

## Senecavirus A (Seneca Valley Virus) in Swine – Breeding Herd Cases

In the past couple of weeks, cases of Senecavirus A (Seneca Valley Virus) have been reported in multiple breeding herds in the upper Midwest. Foreign animal disease investigations continue to show the pigs are negative to FMDV, but positive to Senecavirus A. Other vesicular diseases such as swine vesicular disease, vesicular exanthema of swine and vesicular stomatitis, have been ruled out as well. Lesions on the snout and coronary band/hoof lesions will be seen on the breeding females and boars. There appears to be a short term (4-10 days) increase in mortality in neonatal piglets (less than 7 days) that may or may not have diarrhea associated with it. It is usually upon investigation of the increase in neonatal mortality, that the vesicular lesions in the breeding age animals are noted.

### Background

- Senecavirus A is a non-enveloped single-stranded RNA virus of the family *Picornaviridae*. Foot and Mouth Disease Virus (FMDV) and swine vesicular disease virus (SVDV) is also a member of this same viral family.
  - This type of infection in swine resulting in snout and coronary band vesicles has also been termed idiopathic vesicular disease in swine.
  - It was proposed that Senecavirus A is the etiological agent of idiopathic vesicular disease, but this relationship is yet to be confirmed.
- Disease has been reported in the United States, Canada, Australia, Italy, New Zealand and most recently in Brazil. Farm outbreaks in the United States are sporadic (less than 20 have occurred in the last 3 decades), but have been recognized in multiple regions.
- In the last 5 years and prior to these recent outbreaks, Senecavirus A has been found in North Carolina and Illinois.
  - Senecavirus A has been identified in swine cases from California, Illinois, Iowa, Louisiana, Minnesota, New Jersey, and North Carolina between 1988 and 2001.

### Clinical Presentation – Breeding Herd:

#### Neonatal Pigs:

- An acute increase in mortality in litters less than 7 days of age.
  - Appear to be infected shortly after birth
  - May or may not have diarrhea associated with it.
    - May be confused with SECD (PEDV, TGE, PDCoV), PRRS, E.coli, Rota, and/or Clostridium.
  - Morbidity and Mortality estimates are 30-70% for a short time period
    - Clinical signs usually resolve quickly in 4-7 days
  - Most of the time, the pigs will be found to have milk in their stomach when necropsied.

#### Breeding Females (Sows and Gilts)

- Inspection of the sows of the affected litters may demonstrate any of the following lesions
  - Vesicles (intact or ruptured) on the snout or in the oral mucosa (any muco-cutaneous junction)
    - Figures 1 and 2
  - Lesions on the feet around the coronary bands.
    - May see ulcerative lesions on or around the hoof wall. (Figure 3)
    - May see deep nail bed hemorrhages
  - Breeding females which are not feeling well (Anorexia, lethargy and/or febrile)
    - Some sows will be off feed or not cleaning all of their feed up
      - In the early course of the disease, fevers up to 105 degrees F have been reported.



Photos courtesy of: AJ Smit (#1 and #2) and Aubrey Cordray (#3)

What to do if you see or are made aware of clinical signs similar to this?

- If you see any signs of vesicular disease
  - Immediately contact the State Veterinarian and/or the USDA APHIS Assistant District Director responsible for your state or region.
    - They will decide if a Foreign Animal Disease (FAD) investigation is warranted and how to proceed as well as what samples to collect.
    - Temporarily halt any movements from the farm until directed by State and Federal Authorities.
- If just the neonatal pig presentation is observed (high morbidity and mortality in pigs less than 1 week of age) with NO signs of vesicular disease on the farm
  - Collect complete sets of tissue for diagnostics (see below) and list SVV as a differential.
    - Include serum on neonatal piglets

Samples to collect (In order of best samples to collect listed at the top):

- Vesicular fluid (aspirated with small gauge needle and syringe) and transfer to Falcon tube
- Dacron/Polyester (non-cotton) Swabs from erupted vesicles
  - Placed in 1-2 ml of PBS or Sterile Saline
- Skin scrapings (with scalpel blade) around erosion margin or around blanched coronary bands
  - Placed in 1-2 ml of PBS or Sterile Saline
- Oral Fluids
- Nasal swabs or Oral Swabs (buccal swabs – around lesion if present)
  - Place in 1 ml of PBS or Sterile Saline
- If post-mortem samples are collected, then get fresh and fixed tissues
  - Any lesion
  - Regional lymph nodes
  - Tonsil
  - Spleen
  - Liver
  - Lungs
  - Kidney
  - Heart
  - Intestines (Large and Small)
  - Brain and Spinal Cord (if possible)

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Authors who contributed: Drs. Chris Rademacher, Darin Madson, Rodger Main, Kyoung-Jin (“KJ”) Yoon, Daniel Linhares, Pablo Pineyro, Paisley Canning, Jessica Bates, Abby Cannon, and Pat Halbur