# Precision Feeding Can Nourish Your Bottom Line

By Geoff Geddes, for Swine Innovation Porc

In some activities, such as horseshoes, you can miss the target and still win the game. For others, like missile launching or precision feeding, accuracy is everything. In an industry where profits can quickly be consumed by feed costs, the importance of fine tuning what and how you feed your animals can't be overlooked. Fortunately, researchers recognize that and are giving the subject their full attention.

"I've spent the last 12 years helping producers identify the optimal level of nutrients for their animals," said Dr. Candido Pomar, research scientist with Agriculture and Agri-Food Canada. "It's important to find the right balance for maximizing performance at minimal cost while limiting nitrogen and phosphorus excretion that can lead to contamination."

USING PRECISION FEEDING, RESEARCHERS HAVE ACHIEVED THE SAME SIZE AND QUALITY OF PIG WHILE PROVIDING IT WITH 25 PER CENT LESS PROTEIN, THEREBY REDUCING FEED COSTS BY 8-12 PER CENT.

## Balancing act

In seeking that balance, Dr. Pomar has targeted specific areas like improving phosphorus efficiency and using amino acids and low protein diets to reduce feed costs. Using these and other enhancements to precision feeding, researchers have achieved the same size and quality of pig while providing it with 25 per cent less protein, thereby reducing feed costs by 8-12 per cent. In the process, they decreased nitrogen excretion by 40 per cent to lower manure management costs for producers.

Of course, one of the greatest challenges in formulating feed for thousands of pigs is the variation in needs. Like humans, each pig is unique in its appetite, growth rate and nutrition requirements, which led Dr. Pomar to ask a simple yet critical question: If all pigs are different, why not feed them differently?

## Two-pronged precision

"We've taken a two-pronged approach where we developed mathematical models to estimate individual pig requirements and designed experimental feeders that provide each pig with the right level of nutrients for its needs each day."

Using two feeds with different nutrient concentrations – one high concentration and one low - researchers blended them differently for each animal each day to meet their unique nutritional demands.

*Finisher pigs. Image: Pubic domain*

**Smart phones for smart pigs**

Thanks to cutting edge technology, feeding is not only becoming more precise, it's also getting easier to manage.

"Everything with these experimental feeders is done by computer, so producers can know in real time what is happening on their farm and how individual pigs are performing. You can follow it all with your phone and get an alarm if feed intake is decreasing, as that could signal disease or an equipment problem that caused the barn to overheat."

While these advancements have great potential to impact the bottom line, that's just part of the picture.

"There are so many advantages in terms of access to information. Producers can have full control of feeders from their office, leading to reductions in labor as the pens need to be checked less frequently. Also, if you know exactly how pigs are growing, you can better plan when to send them to slaughter. Return on investment is important, but this is also about quality of life; it will completely change the way farmers are feeding and growing their animals."

**If you build it (cheaply), they will come**

Before that change can occur, the expensive, handmade feeders used in this research must be replicated for commercial use at a realistic price. There are currently three companies worldwide working on commercial feeders and another one in Canada, with a number of countries showing interest in the technology.

"I'm not sure how long it will take for our findings to be applied on farm, but we can't continue feeding pigs the way we are today. We are wasting a lot of nutrients and facing the prospect of protein being a limiting factor in animal production in the future."

Precision may not be everything, but when you're launching missiles or feeding pigs, it sure beats the alternative.

**Learn more...**

For more information about the work described in this article, please contact Dr. Candido Pomar at Candido.Pomar@agr.gc.ca.

This research was part a larger national project titled *Feeding programs for growing - finishing pigs to enhance global competitiveness: opportunities across Canada*.

You may find additional resources related to the project by consulting our website:

*www.swineinnovationporc.ca/research-animal-nutrition*

Publication of this article has been made possible by Swine Innovation Porc within the Swine Cluster 2: Driving Results Through Innovation research program. Funding is provided by Agriculture and Agri-Food Canada's AgriInnovation Program and by provincial producer organizations.