



Recipe for Sow Nutrition: Just Add Milk

By Geoff Geddes, for Swine Innovation Porc

They say “it’s not how you start in life; it’s how you finish.” Then again, “they” never met a milk-deprived piglet. Fortunately, researchers understand that a strong beginning is essential to piglet development, and milk plays a huge role in sows starting their litters on the right hoof. No wonder then, that while science targets sow nutrition from a number of angles, maximizing sow milk yield continues to be a major focus of research.

Low cost feeding and management strategies

One of the most exciting aspects of research is that you can often address multiple issues with the same project. A perfect example of this was the study “Increasing sow milk yield and piglet growth via low cost feeding and management strategies.” Because a hungry sow is a cranky sow, hunger can often lead to conflict. To address this, researchers sought the best means of making sows feel full and less hostile, and found it in oat straw.

While previous studies already demonstrated that the insoluble fiber in oat straw is more effective at giving sows that full sensation than the insoluble fiber contained by wheat straw, this study went one step further. Could vigorous processing of straw change its solubility and increase symptoms of satiety?

Through a combination of lab and field studies, they found that straw processing improved its energy digestibility, especially with oat straw. Apart from potentially reducing sow aggression and enhancing animal welfare, there was an

improvement in weaning weights with processed oat straw, most likely due to increased milk production. Significantly, sow lactation feed intake increased just after farrowing, a period where eating is critical for the sow.

For producers, the findings offer two things they love when it comes to research results: affordability and ease of application. By simply making ground oat straw available to sows in the late stages of gestation, they could improve milk production and satiety, have less sow conflict and produce healthier pigs.

What more can you ask for?

Mammary development

By bottle feeding milk to piglets to augment what they get from the sow, science has shown that insufficient sow milk production is limiting piglet growth. The problem has no doubt been compounded by greater litter sizes over the years, reducing the milk each piglet receives.

As the name suggests, “Maximizing mammary development” went right to the source. Since boosting mammary cells will increase a sow’s milk production, researchers examined the two critical time periods for mammary development: from 3 months to puberty and the last third of gestation. Specifically, this study was interested in the impact of a sow’s back fat level on the mammary.

By varying the feed amounts of the animals they studied, researchers produced varying



Above: Sow mammary glands. Photo: Sherbrooke Research & Development Centre

Below: Processed straw. Photo: University of Saskatchewan



amounts of back fat and compared mammary development. The results demonstrated the importance of research in challenging conventional assumptions. In this case, it was thought going in that 25-26 mm of back fat would negatively affect mammary development, but the findings proved otherwise. While sows with back fat levels of 12-15 mm did poorly, those in the 16-26 mm range performed well.

These findings could serve as a guide to producers or nutritionists. Instead of limiting feed intake for gilts in their first gestation as is currently the practice, it's important to consider body condition and ease up on the feed restrictions when needed.

These results can positively impact gilt feeding programs. For producers already using back fat in their feed decisions, they now know to keep those levels at 16 mm or above. The link between feeding level in gestation and maximizing mammary development is a key piece of the puzzle for industry, helping to refine feeding programs and serving as a guide for sow strategies going forward.

Though the two studies tested different strategies for enhancing sow milk production, they both provided practical solutions to a critical issue for industry. 🐷

Learn more...

For more information about the projects described in this article, please contact:

- Low cost feeding strategies: Dr. Denise Beaulieu at denise.beaulieu@usask.ca
- Mammary development: Dr. Chantal Farmer at chantal.farmer@canada.ca

You may find additional resources related to the project *Increasing sow milk yield and piglet growth via low-cost feeding and management strategies during gestation and/or lactation* by consulting our website:

www.swineinnovationporc.ca/animal-nutrition

The work presented in this article was part of Swine Innovation Porc's Swine Cluster 2: Driving Results Through Innovation research program. Funding was provided by Agriculture and Agri-Food Canada's AgriInnovation Program, provincial producer organizations and industry partners.

