Practical Disease Surveillance in Growing Pig Populations

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Practical Disease Surveillance in Growing Pig Populations

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Oral fluids have been shown to be a viable diagnostic alternative to serum for the efficient, cost-effective detection of porcine reproductive and respiratory syndrome virus (PRRSV), porcine circovirus type 2 (PCV2), and swine influenza virus (SIV). Oral fluid samples are easily collected from pens of pigs by allowing them to chew on ropes suspended in the pen, then manually extracting the fluid from the rope. The resulting oral fluid sample can be tested by either polymerase chain reaction (PCR)-based or antibody-based assays.

In studies conducted under experimental and field conditions, oral fluid samples collected from pens of PRRSV-infected pigs (nursery, grower, and finisher) contained PCR-detectable levels of PRRSV for approximately 4 weeks. PCV2 was also readily detected by PCR in oral fluids collected in the field.

Ten wean-to-finish sites were included in a study to validate the feasibility of oral fluid surveillance in a commercial production system. Samples were collected by caretakers at 2-week intervals and mailed to the Iowa State University Veterinary Diagnostic Lab. Preliminary results indicated that PRRSV, PCV2, SIV, and Mycoplasma hyopneumoniae were detected in using oral fluid monitoring.

Compared with serum sampling, pen-based oral fluids (a) require less labor—a single person can easily and quickly collect oral fluid samples from many pens of pigs; (b) reduce costs—in addition to savings on labor costs, blood collection needles and tubes are not needed; (c) simplify—pen-based sampling eliminates the problem of deciding how many samples to collect and which pigs to sample; (d) provide more comprehensive herd sampling—by sampling at the pen level, rather than the individual pig level, a greater proportion of the herd can be sampled and tested at lower cost; and (e) lessen stress on nonhuman animals and personnel.

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