

Update on Senecavirus A

Senecavirus A = Seneca Valley Virus

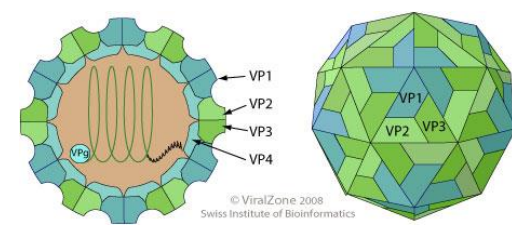
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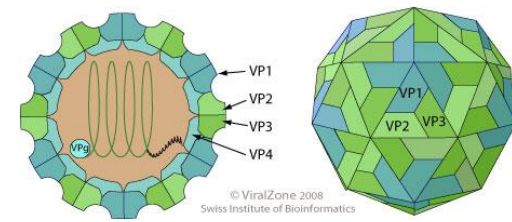
Dr. Paul Sundberg

Seneca Virus A (Seneca Valley Virus)



- 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.
- Clinical signs are **INDISTINGUISHABLE** from any of the 4 Foreign Animal Swine Vesicular Diseases.

Seneca Virus A (Seneca Valley Virus)



- Disease has been reported in the United States, Canada, Australia, Italy, New Zealand and most recently in **Brazil (2014)**.
- First case described in 1988 (cell culture contaminant)
 - **NOT A NEW DISEASE**
 - Typical for APHIS to investigate 2-4 cases per year
 - Idiopathic Vesicular Disease → Senecavirus A

Is Senecavirus A really causing Idiopathic Vesicular Disease?

- Up until recently, Koch's postulates have NOT been fulfilled for Senecavirus A and Idiopathic Vesicular Disease.
- Joint study between USDA and ISU have completed this in October.
 - Established clinical signs in 9 week old pigs and breeding age gilts both 2-4 days after inoculationio.

Case Reports: Growing Pigs

Case: Commercial Finishing Herd

- 1200 head finishing barn with report of acute lameness and vesicular lesions on snout and feet.
 - 20-30% prevalence initially (overnight)
 - Market weight animals
- Vet reported to state veterinarian, FAD investigation conducted – Negative for vesicular diseases
 - Positive for Seneca Valley Virus (both ISU and FADDL)

Case 2: Commercial Finishing Herd - July 15th

- *First cut of pigs to go to market was July 10th*
 - *Dirty market truck*
 - *Commercial loading crew*
- First clinical signs reported on July 15
- Over next 10-14 days
 - 80-90% of pigs had some sort of lesions
 - Vesicular lesions or lameness
 - “Pigs crawling to the feeders”



