NDSU researcher to begin feed study

By Mikkel Pates
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CARRINGTON, N.D. — What’s the best recipe for making high-quality cattle feed pellets from co-products made from things such as wheat middlings from the durum milling, distiller’s grains from ethanol and canola meal from biodiesel processing? A North Dakota State University, Fargo, feeding study at the Research and Extension Center in Carrington soon should have an answer.

Vern Anderson, an animal scientist in Carrington, will start a feeding study on the topic this winter.

Anderson obtained a $230,000 grant through the Agricultural Products Utilization Commission this past July. Dakota Growers Pasta Co., at Carrington — at APUC’s request — is contributing to the project.

The issue is important to Dakota Growers because of midseason price swings for wheat middlings which can range from a winter time high of $100 per ton range to $50 in the summer. The distant goal is to devise feed products that can be put in empty shipping containers and sent to customers that could include California dairies, feedlots in Lethbridge, Alberta, or livestock producers in China. At some point, the feed manufacturing could become a business.

“Obviously, if we can ship it that far, we can get it to western North Dakota to the cow-calf producer or to the farmer feeders where he can self-feed,” Anderson says. “It’s safe, very palatable and should promote good growth of our cattle that have exceptional genetics.”

The two “primaries” in the feed products are wheat middlings, or “midds,” and distiller’s grains from ethanol and corn fructose production. (There’s also potential for canola meal, which has twice the protein of wheat middlings and 1.5 times the moisture of distiller’s grains.)

will range from a moderate amount of wheat middlings and another product close to the maximum level. A nutritional analysis was completed in early November.

“Now we’re picking two of those to make it in a commercial scale, to feed to some feedlot cattle as a supplement — a supplement — to home grown grains. In this case, that’ll probably be corn. We could easily match it with barley with some tweaking.”

In some cases, the cattle diets could be completely from co-products, including perhaps some soy hulls.

“There’s some evidence that field peas increase the the durability of the cubes,” Anderson says.

Farmers in the west like larger cubes for ground feeding, while farmers in the eastern part of the state often use smaller pellets for self-feeders.

Anderson says the cattle for the study will include steers raised on the station and some from other groups, all sorted in pens of 25 or so, by size. They’ll feed them fed into April or May.

Peas offer key

In the past six or seven years, Anderson has worked on several studies involving field peas. They make a good complement to the cattle feed pellet study because they produce:

- Increased food intake: Anything fed by the researchers seemed to eat more, especially in creep feeding and in “receiving diets” (the month or two after weaning) up to 700 to 800 pounds.

- Improved feed efficiency: In finishing diets high in grains, the peas sometimes produce a decrease in feed intake, but gains stay the same. The gain per unit of feed improves. Peas are very digestible. Through digestion of the peas, the animal uses less fat.

- Increased growth rate: Calves fed peas in creep feed in receiving will put on more and grow faster. Peas behave dif-
customers that could include California dairies, feedlots in Lethbridge, Alberta, or livestock producers in China. At some point, the feed manufacturing could become a business.

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**Feed recipes**

To come up with a recipe, Anderson took the problem to the Northern Crops Institute in Fargo. Kim Koch, NCI's mill manager, created seven different feed recipes during the past two months, largely based on wheat midds.

"We were trying to establish a pellet that is durable — could be stored and shipped and maintain its integrity."

Each co-product by itself is not perfect.

"By combining a couple of ingredients, we can improve the shelf life — the quality and the nutrient density — so we could afford to ship this product more economically."

Wheat midds content was tested from a low of 40 percent to 30 percent of the pellet content to up to 80 percent at the higher end of the range. The two recipes using field peas. They make a good complement to the cattle feed pellet study because they produce:

- **Increased feed intake**: Anything fed peas by the researchers seemed to eat more, especially in creep feeding and in "receiving diets" (the month or two after weaning) up to 700 to 800 pounds.

- **Improved feed efficiency**: In finishing diets high in grains, the peas sometimes produce a decrease in feed intake, but gains stay the same. The gain per unit of feed improves. Peas are very digestible. Trace digestion of the peas, the animal eats to satiety based on energy.

- **Increased growth rate**: Calves fed peas in creep feed in receiving will eat more and grow faster. Peas behave differently with cattle of different sizes and different rations. Forage-based, early feedlot period, cattle eat more on ration of peas and gain faster.

- **Make more tender and juicy beef in finishing steers**: Taste tests South Dakota State University in Brookings completed last summer indicate that if there's any propensity of meat from a cattle breed to be tough, peas will increase the tenderness.

**The issue is important to Dakota Growers because of midseason price swings for wheat midds, which can range from a wintertime high in the $100-per-ton range to $35 in the summer. The distant goal is to devise feed products that can be put in empty shipping containers and sent to customers that could include California dairies, feedlots in Lethbridge, Alberta, or livestock producers in China.**

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