



Swine Health Information Center

# Seneca Valley Virus UPDATE

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## Seneca Valley Virus



**Lesions on the nose should be investigated to ensure FMD is ruled out.**

- SVV has been identified in the U.S. since 1988
- SVV has been associated with lesions that are clinically indistinguishable from FMD. Each discovery of blisters on the nose or hyperemia of the coronary band, hoof pad or interdigital lesions should first be investigated to ensure FMD is ruled out. Often the first clinical sign observed is lameness.
- USDA reported 2 cases of FMD investigation that resulted in SVV diagnosis in 2014. In 2015, 12 have been reported with investigations continuing.
- So far this summer, clinical signs have been found in production and exhibition pigs in HI, OH, AL, GA, NC, IL, IA, MN, FL, CO, OK and SD.
- Historically this has been a low production-consequence virus. The biggest issue has been confusion with a possible FMD infection.
- In the fall of 2014, Brazil started to experience SVV-associated pre-weaning mortality. A cause/effect relationship of the losses with SVV has not been proven, but they are clinically associated. Pre-weaning losses have lasted 2 weeks or more and have resulted in 30 – 70% mortality, especially in 1- to 3-day old piglets.
- This summer SVV has been associated with severe lameness lasting longer than expected on finishing floors and farrowing houses in the U.S. There has also been associated neonatal mortality. The incidence is low but the concern is about this possibly being an emerging syndrome, such as Brazil experienced.

In response, SHIC, NPB, NPPC and AASV have been working together to further define the geographical extent of this summer's U.S. outbreak and to determine the appropriate response.

### Research funded by SHIC

1. With SHIC support, Iowa State University has followed shedding in 10 pigs from a severe finishing floor outbreak. Preliminary results show that pigs persistently shed virus for an extended time after infection.
2. With the help of USDA funding, epi surveys are being done on up to 10 sow farm outbreaks. The objective is to see if the farmers experiencing clinical signs have management or other factors in common.
3. An initial SHIC call for research proposals went out to all the major swine veterinary diagnostic laboratories.
  - a. SVV is showing up in lesions and associated with baby pig mortality but SVV has never been shown to, by itself, cause clinical disease. A high research interest is determining if SVV can be a primary pathogen, if it is more pathogenic when coupled with some cofactor or if it is an incidental finding in a disease syndrome caused by some other pathogen.



Lesions on the hoof or hyperemia of the coronary band above the toes should first be investigated to ensure FMD is ruled out.

- b. We don't know the genetic diversity of the SVVs that are being found. It's an important issue when considering response. SHIC will fund research to find out if there are multiple pathogenic strains scattered across the country or one strain that has become more pathogenic.
  - c. Improved serological tests such as a functional high throughput ELISA will help to better understand prevalence plus individual and herd immunity.
4. SHIC is funding the serial sampling of an affected sow herd in Minnesota and another affected sow herd in Iowa. Following both the sows and pigs pre- and post-weaning will help to define the shedding period.
5. To help define the distribution of the virus across the country, SHIC funded Iowa State University and University of Minnesota veterinary diagnostic labs to PCR test oral fluid samples that came into their labs during the week of Aug. 24 – Sept. 1. The objective is to expeditiously obtain some insight to understanding the prevalence of Senecavirus A (Seneca Valley Virus) currently circulating in U.S. swine herds that are not known to be exhibiting clinical signs of acute lameness accompanied by the presence of vesicular lesions on the snout, coronary band, and/or hoof. The information will be used to inform response recommendations based on known distribution of the virus.
6. After communicating with an expert in picornaviruses, we believe the disinfectants that are effective against FMD cannot be assumed to be effective against SVV. There's too much variation of susceptibility within the picornavirus family to extrapolate. SHIC is funding a quick study testing different disinfectants on different surfaces.

### Communication

1. The first conference call about SVV was held Aug. 7. Since then, multiple calls have been held with practitioners, associations, academics and producers to help identify the clinical presentations, the research priorities and the communication needed to respond.
2. A call to coordinate reagents, antigens and research was held with universities and multiple entities within USDA– ARS, NVSL, FADDL, CEAH and RIU. As a result, protocols, facilities, reagents and even pigs were offered for collaborative research. This call put the research effort on the fast track.
3. The National Assembly of State Animal Health Officials was on a call to update them on the finding of more SVV this year than expected. The message was to continue to investigate blisters and lameness like FMD but to be aware that SVV has been found on farms and at exhibitions, including multiple state fairs.
4. One of the biggest producer concerns has been the ability to market these animals without risking shutting down a plant for a FMD investigation, even for a short period of time. Communication with FSIS to help define what communications and assurances need to be provided to ensure no interruptions to marketing have been initiated.
5. A conference call with the AASV Swine Health Committee was held. Based on the current information available they were asked to define the “Type” of infection according to the draft response plan that NPB, NPPC and AASV have been working on with USDA (“local”, “regional”, “national”) to inform response plan options. The recommendations of the AASV Swine Health Committee can be found at <http://www.aasv.org/news/story.php?id=8348>
6. The National Pork Producers’ Packer Processor Industry Council of major packers was updated on SVV, the probability of seeing affected pigs in their plants and the communications needed among producers, the plants and FSIS if pigs with healing lesions are marketed. The objective is to prevent shutting down or delaying production in a plant due to SVV-affected pigs that have had a FMD investigation while, at the same time, not missing a potential first FMD infection.

