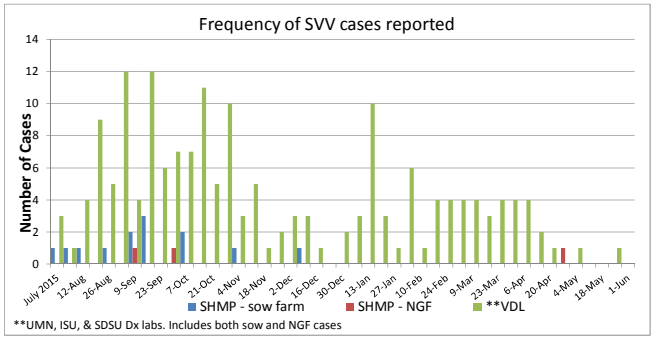
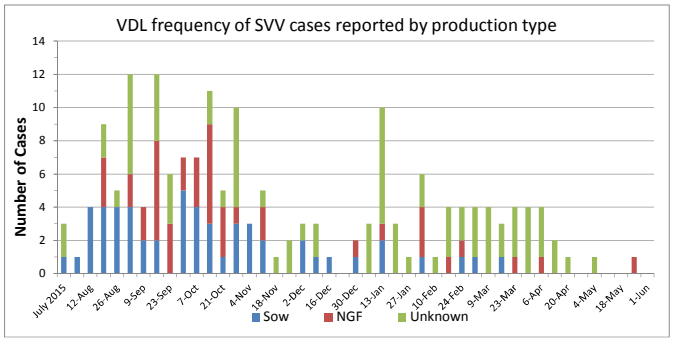
Seneca Valley Virus Update

We requested SHMP participants and UMN, ISU, and SDSU diagnostic labs to report frequency of Seneca Valley virus cases each week.

- 1 new case reported in a NGF site week of 5/22/16
- Note that the reported cases between data sources may overlap





Spatial epidemiology of PRRS for 3 control areas in the province of Ontario, Canada – Part 2

A. G. Arruda, Z. Poljak, R. Friendship, J. Carpenter, K. Hand

Key Points

- There was a 25% decrease in PRRS prevalence from 2010- 2013 for the region of Niagara (Canada)
- While clustering was not detected at the larger regional level, local clusters were detected suggesting some specific areas that could be the focus for PRRS prevention and control

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The objective of this study was to investigate PRRS prevalence for three regions located in Ontario, Canada, and to describe temporal trends of PRRS in one of the regions (Niagara).

For the prevalence analysis, swine sites were classified as being **PRRS positive** if at least one animal tested positive by ELISA (previous PRRSV exposure) or PCR (current PRRSV infection). As such, sites that were vaccinating/ performing live-virus inoculation were also considered positive. For cases in which diagnostic test was not available, status was defined based on the veterinarian's knowledge on the pig flow (e.g. confirmed positive piglets moving to a nursery). Following this classification, the mean **prevalence of PRRS** was lowest for the Niagara region (17%), followed by Perth (41%) and Watford (48%).

PRRS prevalence for the region of Niagara decreased from 2010 – 2013 due to coordinated control efforts in the area, which included depopulation/ repopulation and herd closure (Figure 1).

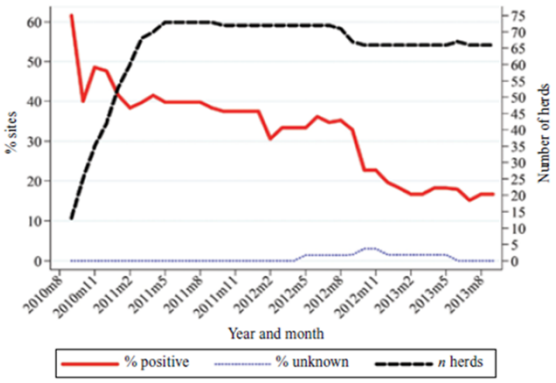

Figure 1. Temporal trend of PRRS for the Niagara region.
Source: Can J Vet Res 2015; 79: 268-278

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Spatial disease dependence can be evaluated at a global or local level, the distinction referring to a matter of resolution. The global type analysis is designed to give an overall indication of the clustering in the larger region, whereas local cluster analysis gives an indication of the embeddedness of positive farms. **Global** clustering, if evident, points toward the occurrence of spread across the region**. Local** clusters correspond to aggregated positive farms (Figure 2) and point toward something that is happening for that specific smaller area.

Spatial clustering was not identified at the global level for any of the study regions. However, "**local**" clusters could be found for Watford and Perth regions (Figure 2). This suggests that these smaller areas might be a promising focus for PRRS control in situations when resources are limited. The findings are also useful for hypothesis generation on how disease is spreading and future outbreak investigations.

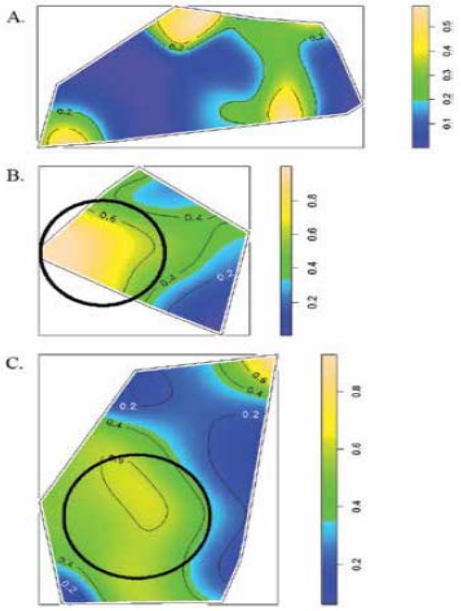

Figure 2. Risk maps and cluster locations for the regions of A. Niagara; B. Watford and C. Perth.
Source: Can J Vet Res 2015; 79: 268-278

In conclusion, this research provided detailed, previously nonexistent information that allowed for characterization of part of the Ontario swine industry. The most important message was that "area spread" did not seem evident for any of the three analyzed regions, at least when molecular data was not taken into account. Future research will focus on looking at sequence information separately, since it might be the case that some types of PRRS virus are more likely to spread via "local spread" (including airborne transmission) compared to others.

The full paper has been published in: Descriptive analysis and spatial epidemiology of porcine reproductive and respiratory syndrome (PRRS) for swine sites participating in area regional control and elimination programs from 3 regions of Ontario. A. G. Arruda, Z. Poljak, R. Friendship, J. Carpenter, K. Hand. Can J Vet Res 2015; 79: 268-278.