PRRSV Variants Under Monitoring (VUM): A New Industry Resource

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Why this matters

Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) continues to evolve, with new genetic variants emerging each year. Some of these show signs of increased transmissibility or greater production impact, posing a challenge to swine health and herd productivity. While the group has been communicating on monitored variants for the past few years and advancements have been made towards easier identification of PRRSV variants and monitoring, *current surveillance methods struggle to identify variants the industry should pay attention to, and often focus on describing past or ongoing large epidemics*.

From Reactive to Proactive: A New System for Tracking PRRS Variants

To support proactive disease management, the University of Minnesota Swine Group is launching a new initiative to provide systematic updates and epidemiological analysis on the emergence and spread of PRRSV variants. This initiative will flag variants that exhibit *potential characteristics of rapid transmission and high production impact*. We have called this effort as *Variants Under Monitoring (VUMs)*. This effort uses the PRRS-Loom infrastructure, which assigns variant IDs to sequences and also predicts variants with that are likely to exhibit high growth in the next 12 months based on sequence counts and genetic features. Variants with predicted high growth are designated as VUMs and are further *classified into four categories based on the number of new sites* identified in the previous six months (Figure 1), using the MSHMP PRRSV database.

PRRSV variant class	Predicted growth in next 12 months	Number of new sites in the past 6 months	Number of variants	Percent of sequences
No enhanced monitoring	Low	-	154	77
VUM Category 1	High	<=30	16	7
VUM Category 2	High	31-50	3	2
VUM Category 3	High	51-100	1	8
VUM Category 4	High	>100	2	6

Figure 1. VUM Category, number, and percent of sequences of currently circulating in the U.S. as of August 2025.

What producers and veterinarians can expect

- Monthly updates on VUMs currently in circulation, including the number of sites, systems and states affected, along with site-level epidemiological curves.
- Situation reports for each VUM in category 2 or higher, detailing existing knowledge on their occurrence and production impact/severity.

How this can help the industry

This system allows for the *proactive identification of PRRSV variants that are, or could become, more impactful to the swine industry*. By identifying high-risk variants earlier, the industry can respond faster and effectively, which enhances production teams' preparedness, guides resource allocation, and improves situational awareness for farm personnel, producers, veterinarians, researchers, and other key stakeholders.

Stay updated

Monthly updates will be emailed directly to MSHMP participants and made publicly available on the MSHMP website. This information will also be distributed through multiple routes of dissemination to reach key industry stakeholders, such as the PRRS-Loom/PRRSV-2 Nomenclature Advisory Group briefs and SHIC. *The goal is to provide timely, transparent, and actionable information*.

You can find this month's VUMs update and variant-specific situation reports at: https://mshmp.umn.edu/PRRS-variant-monitoring For questions or more details, please contact Mariana Kikuti (mkikuti@umn.edu) or Kimberly VanderWaal (kvw@umn.edu).