



Season 5, Episode 9: Utilizing on Farm Data to Determine Herd Health Status

Dr. Gustavo Silva, Assistant Professor, Iowa State University and **Dr. Mafalda Mil-Homens**, PhD student, Iowa State University, share their global experiences and discuss how their research enhances health detection resources in the swine industry.

Background

This research began when Dr. Gustavo Silva proposed analyzing early productivity data to identify signs associated with potential health outbreaks, specifically PRRS. Initially, only a few Key Performance Indicators (KPIs) were used. The goal was to leverage routinely collected sow farm data to detect early signs of potential disease introductions, allowing farms to take preventive measures and contain disease spread.

Data Collection

This study leveraged sow performance monitoring and electronic feeding systems to track key health indicators such as abortions, mortality, off-feed events, and reduced feed intake. To accomplish this, Dr. Mafalda Mil-Homens analyzed weekly performance data from multiple production systems and integrated electronic feeding system data from technology providers. Using these datasets, she developed predictive models and assessed their accuracy by comparing them to processing fluid results.

By aligning model-generated alerts with processing fluid findings, Dr. Mil-Homens found that her models could detect diseases an average of four weeks earlier, with some cases identified up to eight weeks before traditional diagnosis. This proactive approach enables producers to take early action, minimizing the impact of potential outbreaks.

Developing Tools for Producers

After testing various models, the research team established a clinical case definition based on a 15-week moving average that incorporates KPIs. To make this system accessible, a user-friendly Excel tool was developed that allows producers to input data and instantly determine if an alarm is triggered, facilitating timely decision-making. Designed for ease of use at the barn level, the utilization of this tool to help identify early signs of disease allows for implementation of preventative measures, ultimately improving herd health and operational efficiency and minimizing economic losses.

The Future of On-Farm Disease Monitoring

Integrating real-time data analysis into herd management represents a major step forward in disease prevention. This research highlights the potential of predictive modeling to enhance early detection and response strategies. By adopting data-driven tools, producers can improve herd health, reduce economic losses, and strengthen biosecurity efforts. As technology continues to evolve, further advancements in automated disease monitoring could provide even greater precision and efficiency in safeguarding swine production. The Excel-based tool developed through this research is a practical first step toward a more proactive approach to herd health management. It is available for download at www.fieldepi.org.

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