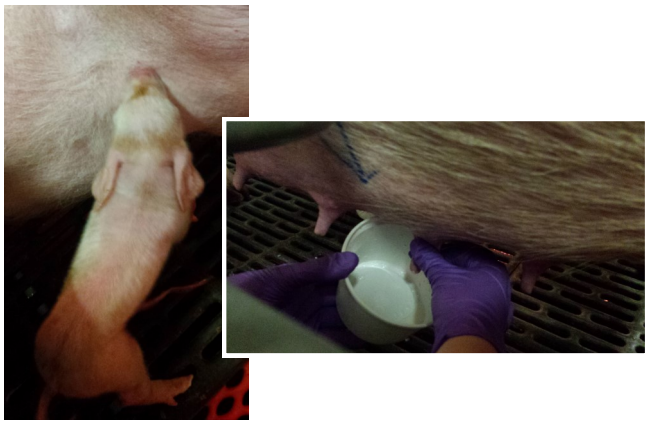
Got Milk? Mammary Research Yielding Results

By Geoff Geddes, for Swine Innovation Porc

Until they grow opposable thumbs and get milk from the fridge like the rest of us, piglets rely on sows for their daily supply. And just as kids are told to drink their milk so they'll grow up big and strong, consumption early in life is essential to piglet development. That was the impetus for the project "Maximizing mammary development", part of a series of studies aimed at improving sow milk yield and piglet growth.

"We know that if we take a baby pig and feed it milk through a bottle in addition to what the sow gives it, the pig grows more," said Dr. Chantal Farmer, Research Scientist - Swine Lactation Biology with Agriculture and Agri-Food Canada. "That tells us the sow is limiting piglet growth rate by not producing enough milk."



Left: Piglet suckling. Right: Milking a teat. Photos: AAFC Sherbrooke.

Mammary lapse

As well, the move towards hyperprolific sows increased litter size without sufficiently boosting the sow's milk yield, resulting in less milk per piglet than ten years ago.

"That's where I come in, as I want to increase the amount of milk a sow produces. My focus over the past 15 years has been mammary development since the more mammary cells you have, the more milk you can synthesize."

Timing is everything

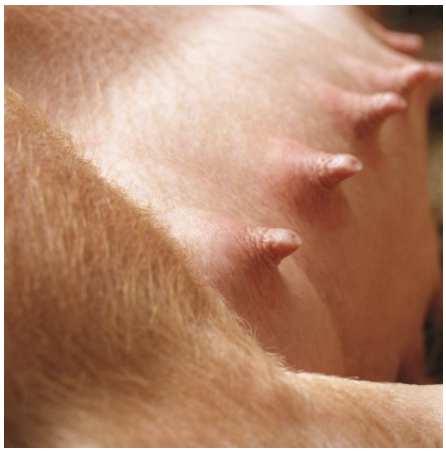
The two key periods for mammary development are from 3 months to puberty and the last third of gestation. While Dr. Farmer has studied a number of factors affecting that development, her focus for this project was sow body condition.

"It has been shown that if a sow at the end of gestation has 36 mm of backfat, she will produce less milk than a sow with 25 mm of backfat. But that information is useless for producers as nobody has animals that obese."

Consequently, there was really no helpful advice for producers regarding body condition and milk production until this study.

Bring backfat to the forefront

"To make the research more relevant, I looked at sows that better represent what you see on-



Mammary glands. Photos: AAFC Sherbrooke.

farm. Starting with animals having similar backfat levels at mating, we gave them three different amounts of feed in gestation and compared their mammary development."

The results were both interesting to producers and surprising for researchers.

"I thought 25-26 mm of back fat would have a negative impact on mammary development, but that didn't happen. It was actually the sows between 12-15 mm that showed poor mammary development, while animals in the 16 -26 mm range were just fine."

For producers, these results can impact their gilt feeding programs.

"When you have a gilt in its first gestation, you must be sure to feed it enough. The current practice is to limit feed intake in that period, but this study shows you must look at body condition and perhaps go slowly on the restriction if necessary. Though a lot of feed companies will give you restrictions based on weight and backfat, they didn't have exact target numbers until now. Thanks to our findings, nutritionists and producers know that 16 mm is the lower limit for backfat in a Yorkshire x Landrace cross."

Most importantly, industry is now aware that feeding level in gestation is critical to achieve optimal mammary development in late gestation and to maximize future potential milk yield. Armed with that knowledge, producers can refine their feeding programs and help set the sow up for future success.

"A few years back, a growing gilt was fed the same way as a growing pig. Yet, the growing pig will get eaten while the growing gilt will have babies that need milk. They shouldn't be treated the same, and it's great that nutritionists will have a better idea of how to feed new gilts. It's just one aspect of production, yet it's something that industry can take and use right away."

With the importance of starting piglets on the right foot these days, producers should milk this information for all its worth.

For more information….

For more information about the work described in this article, please contact Dr. Chantal Farmer at : chantal.farmer@agr.gc.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/research-animal-nutrition

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