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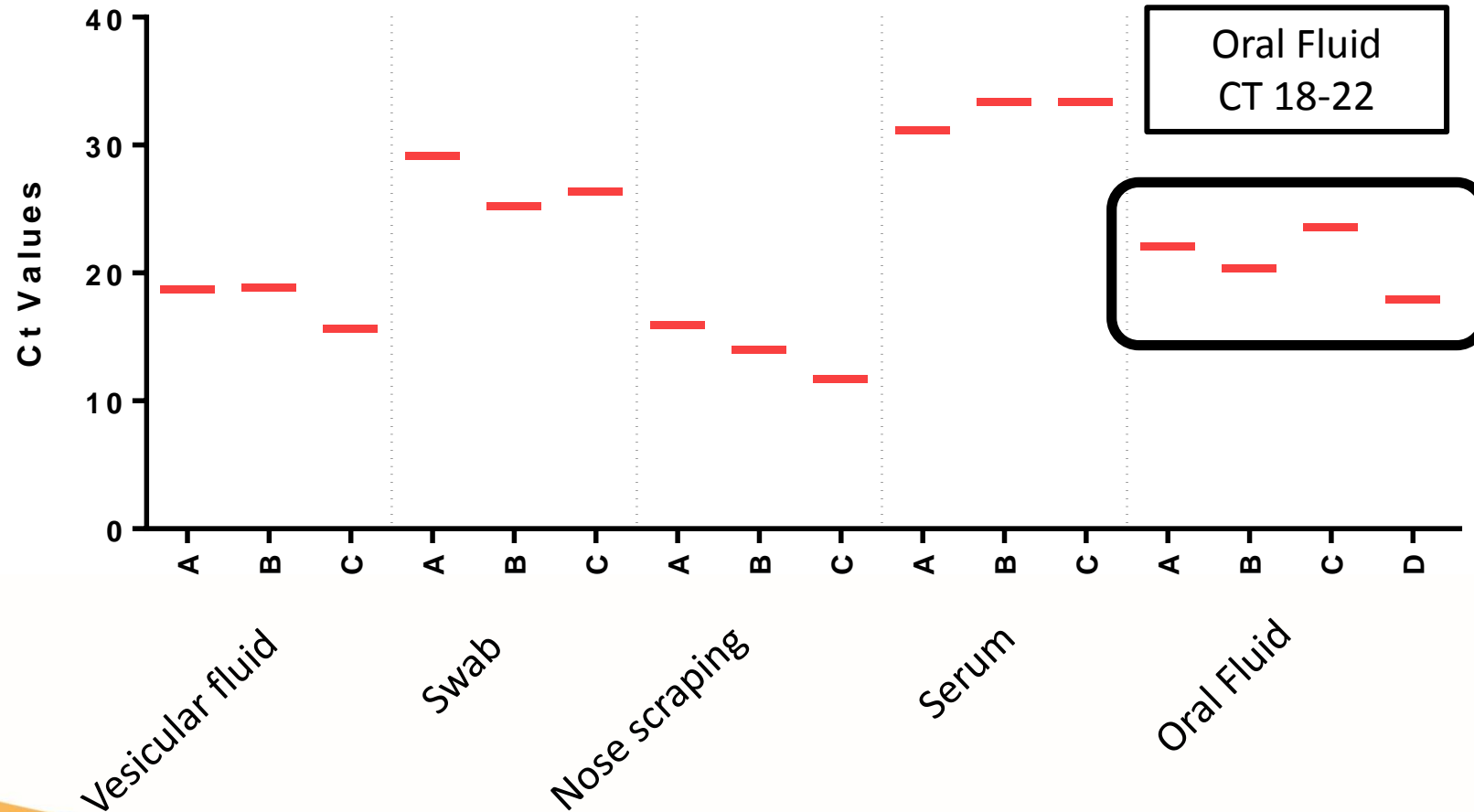


