

Correlation between time to stability (TTS) for herds with two consecutive PRRS breaks

Key points:

- TTS_1 and TTS_2 were significantly correlated ($r=0.42$; $p=0.001$) with each other.
- Status 2fvi and 2vx had similar TTS for break 1 (18.0 and 19.2) and break 2 (20.3 and 20.5), respectively.
- Median TTS for 60 breaks was 19.5 and 21.5 days.

As you will recall, last Friday we reported mean and median TTS values (30.6 and 26 weeks, respectively) for a subset of 97 farms that had at least one outbreak of PRRS and no history of PEDv infection. The median value of TTS was identical to that reported in our earlier study of 61 herds (Linhares et al 2014).

Sixty of the 97 herds had a second outbreak and we calculated the descriptive statistics for TTS in these 60 breaks and the correlation of TTS between their first and second PRRS outbreaks (Figure 1). Stability was defined as having had 4 consecutive tests of at least 30 weaned pigs over a period of 90 days. TTS was defined as the date of the 1st negative test followed by the 3 consecutive negative tests. One outlier herd with a TTS_1 value of 99 weeks was removed from the analysis. The mean and median TTS were 23.7 & 19.5 (break 1) and 26.0 & 21.5 (break 2), respectively.

There was a positive correlation between time to stability at break 1 and 2 ($r=0.42$; $p=0.001$) (Figure 1). This means that there are herd-level factors that are consistent between outbreaks that influence TTS. These could include whole herd exposure program, design and implementation of internal biosecurity programs, facility layout, and others.

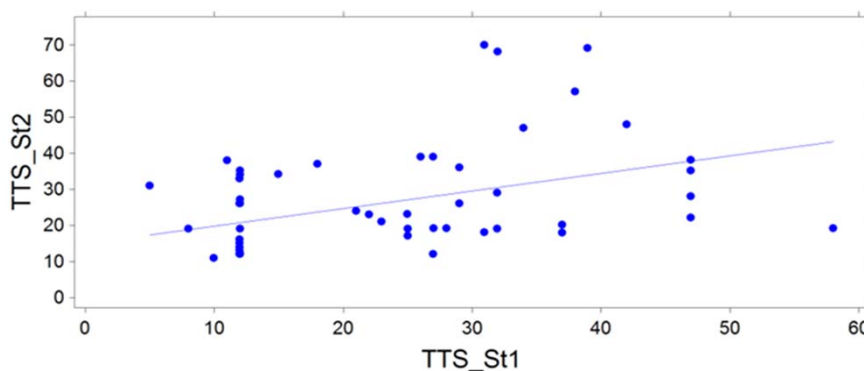


Figure 1: Scatter plot for time to stability at break 1 and 2 (TTS1 and TTS2)

We also compared TTS by PRRS status at exposure for these 60 breaks. As we reported last week for 97 herds with just one break, herds with prior immunity (2fx and 2fvi) had shorter TTS compared to those with no immunity (2, 3 and 4). Also, there was no difference in the mean TTS values for status 2fvi and 2vx for break 1 (18.0 and 19.2) and break 2 (20.3 and 20.5). This observation, in conjunction with the observation by Linhares et al, 2014 of the association between whole herd exposure program and TTS, suggests that herd immunity at the outbreak and thereafter, has an important role in influencing time for the herd to achieve stability.

This is a preliminary analysis of a selection of the data. In the coming weeks, we will report TTS by system (to participants only), association between season and TTS and an analysis of the entire data set.

Thank you for your participation and ongoing support.

Deepak Kumar, Carl Betlach & Bob Morrison.