

By-product pellets show promise in cattle feeding

by Kieran Brett

Greg Penner demonstrated that by-products of cereal, oilseed and pulse processing could give barley a run for its money. Funding support from ACIDF Ltd. helped make this discovery possible.

The relationship between Alberta feedlots and Alberta barley has been a long and productive one. In fact, the availability of abundant, nutritious local barley has been a key factor in the growth of a feedlot sector that now finishes 2 million head annually.

In recent years, however, market factors have complicated this relationship. Crop producers have found higher returns from crops such as canola, and may be less inclined to grow barley. The U.S. ethanol industry has brought greater price volatility to cereal crops, barley included.

These developments have some feedlot operators exploring the need for alternatives. The question is, is there a feed material that can finish cattle as well as barley, ideally with lower cost and more assured supply?



Greg Penner, pictured left, Associate Professor with the University of Saskatchewan's Department of Animal and Poultry Science, believes there is. Since 2011, he's studied the nutritional and economic impact of feeding pellets made up of cheap, highly available by-products associated with crop processing in Western Canada.

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

New analysis brings respect for by-products

Western Canada has a wealth of processing assets that add value to prairie-grown crops. Consider the region's 11 canola crushers, seven ethanol plants, several pulse processors and many grain-cleaning operations. These facilities produce a steady stream of by-products that are inexpensive to buy but nutritionally valuable. These include distillers' grains from ethanol production, canola meal, peas and pea screenings, pea and oat hulls and sub-grade canola.

"These are low-cost feed ingredients that are available because of our cereal and oilseed processors," says Penner. "We know a fair bit about these ingredients individually. The idea is to combine them to create pellets that, on paper at least, should have similar feed value to barley grain."

Penner began by conducting a detailed metabolic study in which a small number of cattle were fed by-product pellets. These animals were individually monitored in terms of volume of feed eaten, rumen fermentation and nutrients excreted. Next, he moved up in scale, feeding pens of cattle the by-product pellets at various inclusion ratios. A control group was fed a conventional barley-based ration. On a nutritional level, the by-product pellets delivered.

“We found that, yes, the cattle can do well on the pellets,” says Penner. “We found that some formulations, in fact, have a similar energy level to barley.”

Cost favors pellets over barley

On paper, Penner believed his by-product pellets could perform just as well as barley. In the end, the pellets achieved a marginally lower feed efficiency. By-product pellets were \$60 per tonne cheaper than rolled barley grain, however, making a business case for the pellets.

“There’s an overall \$10 per head savings with the pellets,” says Penner. “The cost savings of the pellets more than offsets the decline in feed efficiency.”

With the ACIDF-funded portion of his work now complete, Penner will address two remaining questions this year and next. One, why do the by-products have less feed efficiency than expected when processed into pellets? Two, would pellets work best in the last one-third or one-half of the cattle-feeding cycle, when this differential might matter less?

Over the past four years, Greg Penner has shown that feedlots have a cheap, plentiful feed alternative that can compete with barley on nutritional and economic grounds. While feedlots are currently buying barley at reasonable prices, that could change. If and when it does, by-product pellets are an option.

Says Penner: “The barley market has changed a bit recently, but I anticipate that the cycle will eventually encourage feedlots to look at alternatives.”