Deep nail bed
hemorrhages



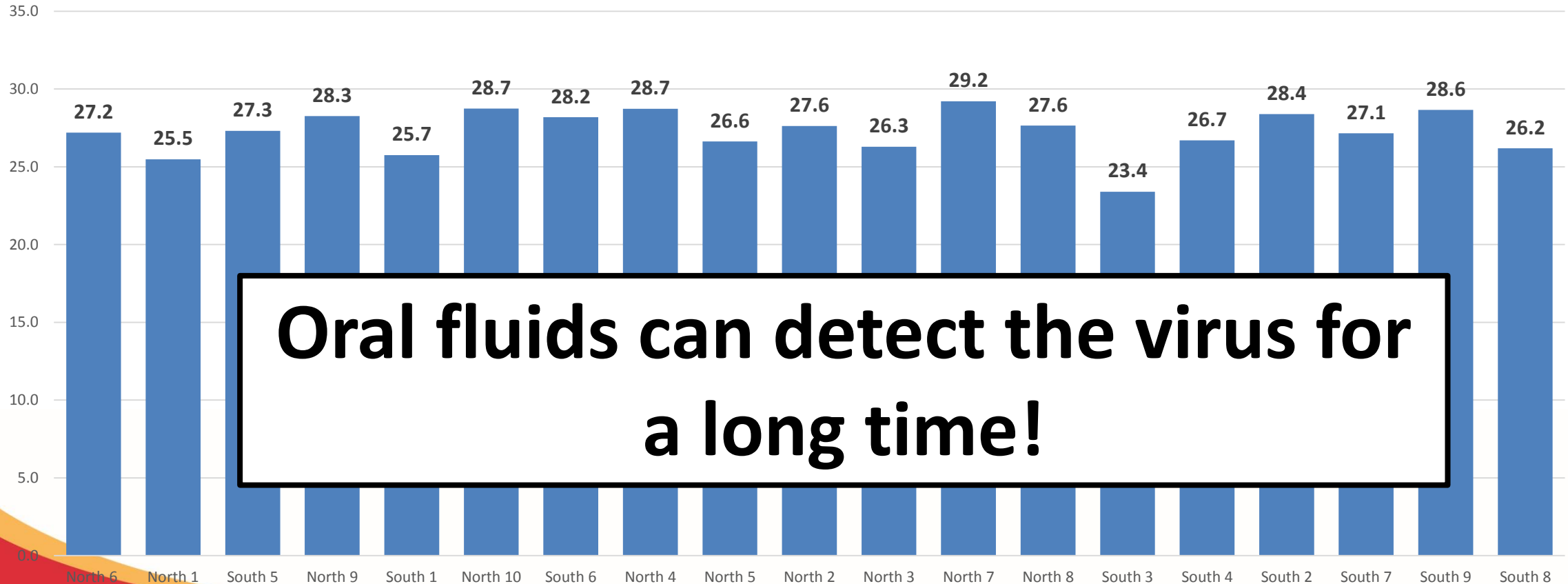


Commercial Finishing herd, 7/29/15 – 14 days into outbreak



Oral Fluids – 4 weeks into break

Oral Fluid CT - 4 weeks post break



Oral fluids can detect the virus for a long time!

Finishing Case

- Allowed 30 days for pigs to heal all the lesions and lameness subside.
- Sold all the remaining pigs without incidence.
 - Good communication with Packer and FSIS
- Second finishing case
 - Only 10-15% of pigs affected
 - Sold them 2 weeks later.

Case Report: Senecavirus A in Sow Farms

Seneca Virus Breeding Herd Cases

- Week of August 17th
 - Reports of high neonatal morbidity and mortality in pigs less than 7 days.
 - With or without diarrhea (more common with diarrhea)
 - Not usually finding much for other diarrhea agents
 - Some sows with high fevers early on (104-106^oF)
 - Some sows not eating fully (not much for off feed)
 - Mortality is short lived (4-7 days)

Similar to reports from Brazil in 2014-2015

Seneca Virus Breeding Herd Cases

- With descriptions similar to these, pathologists began to run SVV PCR on various samples from submitted cases → started finding positives!!
- Upon further investigation, then finding evidence of vesicular disease in breeding age animals.
 - 10-40% prevalence
 - Vesicles or coronary band lesions
 - NO LESIONS IN PIGLETS, Gross or Histologically.

Breeding Herd Lesions

- Lesions in sows in farrowing rooms
 - Affected litters
 - Sows had a few vesicles on the nose
 - Lots of lesions on the feet
 - Coronary band ulcerations
 - Interdigital ulcers
 - Deep nail hemorrhages
 - Saw similar lesions in unaffected litters, just not as severe.
 - No lesions in the pigs at all

