

Assessment of SVA Trailer Contamination at the Harvest Facility

Lucas Ferreira, Mark Schwartz, Marie Culhane, Cesar A Corzo
University of Minnesota

Key Points:

- SVA can be detected on market hog trailers throughout the whole year.
- After leaving the harvest plant, SVA-contaminated trailers are often not washed.

Introduction

Seneca virus is a significant swine disease in the US; however, its epidemiology is not yet fully understood. The contamination of transport vehicles represents an important risk factor as pigs are moving between farms and ultimately to the harvest plant facility. A contaminated trailer has the potential of disseminating the pathogen across farms. Lowe et al. (2014) demonstrated the role of unloading at the harvest facility in PEDV trailer contamination during the early stages of the epidemic; however, currently, there is no data available quantifying the risk of contamination with SVA while unloading market hogs at the plant. Therefore, determining the risk of contaminating trailers with SVA at harvest facilities is critical for informing biosecurity measures aimed at mitigating, controlling, and ultimately eliminating the pathogen from swine production systems. In this study, we evaluated how often trailers are contaminated with SVA while unloading market hogs at the harvest facility.

Methods

Fifteen environmental samples from harvest plant docks and market hog trailers (before- and after-unloading) were collected biweekly between calendar week 47 of 2024 and week 45 of 2025 (whole year). Metadata on trailer origin, sanitation practices, trailer destination, and driver/plant employee behavior during unloading was also recorded. Samples were submitted to the University of Minnesota Veterinary Diagnostic Laboratory for SVA RT-PCR testing.

Results

A total of 389 samples were collected from both docks and trailers (before and after unloading). At the dock, SVA was detected in 48.1% of the samples with a Ct value ranging between 19.21.10 and 39.77. Before unloading market hogs, SVA was detected in 21.9% of the trailers, and when tested right after unloading, the percentage of contaminated trailers increased to 39.4%. The increase in contaminated trailers was consistently observed across all tested weeks (Fig. 1), with a higher level of contamination in the summer and fall. The mean, minimum, and maximum SVA RT-PCR Ct values after unloading market hogs were 18.6, 31.61, and 39.93, respectively. A total of 78.2% trailers arrived SVA RT-PCR negative at the harvest plant, and 26.7% were contaminated. Across all seasons, the highest percentage of positive SVA samples was observed during the summer, followed by the fall, with the dock testing positive in 77.5% and 65.2% of the samples, respectively, while 32.6% and 27% tested positive before unloading, and 69.7% and 50.4% of the samples tested positive after unloading, respectively. In contrast, contamination was lower during the winter and spring, as 28.9% and 15% of the docks tested positive, respectively. Before unloading, 16.7% and 8.7% tested positive, respectively; and 20% and 13% tested positive after unloading, respectively (Fig 2). A total of 86.6% of the trailers would visit the truck wash right after unloading market hogs, while 13.4% did not plan to wash their trailer after unloading. Out of the SVA contaminated trailers, 11% of them planned to load market hogs without washing the trailer.

Fig 1. Percentage of RT-PCR SVA positive samples per week

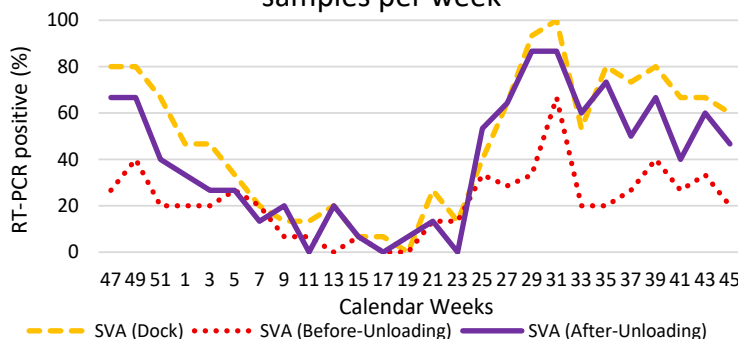
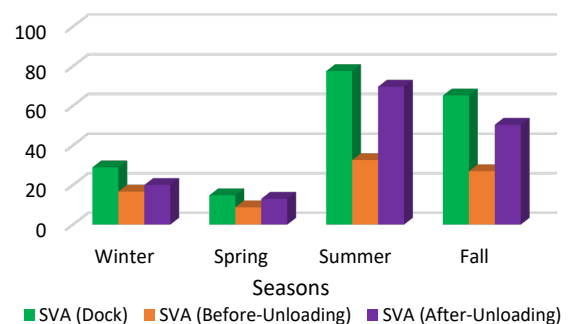


Fig 2. Percentage of RT-PCR SVA positive samples by season



Discussion

Results from this study indicate that an important number of trailers are arriving at the harvest plant already contaminated, suggesting SVA within-herd transmission may be occurring, leading to market hog shedding or the possibility that trailers had not been washed in between loads. The percentage of contaminated docks is usually higher than the percentage of contaminated trailers arriving at the plant (before unloading), but the percentage of contaminated trailers after unloading is usually similar to the percentage of contaminated docks, suggesting that trailer contamination most likely occurs during the unloading process. Seasonality seems to play a role in trailer contamination, with higher percentages of contaminated docks and trailers occurring during the fall and summer when compared with the winter and spring. These findings underscore the critical importance of implementing effective biosecurity measures during the unloading process and ensuring market hog trailers are washed after every load.

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