Morrison Swine Health Monitoring Project (MSHMP) 2023 Summary

Cesar A Corzo
Principal Investigator
corzo@umn.edu

We hope you had a great holiday season. Below I have summarized some of our accomplishments throughout 2023 as well as interesting observations regarding our monitoring work.

Database and Operations – This year, the database became fully audited. We developed a new functionality for tracking and logging every user change to the database. This allows us to monitor and review user activities, to ensure data quality, security, and effective use. We have continued to improve our interface functionality and ease of use, making data management more efficient and reducing error. Additionally, we now have real time access to the UMN VDL PCR results, in addition to sequences.

Communication – We have received great feedback in the past regarding our communication capabilities. Frequently asked questions such as "where can I find old science pages?", "how can I cite MSHMP", and "what are you doing with my data?" have inspired us to invest considerable effort in designing and launching the MSHMP website (http://mshmp.umn.edu). This platform serves as a centralized hub where we have compiled the work carried out by our team for you to access at your convenience.

PRRS monitoring – As all of you have already noticed, PRRS activity during the 2023 calendar year was different. Although there is a perceived delayed onset of the PRRS epidemic, PRRS incidence has been above our epidemic threshold since early November. This is partially explained by the lower epidemic threshold during the 2023-2024 season, which is based on the summer PRRS occurrence in the years prior. A combination of factors also adds to the complexity of the lower PRRS incidence compared to historical data, such as 1) Farms stay positive for longer likely due to the industry-wide adoption of processing fluids, potentially hindering the detection of new introductions[1], 2) Warmer/dryer year, 3) Improvements in biosecurity processes and compliance, 4) Depopulation/Repopulation (and maybe no repopulation).

PRRS regional warning tool – We have successfully launched The Early Regional Occurrence Warning (TEROW) program during the first semester of 2023 to timely alert participants that opted in of PRRS occurrence nearby their sites. The program remains open for enrollment.

PRRS sequences – During 2023 we helped MSHMP participants in 26 outbreak investigations. The power of the MSHMP sequence database which comprises both breeding and growing pig sites sequences continues to increase as data continues to be curated. Most importantly, as we include growing pig sites in the MSHMP dataset, our capabilities of linking sequences to specific sites to describe spatial-temporal distribution of PRRS viruses increases. In addition, the MSHMP database has played a key role in several aspects: 1) Backbone for the AASV PRRS virus classification system, 2) Used to develop and validate strain emergence prediction models and 3) Understanding regional dissemination.

PED monitoring – The second semester of 2023 brought us good news in that the cumulative incidence is quite low as the number of herds that had reported a break by the end of the year was less than half (i.e., 14) when comparing to the end of 2022. During the 2023 Leman Conference we were able to show the audience the success story the U.S. industry is building as we showed 1) Low cumulative incidence and 2) Shorter breeding herd time-to-stability when comparing the endemic vs. the epidemic phases of this virus in our industry.

We look forward to providing our MSHMP participants and the industry with valuable and timely information, based on field-driven questions.

Respectfully,
Cesar A Corzo

Reference [1] Kikuti, M., Vilalta, C., Sanhueza, J., Melini, C. M., & Corzo, C. A. (2022). Porcine reproductive and respiratory syndrome prevalence and processing fluids use for diagnosis in United States breeding herds. *Frontiers in Veterinary Science*, *9*, 953918. https://doi.org/10.3389/fvets.2022.953918