Senecavirus A in neonatal pigs



Senecavirus A in neonatal pigs





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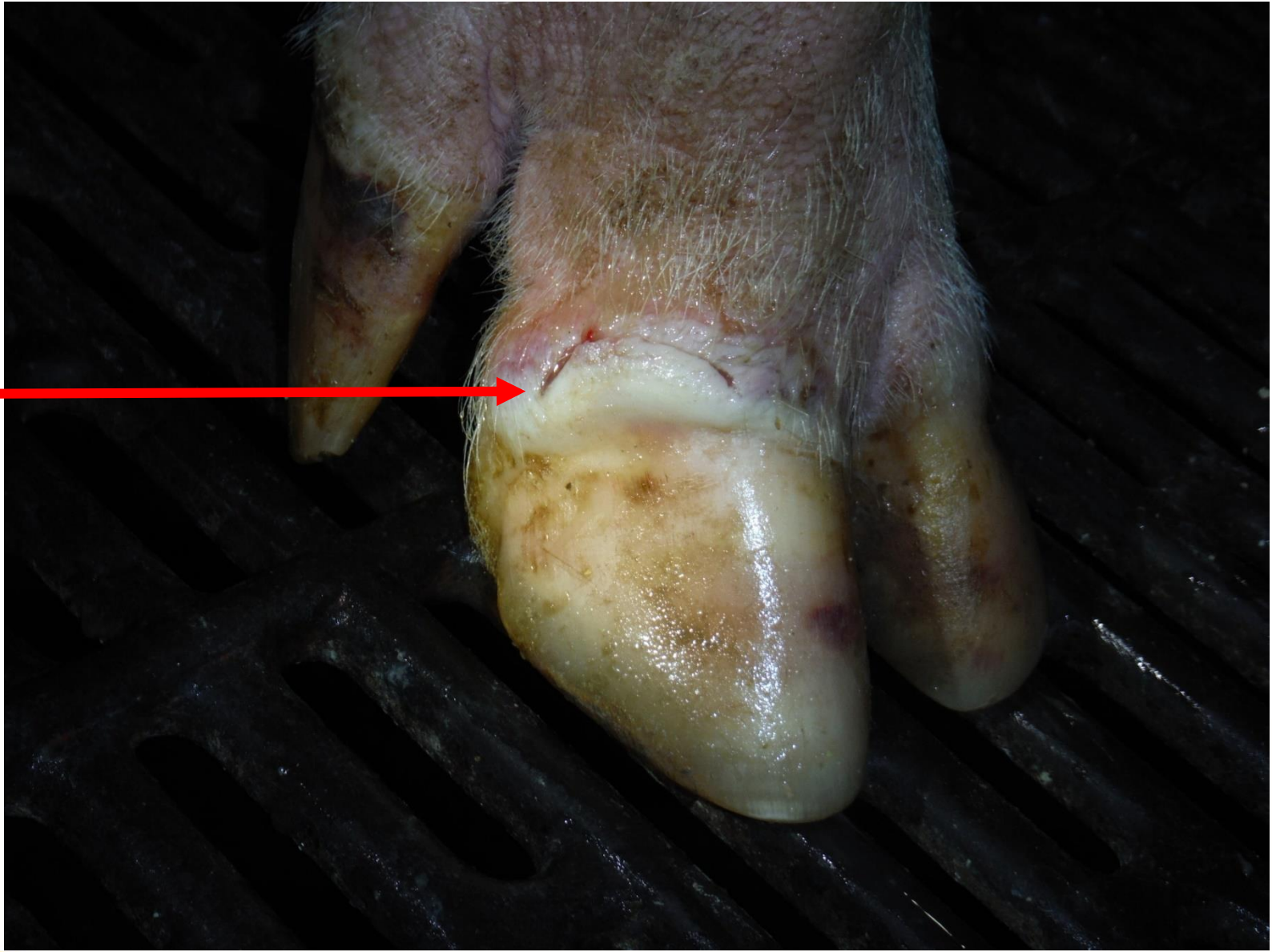
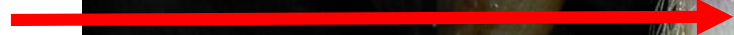


