Spatial distribution of PRRSv in the upper Midwest

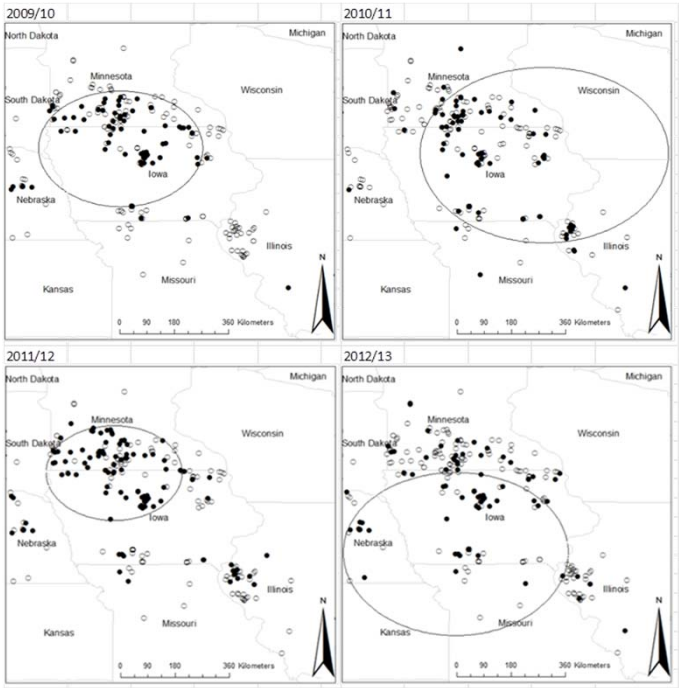
Steve Tousignant, Andres Perez, Bob Morrison

Key points:

- Spatial Distribution of PRRSv infections has remained consistent since 2009, even during the 2013/14 epidemic.
- On average, twice the number of cases were observed in the cluster than would have been expected due to chance alone.
- This significant clustering suggests there are differences within the area that favor PRRSv spread.

In this week's science page, Steve Tousignant, our recent PhD graduate, summarizes his work revolving around tempero-spatial analysis of PRRS virus infections. His major findings are as follows:

- Cases of PRRSv appeared to have been clustered in Southwestern MN and Northwestern IA (figure 1).
- A spatial scan statistic was used to compare the observed distribution of PRRSv infections to a randomly generated distribution of PRRSv infections
- We observed, on average, approximately 2 times the number of PRRSv infections in this region than would be expected due to random chance alone ($P > 0.05$).
- This same relationship was also apparent in 2013/14 where, even though there were fewer PRRSv infections overall, they continued to cluster in this same, high risk region (not shown).
- These data suggest that additional efforts in these areas could be beneficial. For example, an organized efforts (such as a regional control program) to decrease spread among sites might prove helpful. Vaccination has shown some benefit to decreasing shedding of PRRSv and might decrease spread.
- We'll continue this discussion next week with analysis of PRRSv and PEDv patterns and associated risk factors.



These studies have been published in:

Tousignant, S.J.P., Perez, A.M., Lowe, J.F., Yeske, P.E., Morrison, R.B., 2014. Temporal and spatial dynamics of porcine reproductive and respiratory syndrome virus infection in the United States. American Journal of Veterinary Research 76, 70-76.

Tousignant, S.J.P., Perez, A.M., Morrison, R.B., 2015. A comparison between the 2013-2014 and 2009-2012 annual PRRSV epidemics in a cohort of sow herds in the United States. The Canadian Veterinary Journal 56, 0000-0000 (in press).