**Lactation Sow Confinement: Is there a “Middle Ground”?**

In many jurisdictions there is an almost relentless push by animal rights activists to restrict the choices for sow housing that are available to pork producers. Most of the push has been aimed at gestation housing which appears to be the "low hanging fruit" for the activists. Lactating sow housing is definitely on the radar screen as a target for activists.

Lactating sows are traditionally housed in farrowing crates in order to reduce piglet mortality. It is intuitive for most to believe that housing a 1.5 kg new born piglet and 200 kg sow in the same pen will present some problems related to body size inequities. There are those that argue that sows should not be confined to a stall at any stage of production and that the behavioural freedom to turn around provides better welfare for the sow. Most of those involved in commercial production will quickly point out that the freedom for the sow to move about is not such a great deal for the piglets as they are more likely to be crushed. Most suckling pig deaths occur within a few days of birth.

Researchers at the Pig Research Centre, Danish Agriculture and Food Council, wanted to investigate whether confinement of the sow for a limited number of days after farrowing would affect piglet mortality. A total of 210 sows (Danish Landrace × Danish Yorkshire) were farrowed in specially designed swing-aside combination farrowing pens measuring 2.6 m × 1.8 m (combi-pen) (Photo 1) where the sows could be kept loose or in a crate. The sows were either: (a) loose during the entire experimental period, (b) crated from days 0 to 4 after farrowing, (c) crated from days 0 to 7 after farrowing or (d) crated from introduction to the farrowing pen to day 7 after farrowing. The sows and their subsequent litters were studied from introduction to the combi-pen from 1 week before expected farrowing and until 10 days after farrowing.

Sows that were crated after farrowing had fewer live-born mortality deaths (P < 0.001) compared with the sows that were loose during the experimental period. The increased piglet mortality among the loose sows was because of higher mortality in the first 4 days after farrowing.

(Cont’d page 2)
Techniques for Identifying Lameness In Sows: "Read the Pigs!"

Lameness in sows has an economic impact on pig production and is a major welfare concern. Objective measurements of lameness are important in the assessment of prevention and treatment programs. Researchers at the Agriculture and Agri-Food Canada, Dairy and Swine R & D Centre wanted to develop methods to evaluate and quantify lameness in breeding sows. Kinematics, accelerometers, footprint analysis, lying-to-standing transition and foot lesion observation were evaluated in comparison to each other as well as to traditional visual gait scoring.

Fifty sows of various parities and stages of gestation were selected using visual gait scoring. Once the visual gait scoring was completed the sows were allocated to one of three groups: lame (L), mildly lame (ML) and non-lame (NL). They were then tested using each of the lameness assessment methods. Kinematics showed that L sows had a lower walking speed than NL sows (L: 0.83 ± 0.04, NL: 0.96 ± 0.03 m/s; P < 0.05), a shorter stride length than ML sows (L: 93.0 ± 2.6, ML: 101.2 ± 1.5 cm; P < 0.05) and a longer stance time than ML and NL sows (L: 0.83 ± 0.03, ML: 0.70 ± 0.03, NL: 0.69 ± 0.02; P < 0.01).

Accelerometer measurements revealed that L sows spent less time standing over a 24-h period (L: 6.3 ± 1.3, ML: 13.7 ± 2.4, NL: 14.5 ± 2.4%; P < 0.01), lay down earlier after feeding (L: 33.4 ± 4.6, ML: 41.7 ± 3.1, NL: 48.6 ± 2.9 min; P < 0.05) and tended to step more often during the hour following feeding (L: 10.1 ± 2.0, ML: 6.1 ± 0.5, NL: 5.4 ± 0.4 step/min standing; P = 0.06) than NL sows, with the ML sows having intermediate values. Visual observation of back posture showed that 64% of L sows had an arched back, compared with only 14% in NL sows (P = 0.02). Finally, footprint analysis, observation of lying-to-standing transition and foot lesions were not successful in detecting significant differences between L, ML and NL sows.

Take Home Messages:

1. Slower walking speeds, shorter strides, longer stance times, arched back posture as well as a tendency to lie down sooner after feeding are good indicators of early onset of lameness.

2. “Read the Pigs!” Although sows can’t tell you that they are lame that can let us know if we are observant.