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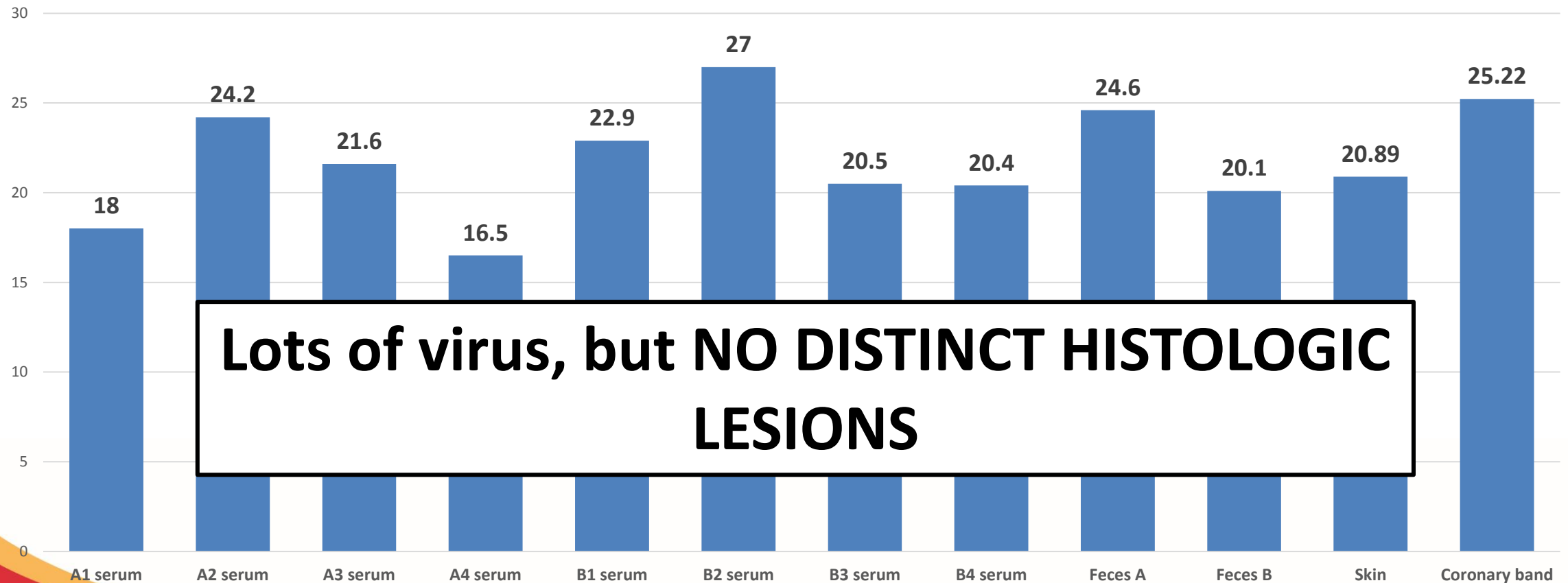
Ruptured Vesicle





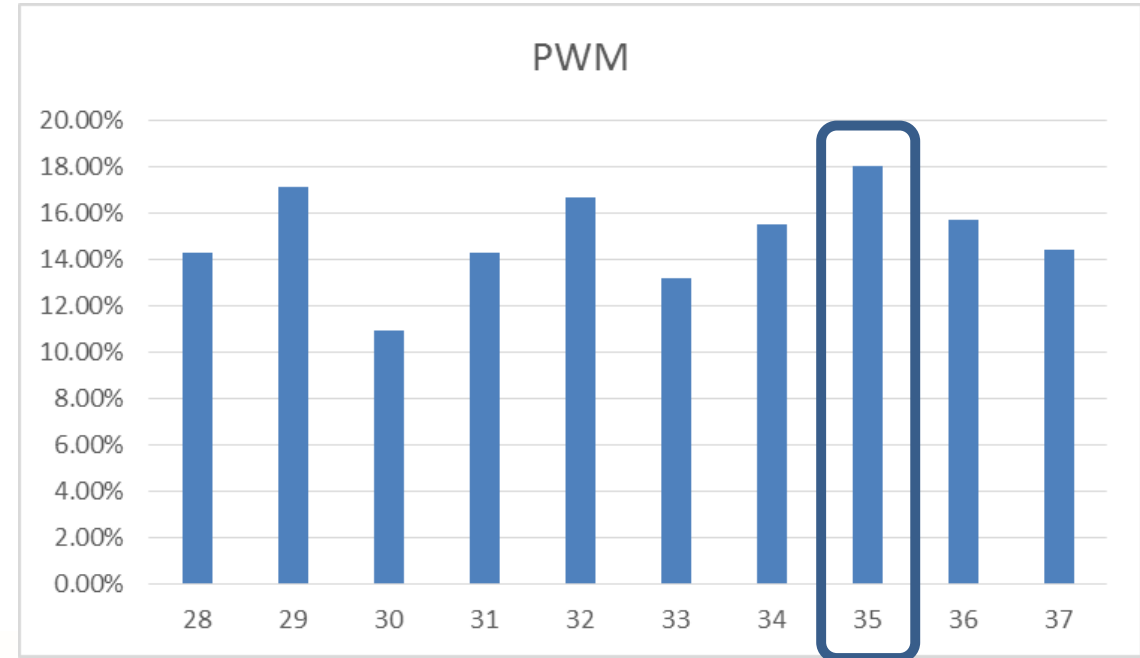
SVV PCR on neonatal pigs (less than 7 days)

