

Bringing NIR to the monogastrics

by Kieran Brett

This ACIDF-funded project showed hog and poultry producers how NIR can help their business, improved feed calibrations and kick-started a technology network.



Photo courtesy of Malachy Young

Will Near InfraRed spectroscopy (NIR) technology transform how feed is bought and used by Alberta's hog and poultry industries? Looking three to five years out, Malachy Young, pictured left, has no doubt about it. In fact, he sees it happening already.

"It's really just getting started in the monogastrics," says Young, Research Manager with Gowans Feed Consulting, which advises Canadian pig and poultry operations on nutrition and production issues. "About 90% to 95% of these producers source grain off the farm, and NIR is a tool to better manage what they're sourcing and using."

Within Alberta's livestock sectors, cattle feedlots have been among the earliest adopters of NIR. In a sense, that's not surprising. Feedlots' comparatively large scale makes an NIR instrument valuable and economically accessible.

Will pig and poultry producers be a tougher sell? Not according to a three-year project led by Young that addressed this question from several perspectives. This work was supported by the Alberta Crop Industry Development Fund (ACIDF) under the \$8 million Feeding Initiative funded by the Alberta Livestock and Meat Agency (ALMA).

Meeting turnout confirms producer interest

In November 2012, the research project hosted large-scale producer meetings in Lethbridge and Lacombe, where an expert panel explored the uses and benefits of NIR.

Young took the outreach further, visiting dozens of hog and poultry farms and feed mills across the Prairies in 2013 and 2014 to talk NIR. He reports that most were quick to grasp the potential of the technology, and couldn't wait to get started.

Young's firm, Gowans Feed Consulting, offered to evaluate samples sent in by producers and feed mills at its own NIR-equipped facility in Wainwright. There was no shortage of business, in Young's view, because the opportunity gave value to everyone.

"Smaller farms that cannot afford to have an NIR machine get access to NIR service and can benefit from the technology," he says, "while larger companies that have feed volume to justify their own machine were given access to see the value of the technology to their operation and thus justify purchasing an NIR machine."

Samples refine calibrations, build teamwork

The NIR instrument at Gowans relied on wheat and barley calibrations previously developed by Alberta Agriculture and Rural Development (ARD). Calibrations for DDGS, soybean meal, canola meal and peas came from the equipment supplier and were further developed and refined with Mary-Lou Swift of ARD. Data from NIR scanning done by Young's group was then fed back into these systems to make future calibrations even more precise.

This project also sparked the creation of a network of professionals committed to further developing NIR for feed mills and pig and poultry producers. Building on a compelling economic case, this critical mass of expertise is another reason Young believes that widespread NIR adoption will happen sooner rather than later.

As part of the project, Young worked with two businesses with in-house NIR capability. The first was a plant producing cold-pressed canola meal. It's using NIR to evaluate the nutrient content of this feed ingredient and adjusting equipment to achieve a more consistent end product. The second was a feed mill that wants to use NIR information to maximize use of nutrients in incoming ingredients in their diets to feed to their pigs.

"We don't see this technology as a way to beat down the supplier on price," says Young, "but as a means to better value ingredients based on the actual nutrient content they bring to the diet. When you know what is in a feed component, you can adjust the price up or down accordingly to provide fair value for the seller and end-user.

"You can also use it to fine-tune diets. The feed supplier can say, 'I know what's in this and I can more accurately predict animal performance on your farm'. It's a way for producers and suppliers to work together."

