The effect of season on PRRS time-to-stability in the Midwestern United States

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Key Points

- Seasonal conditions may effect the time to stability of a farm
- Understanding seasonal effects on time to stability can help producers and veterinarians plan herd closures

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The time needed between an outbreak and consistently weaning porcine reproductive and respiratory (PRRS) virus PCR negative pigs is referred to as time-to-stability (TTS). Factors as the type of exposure done to homogenize the herd, whether the herd had a previous PRRS outbreak , and the restriction fraction length polymorphism (RFLP) associated with the outbreak affect the time required to reach stability (Linhares et al., 2014; Linhares et al., 2017). In this analysis we describe differences in TTS according to the season when the PRRS outbreak occurred in farms located in the Midwestern United States.

PRRS incidence data from six MSHMP participants, that are similar in the way they test and classify PRRS statuses and that are guided by Holtkamp et al. (2011) criteria, were used for the analysis. PRRS outbreaks that occurred from the March 21st to June 20th, June 21st to September 20th, September 21st to December 20th and December 21st to March 20th of any given year were used to classify PRRS outbreaks as occurring in spring, summer, autumn, and winter, respectively. TTS was calculated as the time from the reported PRRS outbreak to the time of the last PRRS PCR negative result in wean-age pigs (usually 10 weeks of PCR negative results in the systems used for the analysis).

A total of 161 PRRS outbreaks in 82 sow farms were included in the analysis. Figure 1 shows the distribution of TTS according to the season when the PRRS outbreak occurred. A significant difference (p=0.01) was detected in TTS among seasons. The median TTS was higher in spring (54.0 weeks, 95% CI 48.0 weeks – 61.0 weeks) and summer (53.0 weeks, 95% CI 48.0 weeks – 55.0 weeks), compared to autumn (38.0 weeks, 95% CI 33.0 weeks – 43.0 weeks) and winter (35.5 weeks, 95% CI 32.0 weeks - 38.0 weeks).

An explanation for the observed TTS difference among seasons may be found in environmental survivability of the virus as for PRRS outbreaks that occur during spring or summer, the last phase of the stability process coincides with the arrival of winter where the reduced ventilation and decreased temperature within the farm may favor PRRS survival resulting on a lower likelihood of elimination during this time. On the other hand, for PRRS outbreaks that occurred during winter and autumn, the last phase of elimination coincides with summer/early autumn where the ventilation and temperature conditions may favor PRRS elimination resulting on a shorter TTS. This information may be helpful for producers and veterinarians to plan herd closure and manage expectations on the time required to reach stability according to the season when the PRRS outbreak occurred.

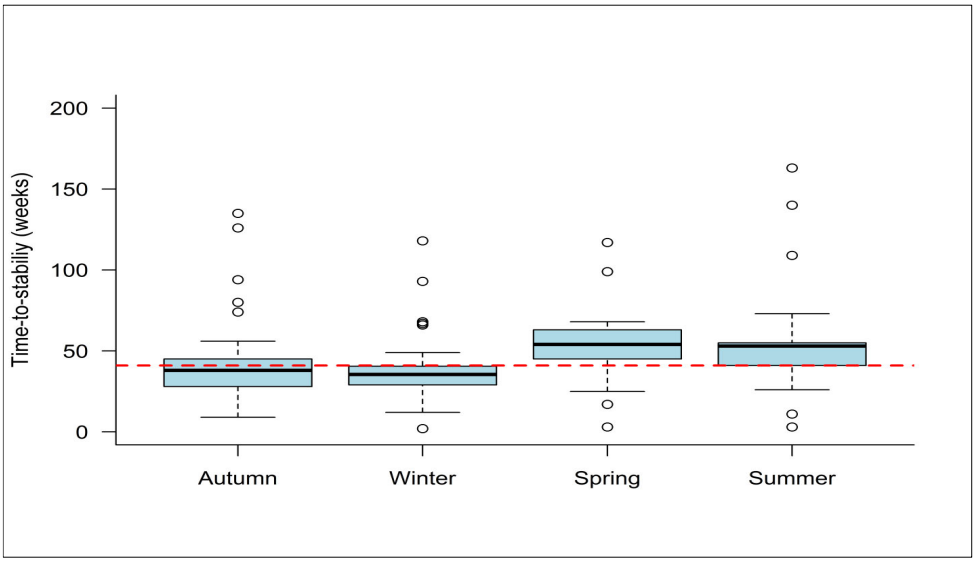

Figure 1: Time-to-stability (TTS) in weeks according to the season when the PRRS outbreak occurred. Dashed line represents the median TTS in the data (41 weeks).

References
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