Seneca Valley Virus PCR testing on neonatal piglets (less than 7 days of age)



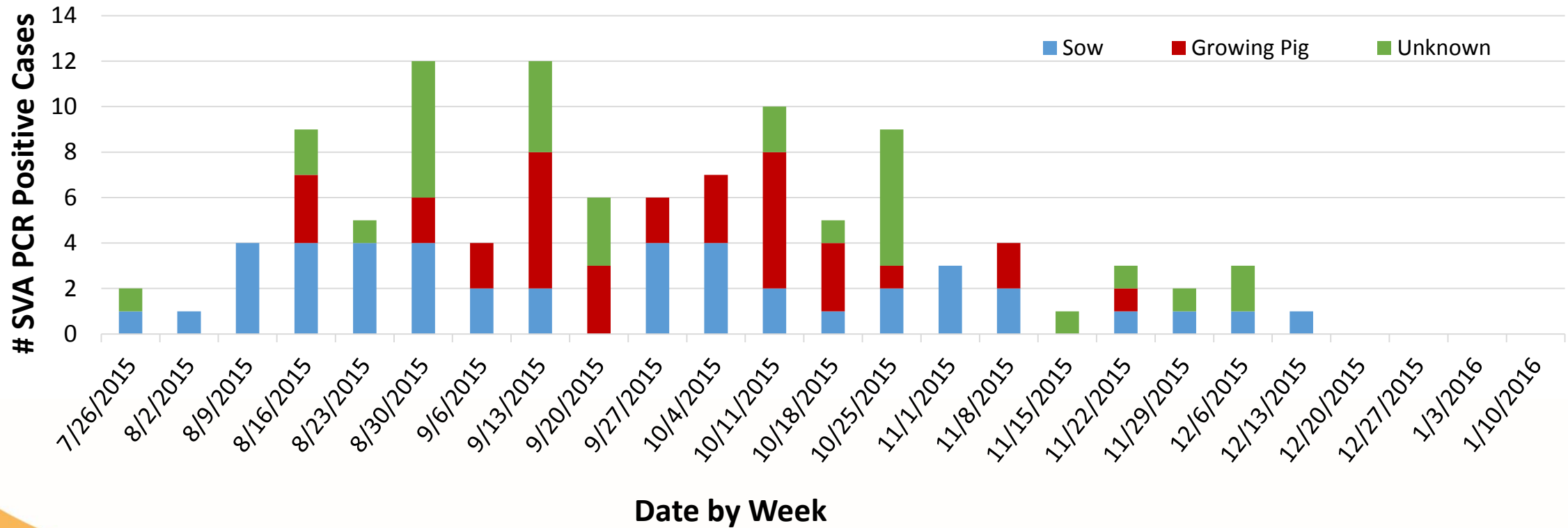
What's been the impact on production?

- Small increase (2-5%) in % PWM for 1 week in most cases.
- May double % PWM if there are other agents present
 - Clostridium difficile
 - Rota virus
- No reports of reproductive impact (Conc. Rate, Farrow Rate, Litter Size)



