

If parturition can be delayed, pork producers will be able to avoid the birth of slightly premature piglets and thus make synchronized farrowing more manageable

by TREENA HEIN

There are important reasons why farmers want sow farrowings to be synchronized. If they happen all at once, a supervising attendant can be available, which promotes higher piglet survival rates.

Synchronized farrowings also make cross-fostering (giving piglets to another sow) simpler, if it is required. And having farrowings occur at the same time also improves litter uniformity, and allows colostrum to be more evenly distributed among the neonates.

Currently, however, synchronization of sow farrowings means that some piglets are born slightly premature. This is because breeding of the herd usually occurs over a three-day period. Therefore, an effective method of delaying parturition (labour) of those sows bred after most of the others could be desirable.

If parturition can be delayed by two days, for example, pork producers will be able to avoid the birth of slightly premature piglets, which are smaller, weaker and more prone to health problems than larger, older ones. As an example, shorter gestation periods have been associated with increased incidences of piglets with splay leg.

Paul Luimes, College Professor at the University of Guelph's Ridgetown Campus, has just completed a preliminary trial to determine whether or not delaying parturition can be accomplished consistently. Greg Simpson, the Ontario agriculture ministry's newly appointed swine nutritionist, served as a collaborator on this research project. Angel De Grau, from Intervet, provided a contribution of Regumate®

"Before we can determine what is the ideal level (biologically and economically) of these products for delaying parturition," says Luimes, "we have to confirm whether Regumate® and DHA can achieve delay effectively and consistently in the first place." For this reason, this preliminary research involved using a particularly high dose of both products to determine how effective each is.

"There are not enough replicates to make any definitive conclusions about sow performance, litter size and piglet viability in this small trial," Luimes notes. "Nevertheless, those data will be taken and used to perhaps show trends and help in the design of following trials."

Forty-five sows were divided into three treatments. The "control" involved feeding a typical sow nursing ration at restricted levels from day 107 of gestation until farrowing, at which time feed was given in increasing amounts until the sows were at full feed.

In the second treatment, the sows were fed exactly as in the control treatment, except that from day 107 to 116, 22.7 millilitres (50 milligrams) of Regumate® was also fed at each feeding (twice each day).

The third treatment involved giving the control ration, except that the ration's regular fat, which makes up 3.5 per cent of the ration, was substituted with menhaden fish oil.

Sow weight and feed intake were recorded during the trial, as well as total piglets born, and total born alive, stillborn and mummified. Piglet weights on days 0, 7, 14, 21 and 28 were also recorded, and any mortalities noted.

"The key item of interest was the day when parturition occurred," says Luimes. Although final results are still being analyzed, Luimes says, "preliminary results seem to indicate that the Regumate® was successful at delaying parturition, but the dose/time course of fish oil was unable to." This result may be due to either an insufficient dose of DHA, too short a time

Delaying parturition – a step towards

The funding for this project was provided by Ontario Pork and there was a contribution of Regumate® by Intervet Canada.

Luimes chose to use two substances in his trials. Regumate®, a synthetic progesterone-like product, has been found in some studies to delay parturition. Docosahexaenoic acid (DHA) is a fatty acid which has been found to delay parturition in humans by up to six days. It is present in high concentrations in oil produced from menhaden fish.

course of feeding or both.

The possibility also exists that the pathways of prostaglandin synthesis are different enough to cause other outcomes. Normally, natural birthing is initiated by a powerful prostaglandin called PGF2. This prostaglandin is made from a fatty acid called arachidonic acid.

A photograph of Dr. Paul Luimes, a man with glasses and a beard, wearing a blue lab coat. He is smiling and holding a small, white piglet in his arms. The background shows a clinical setting with hospital beds and equipment.

Dr. Paul Luimes

synchronicity in sow farrowing

"It is theorized," says Luimes, "that the arachidonic acid is displaced metabolically by another fatty acid made from DHA. The new prostaglandin that is formed is a much weaker stimulant of the birthing process and, therefore, would result in a delay of parturition."

Depending on the final analysis of this trial, future trials may

be required to determine what dose of product is required and if it is financially feasible. Luimes says that, while final financial analysis is yet to come, "it is my guess that if much more of the DHA is required to have an effect, the potential benefits will be outweighed by the costs."