

Additional Insights from collaborators:

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There are many field experiences of failed eliminations, herd closures that continued beyond the normal 240-day recommendations and a field study that demonstrated persistence of *M. hyopneumoniae* beyond eight months. To improve your chance of a successful *M. hyopneumoniae* elimination, duration of herd closure should not simply be determined by achieving a specific number of days but should be demonstrated through necessary testing at the farm prior to entering negative gilts.

Sample collection techniques in live pigs continue to evolve to improve detection closer to the source of infection. Deep tracheal secretion sampling using PCR in a subset of animals is the preferred method for detection and determination of persistence today. This testing could be targeted to the entire sow population or could be targeted at gilts. In many, but not all, circumstances, gilts are the suspected population of animals most likely to be the cause of persistence in a farm. Often, this testing includes PCR detection via deep tracheal secretion samples in a normal sow population (population size, desired sensitivity and specificity and pooling numbers need to be considered for each individual circumstance) around 20 days prior to the planned end of the herd closure.

Evidence of persistence beyond the planned end of exposure justifies several possible interventions that may enable a successful elimination program. Most importantly, the interventions are focused on the need to extend time (extended closure, delay gilt restock deliveries, extended gilt quarantines/gilt breed projects). Secondary interventions may also include additional antibiotic treatments or vaccinations. Following these interventions, sample collection should occur again until the pathogen is no longer detectable.

PCR based diagnostics that can detect viable (vs. viable and non-viable) bacteria are in development and would be helpful during this critical decision-making time to increase confidence of persistence in a population late in the elimination process.

When negative gilts do start to flow into a farm, we often segregate the negative gilts from the remainder of the population as best as possible (create a gilt breeding snake) to lessen any possible exposure due to persistence within a population for a 4–9-month timeframe. The importance of this is unknown.