Current Status of Senecavirus A at ISU VDL

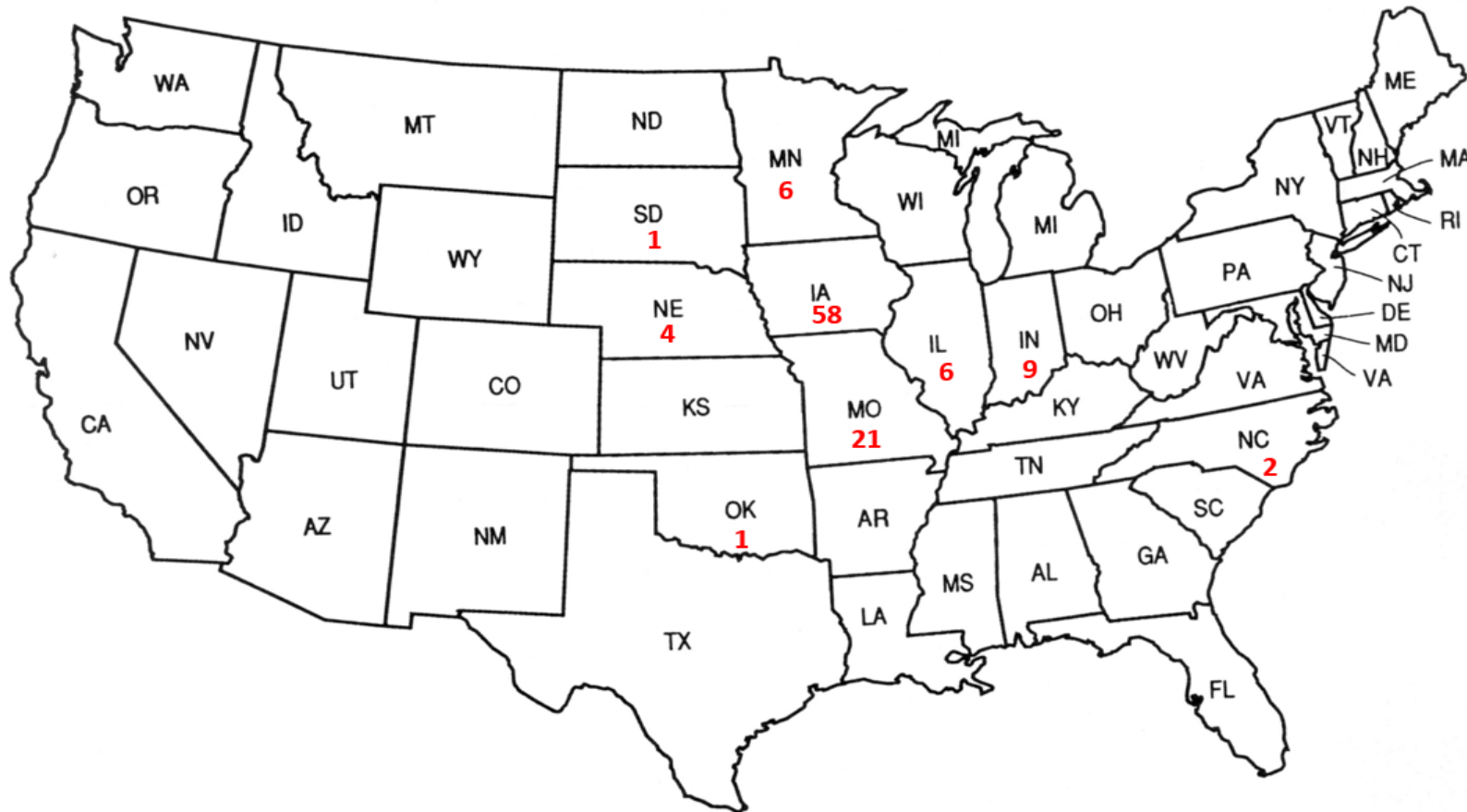
Senecavirus A PCR Positive Cases by Farm Type

