

Seasonality of PEDV incidence in breeding herds during endemic transmission in the U.S.

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Key Points:

- After remaining at endemic levels for a few years, PEDV incidence increased in late 2021/early 2022.
- The epidemic level was reached again during late 2022, confirming that the occurrence of this virus continues to be clustered in time.

During the initial PEDV outbreak in April 2013, systems all over the U.S. were heavily affected, with an epidemic curve peaking at over a 1.5% EWMA incidence in January and February of 2013 (Figure 1). The incidence rapidly declined and approached zero in July 2014 thanks to the swift intervention of swine veterinarians, however, sporadic outbreaks peaking at around 0.5% EWMA incidence were still seen throughout 2016, 2017, 2018, and 2021 mixed with windows of time with low, close to zero transmission.

Incidence in summer and fall are consistently lower than the incidence in winter and spring each year, even during endemic periods (Figure 2), indicating that the bulk of new cases are being reported during winter. This continues to confirm our previous findings that virus occurrence is clustered in time and space (Makau et al., 2021). During Spring 2022, we observed a higher PEDV incidence than spring in previous years. Fall 2022 also had increased incidence compared to previous years; however, this has not seemed to immediately influence the incidence during winter 2022-2023, which is still ongoing (December 2022 to March 2023). Summer tends to have the lowest PEDV incidence, highlighting this potential seasonality pattern even further.

As the industry continues to control and eliminate this virus in specific herds, attention to known risk factors particularly during late fall and early winter together with the ecology of the virus in the growing pig herd need to be addressed in each farm's biosecurity program.

Figure 1. Incidence exponentially weighted moving average (EWMA) for PEDV.

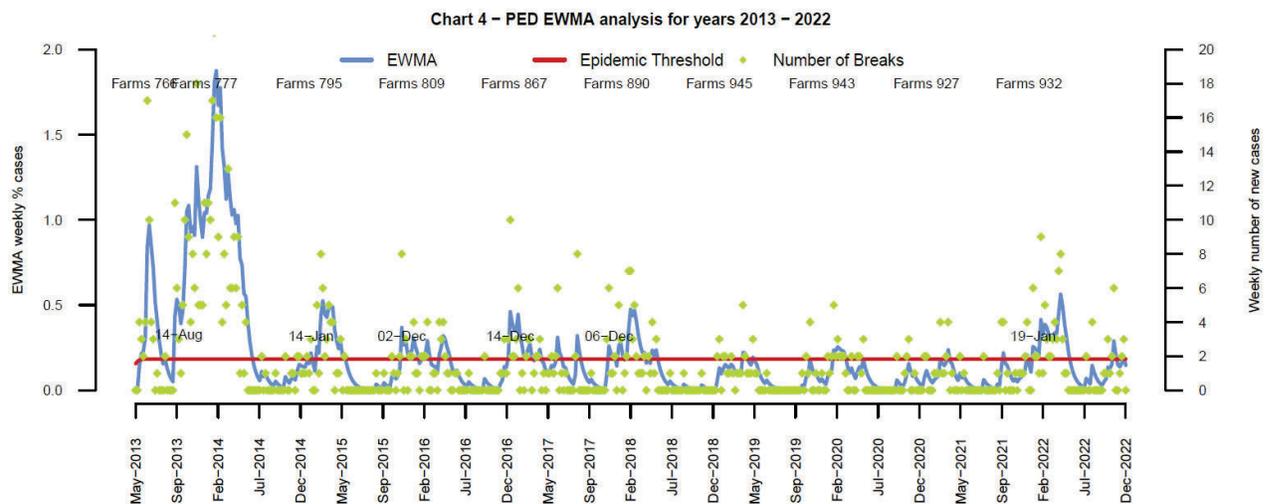
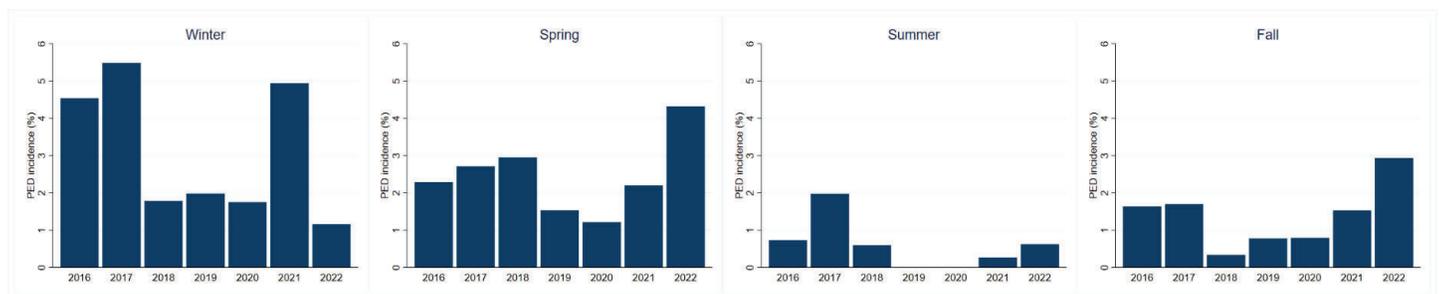


Figure 2. PEDV incidence by season. Seasons were defined by equinox and solstice dates. Yearly incidence for winter represents December of the described year to March the following year. Winter 2022 is still ongoing.



Makau D, et al. Post-dynamics of PEDv in the US: current trends and patters. Leman Conference. 2021. https://www.youtube.com/watch?v=L_11Bpw8R5Y

