

BY GEOFF DALE

DETERMINING AMINO ACID AND ENERGY AVAILABILITY



in the major feedstocks

An Alberta research team hopes to save producers at least \$10 per sow yearly by revising sow nutrition

The study of sow nutrition may have been largely ignored for several decades, but for the past four years Dr. Ron Ball's intensive research on the subject is clearly rectifying that neglect.

Ball, a University of Alberta professor emeritus and Alberta Pork Producers' research chair in swine nutrition, says there were two obvious reasons for the neglect. Research is expensive, taking considerable time to arrive at any conclusive answers, and sow productivity had not changed appreciably from the 1960s to the mid '90s.

"However, in the past 10 years, we've had enormous changes in sow productivity," he says. "We've taken sows from having eight to 10 pigs per litter to 14. And instead of rearing eight, they are now rearing 12. Sows now have 2.5 litters per year, instead of two, and producers can have 30 pigs per sow per year."

When he started in the pig industry 30 years ago, 16 pigs per sow yearly was considered a good outcome. Yet, despite the fact that productivity has doubled, sow nutrition requirements were rarely being studied or met. Four years ago, Ball embarked

on the study of sow amino acid and energy requirements, understanding all nutrients were necessary in the right balance.

"If we added more lysine (an essential amino acid) and then tested, we may not see a response," he explains. "We just recently found that lysine is not the first limiting amino acid in the late gestation for sows. Therefore, we need to study the requirement of more amino acids to supply them in their proper balance. In addition, before we can arrive at a practical feeding study, we need to know the energy requirements and our research is showing the demand for energy is higher by about 15-20 per cent in late compared to early pregnancy."

With that in mind, researchers must understand what sows can get out of the diet before one can be formulated. Feeding them a standard amount through gestation resulted in the loss of weight and body protein in late gestation, as well as the loss of fat for the sow to grow the fetus.

Ball says the goal is to keep up with feeding standards for the sow that will ultimately reduce the cost to the producer. One key is knowing what the nutrient availability in the feed is for the sow.

"From our data, we think we can save producers at least \$10 per sow yearly," he says. "We predict we will have healthier and more uniform pigs at birth and at weaning and the sow will stay longer in the herd and produce more litters. So this means a reduced cost of feeding sows, in addition to improved productivity."

The team's approach strays from the traditional research method of feeding the sow a single test diet and following her through gestation and lactation cycles. Instead, amino acid oxidation was used, placing isotope tracers in the sow, measuring changes on a particular day and plotting changes in requirements for an individual animal through gestation and lactation.

The research project will determine the amino acid and energy availability in the major feedstocks. Armed with that information, a commercial trial will be conducted and Ball's team is expected to begin work on these findings next year.

The material was presented by Ball at the Centralia Swine Research Update in January. A short written article and PowerPoint will be soon available on the website, www.centraliaswineresearch.ca/index.html. □