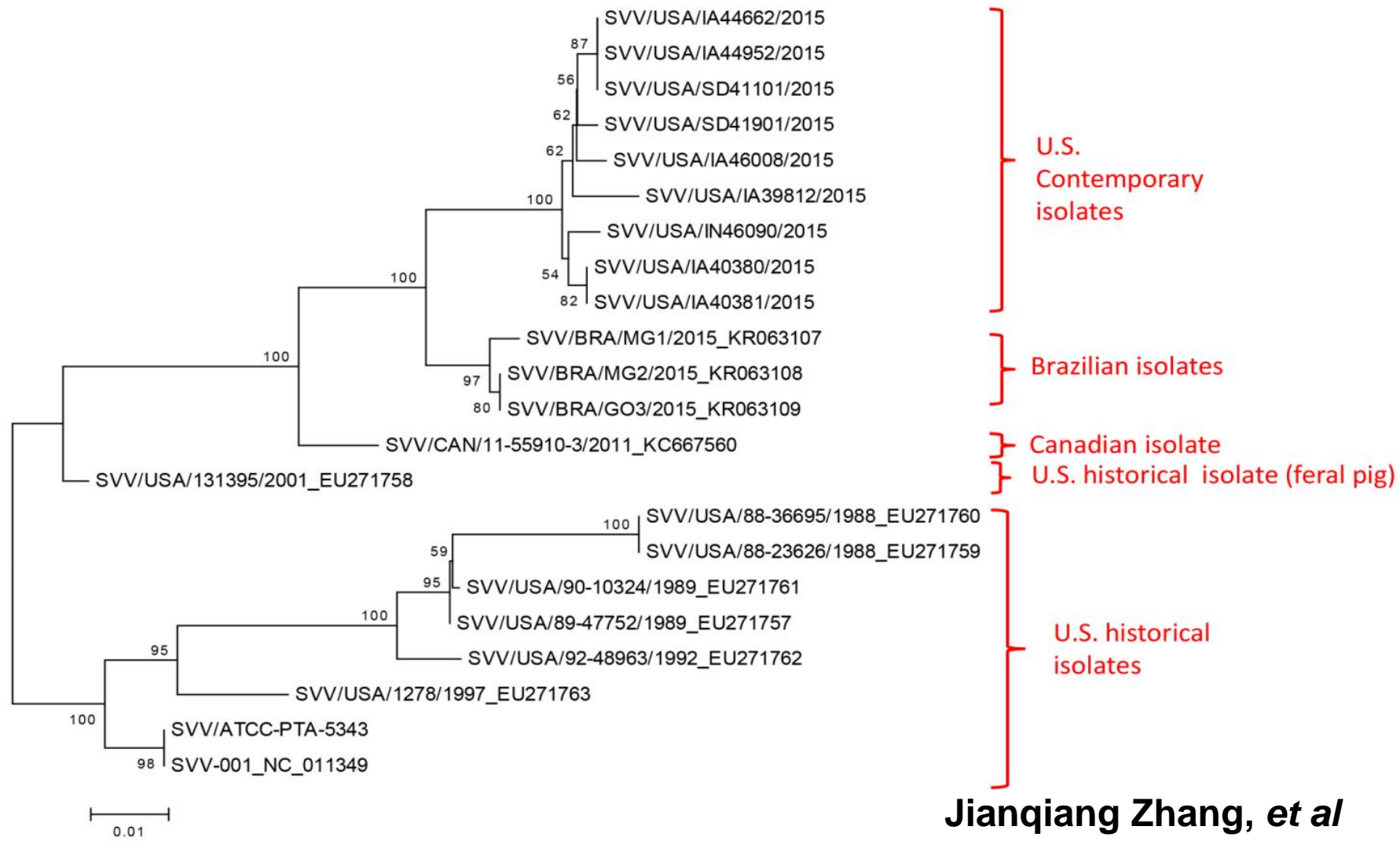


Where have we seen SVA at the ISU VDL?

AK

Senecavirus A cases diagnosed at ISU VDL since July 2015





New isolates appear to be very different than the older ones and similar to Brazilian isolates

What should you do if you suspect SVA??

- If you see suspect lesions on nose and/or coronary bands?
 - Contact your veterinarian and State/Federal Officials
 - They will determine the next course of actions
- DO NOT attempt to sell pigs with active lesions.
 - Wait until they are completely resolved.
- See an increase in % PWM in neonatal pigs (less than 7 days)
 - **Look for vesicular lesions** → contact State/Federal Officials

Summary

- Seen a significant increase in cases of Idiopathic Vesicular Disease
 - Senecavirus A in all cases
- Senecavirus A in cases of increases in % PWM in neonatal pigs
 - Short duration (4-7 days)
- Clinical pictures match description of cases in Brazil over the past year.
- The virus may have changed from historical isolates.
 - This may explain the increase in the number of cases

Questions??