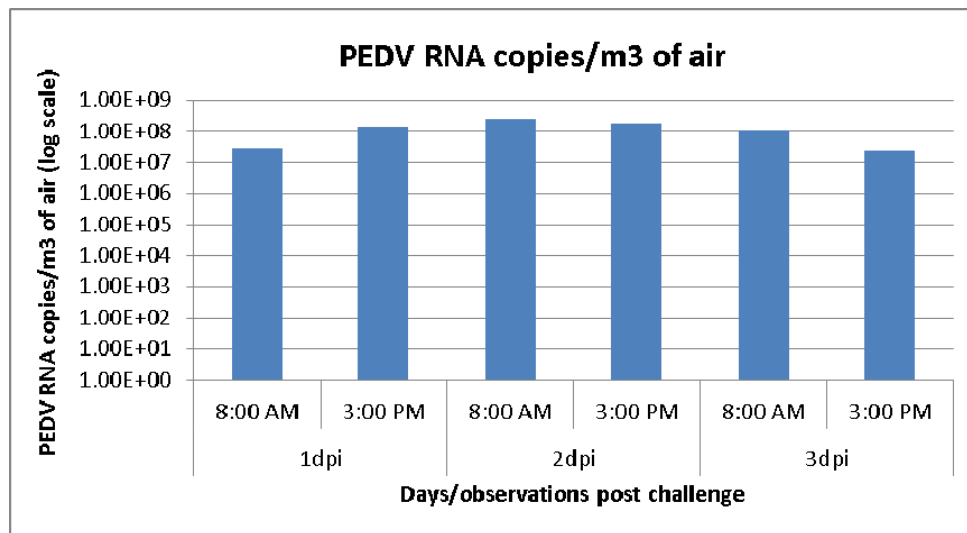
To determine whether PEDV can be airborne

To determine the viability of PEDV found in the air

To determine what particle size ranges PEDV virus is associated
with while airborne



Results



- PEDV could be found in air samples collected from experimentally infected pigs
- PCR Ct values ranged between 22.66 and 26.31. Quantity of PEDV found in the air, and sampled with the cyclonic collector, is illustrated above
- PEDV was found in all particle size ranges measured (0.03 to 10 microns) and in higher quantity in the larger particles.
- Pigs infected with the air samples in the bioassay model developed PED disease demonstrating the presence of live virus

Conclusions

- PEDV can be airborne and remain infectious while suspended in the air
- PEDV can be found associated with multiple size particles and predominantly associated with larger particles

Implications

- Despite the fecal-oral route of transmission, viable PEDV can be found in the air of infected environments
- Strategies for preventing the airborne transmission of PEDV should be considered as part of comprehensive biosecurity and disease control programs