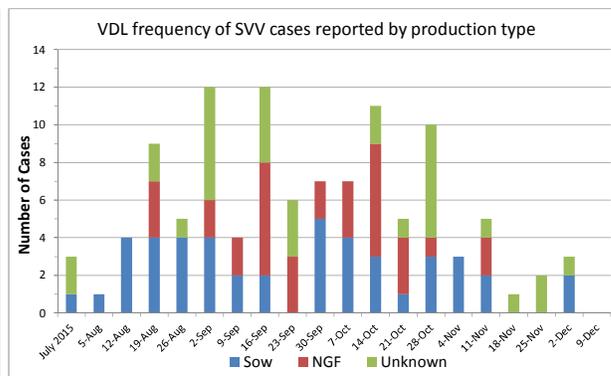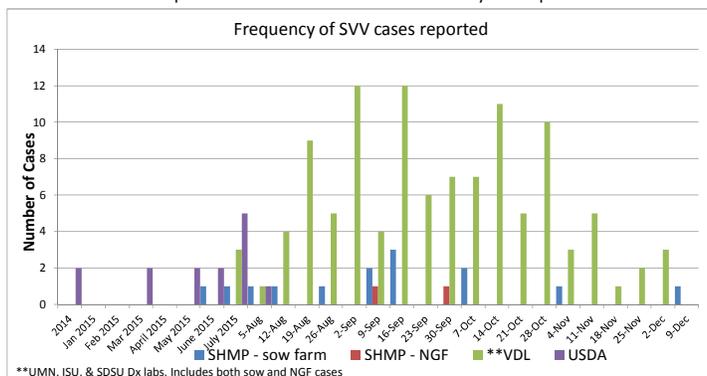# Seneca Valley Virus Update

We requested SHMP participants and UMN, ISU, and SDSU diagnostic labs to report frequency of Seneca Valley virus cases each week.
- 1 new case this week in a sow farm associated with neonatal mortality, and 2 updated VDL cases from last week.
- Note that the reported cases between data sources may overlap.

Frequency of SVV cases reported

SHMP - sow farm   **SHMP - NGF**   ****VDL**   **USDA**
**UMN, ISU, & SDSU Dx labs. Includes both sow and NGF cases

VDL frequency of SVV cases reported by production type

Sow   **NGF**   **Unknown**

A comparison of sampling methods to detect PRRSv at farrowing

Hunter Baldry, Bob Morrison

Key Points
- Testing PUC samples at farrowing was more sensitive for detecting PRRSv than testing blood swabs from all pigs in the litter or the smallest / weakest pig.
- 6 pools of 5 blood swabs representing the smallest / weakest pig from 30 litters had approximately similar sensitivity as 6 PUC samples or 6 pools of all piglets from 6 litters.
- Sensitivity of detection decreased as prevalence at farrowing decreased, as expected.

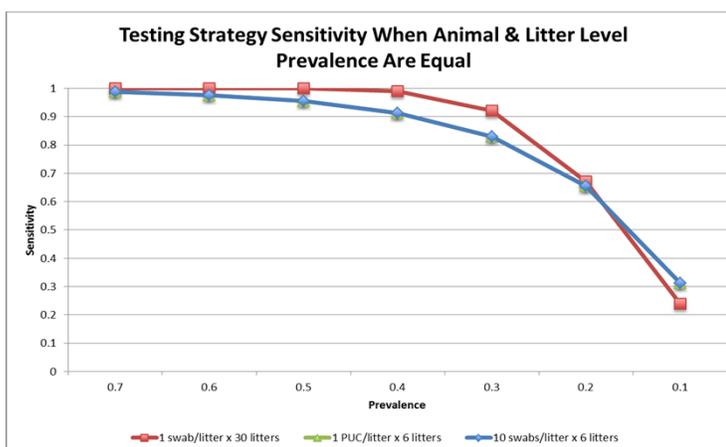
We conducted a pilot study on PRRSv in recently infected sow farms to compare sampling methods for virus detection at birth. Four farms were sampled approximately every two weeks for 3-5 consecutive visits. At each visit, samples were collected from all available litters that were less than 24 hours old. Sampling methods included pooled umbilical cord blood (PUC), pooled tail blood swabs, and individual tail blood swabs taken from the visually smallest/weakest pig in the each litter.

In total, 355 samples were collected, of which 96 samples from 24 litters tested positive by RT-PCR. Of the 24 PCR positive litters, 20 (88%) tested positive by PUC, 13 (54%) by a pool of tail swabs and 8 (24%) by smallest / weakest pig only.

	Individual Swabs	Pooled Swabs	PUC	Total
Positive Litters	8	13	21	24
Percent Total	33.33%	54.17%	87.50%	

We consider PUC samples to be a pool, as they contain blood from multiple pigs in a litter. We know that as we pool, we dilute positive samples possibly to the point of being undetectable. Therefore, we used simple 2-stage freedom analysis to compare (1) 6 pools of tail swabs from 6 litters (assuming 10 pigs / litter), (2) 6 PUC samples from 6 litters (assuming 10 cords / PUC), and (3) 6 pools of smallest/weakest pigs from 30 litters. We assumed that every pig had equal risk of infection, and that the proportion of positive pigs in a litter was equal across the 3 sampling strategies. The sensitivity of detection was very similar across these 3 strategies.

We then modified the proportion of positive litters simulating a farm as it moves towards farrowing negative litters at birth. The sensitivity of detection decreased as expected but remained consistent across all 3 strategies.

Testing Strategy Sensitivity When Animal & Litter Level Prevalence Are Equal

1 swab/litter x 30 litters   1 PUC/litter x 6 litters   10 swabs/litter x 6 litters

A future project will be to compare the prevalence of infection in the smallest / weakest pig to the largest pig in a litter. If the prevalence is higher in the smallest pig, then we expect pooling 30 litters to be more sensitive than PUCs or blood from all pigs in 6 litters. An alternative strategy could be to pool PUC. We expect that this would have highest sensitivity if the dilution effect were found to be practically insignificant. However, PUC sampling is time consuming and is dependent on placenta availability.