



# SPATIAL DISTRIBUTION OF PRRS IN DENMARK

M. Fertner<sup>1</sup>, A. C. L. Antunes<sup>2</sup>

<sup>1</sup>Datamanagement, SEGES Innovation P/S, Copenhagen, Denmark; <sup>2</sup>Former Section for Epidemiology, National Veterinary Institute, Technical University of Denmark, Frederiksberg C, Denmark

## Background & Objectives

In Denmark, a national reduction strategy targeting Porcine Reproductive and Respiratory Syndrome (PRRS) was launched in May 2022. As PRRS may spread by air, we expect the spatial distribution of infected pig farms to cluster. The objective of the current study was to identify areas with high occurrence of PRRS at the initial phase of the reduction program.

## Materials and Methods

In June 2022, 2,348 Danish pig farms were enrolled in the serological PRRS surveillance program 444 (19%) and 482 (20.5%) farms being seropositive for PRRS type I and type II, respectively.

For each of the PRRS subtypes, we performed a spatial interpolation based on kernel smoothing techniques to map the surface of Danish pig farms being positive, compared to farms enrolled. In addition, we performed spatial scan statistics to identify signifi-

cant geographical clusters (Kulldorff, 1997), by means of a purely spatial Bernoulli model with PRRS seropositive herds (cases) and seronegative herds (controls).

## Discussion & Conclusion

Results from the present study identify areas with high occurrence of PRRS. However, areas may change as more herds enroll in the PRRS surveillance program, as the two presented spatial analyses both exclude herds with unknown status.

Additional investigations are needed to determine whether other risk factors than air, may explain the geographical clustering.

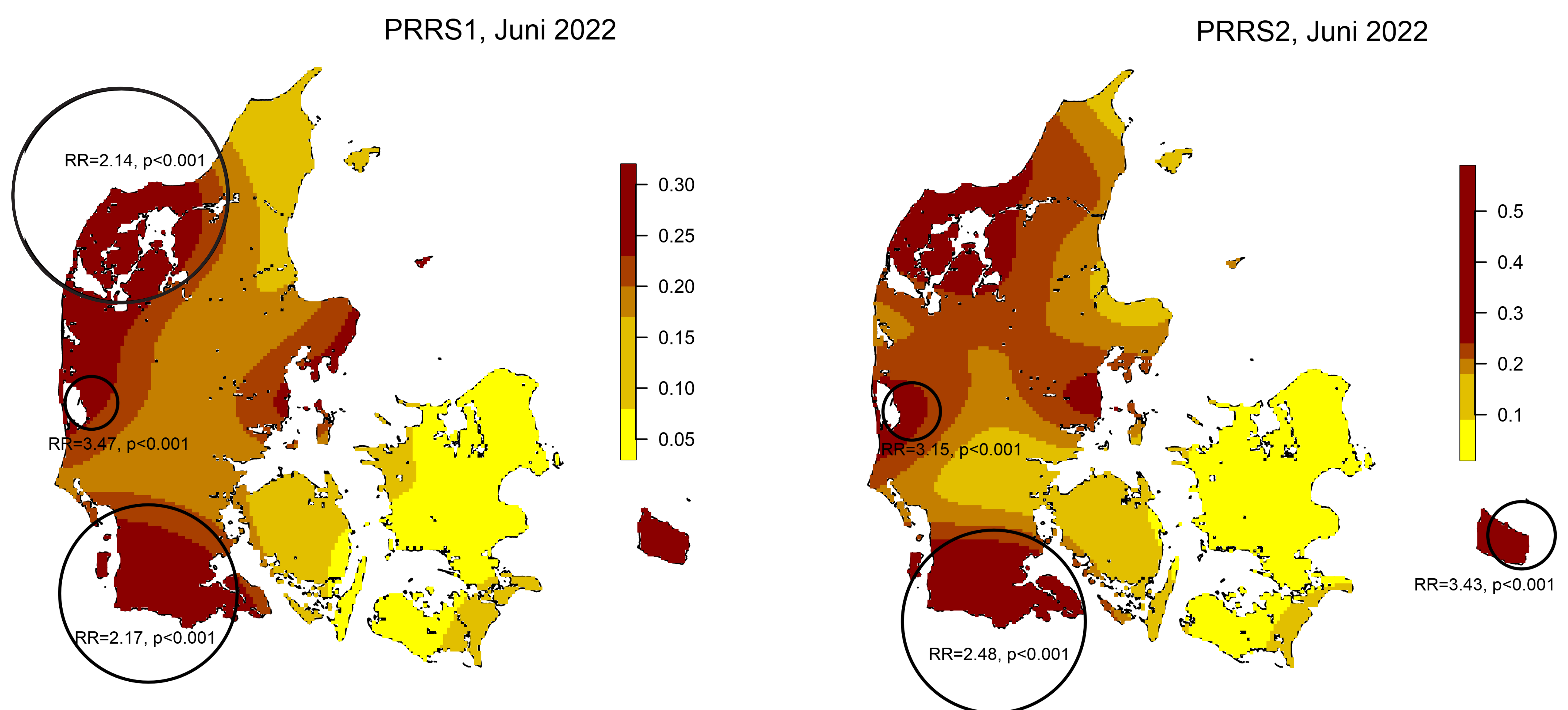


FIGURE: SPATIAL DISTRIBUTION OF PRRS SUBTYPE I AND II IN DANISH PIG HERDS, JUNE 2022. RESULTS FROM BOTH THE KERNEL SMOOTHENING (COLOURS) AND THE THREE MOST PROMINENT CLUSTERS FROM THE SPATIAL SCAN STATISTICS (CIRCLES) WITH AFFILIATED RELATIVE RISK AND P-VALUES ARE PRESENTED.

CONTACT  
Mette Fertner  
Livestock Innovation  
+45 2757 1083  
mefr@seges.dk



## References

Antunes, A. C. L., Halasa, T., Lauritsen, K. T., Kristensen, C. S., Larsen, L. E., & Toft, N. (2015). Spatial analysis and temporal trends of porcine reproductive and respiratory syndrome in Denmark from 2007 to 2010 based on laboratory submission data. *BMC Veterinary Research*, 11(1).

Kulldorff, M. (1997). A spatial scan statistic. *Commun. Statist. - Theory Methods*, 26(6), 1481–1496.



**SEGES**  
INNOVATION