

Research takes swine feeding in new directions

by Kieran Brett

A newly released study, completed with funding from ACIDF and ALMA, demonstrates that pigs can grow well on a wider range of feeds than previously thought.

For many years, swine diets in Alberta have been built around reasonably priced, locally grown cereal grains for energy, with U.S. soybean meal for protein. It's a model that many producers and swine nutritionists grew up on.

More recently, keen competition for grain has made local availability and cost an issue for producers. The price of soybean meal has also been higher than long-term averages. As Ruurd Zijlstra, pictured right, explains, these developments have squeezed producers between rising feed costs and volatile markets for pork.

Seeing this trend developing over the past decade, Zijlstra has studied the feed value of alternative feedstuffs, as Professor with the Department of Agricultural, Food & Nutritional Science at the University of Alberta. As a result, the menu of potential ingredients for swine feed has grown to include wheat DDGS, extruded flax seed, field pea, faba beans and other ingredients.



Beginning in 2013, Zijlstra led a team of researchers on a two-year project to give pork producers more and better options for alternative feedstuffs, to keep costs manageable while maintaining or improving growth performance. In the process, he's opened new doors for efficient and profitable swine feeding.

This work was funded by the Alberta Crop Industry Development Fund (ACIDF) under the \$8 million Feeding Initiative managed for the Alberta Livestock and Meat Agency (ALMA).

Six growth trials, with work on enzymes, NIRS

"We wanted to test feed ingredients, including some that hadn't been tested before," says Zijlstra, "and let the pigs tell us how they like it."

Six growth trials were conducted, in which pigs were fed a diet that included alternative feedstuffs. Three of these were crops that are readily available in Alberta (field pea, chickpea and barley), while three were locally available co-products (canola press-cake, sugar beet pulp and wheat millrun). The study characterized nutrient value and specified target inclusion rates for each within a ration.

In another part of the research, Zijlstra studied how to improve the digestibility of nutrients through the addition of dietary enzymes. Finally, the growth trial with barley also served to validate NIRS calibrations for feeding barley to grower-finisher pigs.

Of the six growth trials, only the trial with chickpea fell short of expectations, indicating that this feedstuff requires further study. Otherwise, Zijlstra observed that even younger pigs generally ate well and gained strongly.

“As soon as one or two weeks after weaning,” he says, “when they are around 10 kg in weight, they are quite willing to go with higher inclusion rates of these feedstuffs.”

Two research revelations

This research has paved the way for several novel feedstuffs in swine diets. Zijlstra found two aspects of this work particularly revealing.

Canola press-cake emerges as a solid, local protein choice. U.S.-sourced soybean meal remains expensive. Canola press-cake, the material that remains when canola seed is cold-pressed, was found by Zijlstra to be a viable alternative.

“We’re seeing an increase in the number of small processing plants that are pressing canola without heating it,” he says. “The canola press-cake has about a 15% to 20% oil content and a nice energy value and weaned pigs are quite willing and capable of handling it.”

Barley’s supposed disadvantage versus wheat is challenged. Conventional swine feeding practice has called for a wheat-based diet after weaning. A transition to more barley-based rations needs to wait until pigs are 50 kg to 70 kg. Zijlstra’s findings in this study did not support the preference for wheat, showing for the first time how young pigs may fare better with barley.

Producers will also be glad to know that, as this research has shown, they have plenty of options to replace soybean meal with local protein sources.

“Pigs are a lot more flexible than we have given them credit for,” says Zijlstra. “The task is to make the feed formulation as flexible as possible, and use an array of well-tested feedstuffs without reducing pig performance.”