Submitted by George Charbonneau DVM
Influenza A Virus: Hiding Out Within The Baby Pig Population

Influenza A viruses (IAV) continue to increase in diversity and continue to be a common contributor to Porcine Respiratory Disease Complex. Unfortunately there is a lack of information on the infection dynamics of IAV within swine herds. Researchers at the Department of Veterinary Population Medicine, University of Minnesota wanted to better understand the infection dynamics in a two site production system in order to increase the ability to make informed decisions about animal health, biosecurity and surveillance programmes.

The objectives of this study were to estimate the prevalence of IAV in animal subpopulations at the swine breeding herd as well as to describe the pattern of infection over time in a selected group of growing pigs that were weaned and moved from site 1 to site 2. Nasal swabs and blood samples were collected at approximately 30-day intervals from the swine breeding herd (Site 1) which was known to be infected with pandemic 2009 H1N1 influenza virus. Sows, gilts and baby pigs were sampled at each sampling event, and samples were tested for IAV genome using matrix gene RRT-PCR.

The RRT-PCR results revealed that IAV was detected in baby pigs, but was not detected in sow or gilt populations. In addition, an IAV that was genetically similar to that detected in the baby pig population at Site 1 was also detected at the wean-to-finish Site 2. Longitudinal sampling of nasal swabs and oral fluids over time revealed that IAV persisted in the growing pigs at Site 2 for at least 69 days.

Take Home Messages:

1. Influenza A virus was being maintained within the baby pig subpopulation at site 1. Because the prevalence of positive IAV pigs within this baby pig subpopulation can be very low, a large number of baby pigs would need to be sampled in order to confirm the presence or absence of IAV in the piglet subpopulation.
2. Influenza A virus persisted in the site 2 operation for at least 69 days. IAV can exit a growing pig site within 3 to 4 weeks of closure of the population. i.e. no new susceptible pigs added to the population


Submitted by George Charbonneau DVM

Colostral Management: "Robin Hood Theory - Steal from the Rich and Give to the Poor!"

Colostrum is essential to stimulate intestinal growth and function, provide passive systemic immunity as well as being an important source of energy for thermoregulation. A number of factors are known to impact the ability of piglets to maximize colostral intake. Researchers at the Laboratory of Developmental Nutrition, Department of Animal Science, North Carolina State University, wanted to examine the effect of birth weight, birth order and sow serum IgG concentration on piglet growth and mortality in a commercial swine facility. This study was conducted under conditions that more closely resemble common day to day farrowing room management. A total of 745 piglets from 75 litters were enrolled in the study. Time of birth, birth order and piglet birth weight were recorded. After processing, each piglet was moved to the sow’s udder in order to encourage suckling. The aim was to have 11 piglets on every sow. If a sow gave birth to more than 11 piglets, the additional piglets were not enrolled in the study. Only pigs weighing greater than 0.68 kg birth weight were enrolled in the study. Sow (cont’d page 4)
colostrum was collected from each sow during the farrowing process. Piglets were bled between 48 and 72 hours after birth in order to determine individual piglet serum IgG levels. Piglet serum IgG andcolostral IgG concentrations were determined by radial immunodiffusion.

The results of the study clearly showed that sow parity had a significant (P < 0.001) effect on sow colostral IgG concentration and was 5% higher in multiparous females. (Graph 1)

Piglets with 1,000 mg/dl serum IgG or less (n=24) had a only a 67% survival; whereas, piglets with IgG concentrations between 2250 to 2500 mg/dl (n=247) had a 91% chance of survival (Graph 2).

Birth order by itself had no detectable effect on % survival while birth weight had a positive linear effect (P < 0.05). Piglets weighing 0.9 kg (n = 107) at birth had a 68% survival rate, and those weighing 1.6 kg (n = 158) had an 89% survival rate.

Take Home Messages:
1. Gilts provide lower levels of colostral immunity than sows.
2. Sow colostral IgG and birth order did affect piglet IgG but only accounted for 10% of the variation between piglets.
3. Piglet serum IgG concentration and birth weight had the most significant effect on piglet survivability. Only piglets greater than 0.68 kg, were enrolled in this study.
4. Low birth weight piglets, piglets that are born later in the farrowing process and/or piglets suckling gilt colostrum should be targeted for split suckling (Photo 1). We get to play Robin Hood. Steal from the Rich and Give to the Poor!”


Submitted by George Charbonneau DVM
Pen-based oral fluid sampling has proven to be an efficient method for surveillance of a number of infectious diseases in swine populations. In order to better interpret diagnostic results, the performance of oral fluid assays for both antibodies and nucleic acid-based tests (RT-PCR) must be established for pen-based oral fluid samples. This group of researchers wanted to determine the probability of detecting Porcine Reproductive and Respiratory Syndrome virus (PRRSV) infection in pen-based oral fluid samples from pens of known within-pen PRRSV prevalence. This study was carried out in a commercial swine barn. Each of the 25 pens in this study were assigned to 1 of 5 different levels of within-pen PRRSV prevalence (0%, 4%, 12%, 20%, or 36%). A group of known PRRS positive pigs was created by vaccinating 90 PRRS negative pigs with commercial PRRS MLV vaccine. The exact within-pen prevalence was then created by mixing either 0, 1, 3, 5, or 9 of the known PRRS-positive pigs with enough PRRS negative pigs to create a population of 25 pigs/pen. The test groups were created at 14 days post PRRSV modified live virus.

This report (Table 1) was prepared by USDA APHIS VS NVSL National Animal Health Laboratory Network (NAHLN). The most recent report adds in the reporting period of July 14, 2013 through July 20, 2013. The good news was that there were no new states added to the list. Unfortunately the number of confirmed cases continues to increase. As producers and veterinarians become more familiar with the clinical signs or confirm the disease in one part of a production system, they may not be submitting samples from every affected site. These reports, in all likelihood, are underestimating the spread of the disease. The Canadian Swine Health Intelligence Network encourages producers to contact their veterinarian if they see clinical signs that are consistent with PEDV. A number of Ontario industry stakeholders are working together on the design of PEDV containment plans. Early detection and containment will be key to limiting economic damage to the Ontario industry.


Submitted by George Charbonneau DVM

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Table 1: Total number of POSITIVE laboratory swine accessions. Only States with positive PEDv accessions are included in this summary table.

PEDV Continues to Spread In The USA

PRRSV Rope Testing at Various Within-pen Prevalences: "It's Working Well!"
vaccination so that known positive pigs would be PRRSV antibody positive. Prior to placement of the MLV vaccinated pigs, 1 oral fluid sample was collected from each of the 25 pens in order to assess the ability to accurately determine 0% within-pen prevalence. Thereafter, 5 oral fluid samples were collected from each of the 25 pens, for a total of 150 samples. To confirm individual pig PRRSV status, serum samples from the PRRSV-negative pigs (n = 535) and the PRRSV vaccinated pigs (n = 90) were tested for PRRSV antibodies and PRRSV RNA. The 150 pen-based oral fluid samples were assayed for PRRSV antibody and PRRSV RNA at 6 different laboratories.

Among the 100 samples from pens containing ≥ 1 positive pig/pen (≥4% prevalence) and tested at the 6 laboratories, the mean positivity was 62% for PRRSV RNA (Rt-PCR) and 61% for PRRSV antibody.

**Take Home Messages:**

1. The use of oral fluid for the detection of PRRSV infection using either ELISA or RT-PCR was demonstrated to be effective, cost efficient, and easy.

2. The estimates of average positivity from this study may actually be lower than what is encountered in the field. A vaccine-induced viremia and antibody response is "weaker" with commercial vaccine than with a field virus. (Johnson et al., 2004). The vaccinated pigs were introduced into pens at 16 hours prior to collection and the ensuing socialization may have reduced the time spent chewing on the ropes. Although some of the labs were less effective at detecting positivity than others all of the laboratory results were used in calculating the average % positivity.


Submitted by George Charbonneau DVM

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**Pain Management ….. NOT!**

As part of our ongoing discussion on pain control products we thought that we should point out that a sedative like Stresnil will help in restraining a pig but does **not** provide pain relief.

**Sedatives**

Azaperone e.g. Stresnil (Label) (IM)
- Fast onset within 10 minutes
- NO analgesia—not suitable for use by itself for surgical procedures
- For use as a chemical restrain in combination with a local anesthetic
- For use as a premedication for thiopental for surgical procedures
- 1 day withdrawal

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**Canadian Quality Assurance – Treatment Records**

When submitting your CQA treatment records for pigs above 50 pounds, please submit a minimum of three pages of treatment records that are approximately 3 to 4 months apart. If you do not have records for part of the year because your barn was empty, then have three pages. Try to select pages that have ten or more treatments per page. This will allow for an adequate number of records to be reviewed. If you do not treat many pigs then submit what you have. If you don’t treat any individual pigs over the course of a year then please submit a statement saying that you don’t treat pigs under any circumstances. Please ensure that each record is complete and follows the medication and vaccine usage plan that has been provided to you. Please contact any of our offices if you have any questions.

Submitted by Ken Marenger

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