

Flax Offers Feeding Value ... and Then Some

by Barb Baylor Anderson

If you feed flaxseed in calf or feeder-cattle rations, you may be pleasantly surprised by the results.

Research at Kansas State University (K-State) suggests that flaxseed in cattle diets can strengthen the natural immunities of calves, dramatically improve carcass value and possibly enhance the fatty acid profile of beef.

Researchers theorized that if flaxseed offers positive contributions to human health, perhaps similar results could come from flaxseed added to cattle rations.

Flaxseed contains omega-3 oils, which are considered "good fats" in human nutrition. Omega-3 oils have been found to lower the risk of cardiovascular disease and strokes, to help prevent several types of cancers, and to assist with lowering cholesterol and regulating blood sugar in humans.

K-State's study initially focused on finding ways to help stressed calves ward off bovine respiratory disease (BRD). Jim Drouillard, K-State animal scientist leading the project, says gram-negative bacteria has been found to be the most damaging pathogens in BRD because they cause inflammation and elevated body temperatures that can lead to irreversible damage to lung tissue. Evidence in human research suggests that omega-3 polyunsaturated fatty acids can reduce that inflammation.

"That's what sparked our initial interest," he says. "We found that the inflammation that normally occurs with BRD was partially suppressed when we fed flaxseed."

Drouillard says that, in calves specifically, flax diets slow production of tumor necrosis factor alpha (TNF α), an inflammatory substance produced in excess with inflammatory diseases. Calf immunities become stronger with flax and may require fewer antibiotics as a result.

Unexpected benefits

What K-State researchers did not expect to find from the flaxseed research were two other benefits that could add value to the final beef product and beef producer profitability — flaxseed diets improve marbling qualities and increase carcass value.

"Those are unexpected results, but they have repeated themselves in subsequent feeding trials," Drouillard confirms.

He says a flaxseed diet was fed to cattle in trials for 35 to 42 days after the cattle arrived in the feedlot. Researchers also fed flaxseed to cattle for 70 to 120 days before slaughter, which appears to create a value-added beef product enriched with omega-3 fatty acids.

"The greatest benefits to cattle occur when flaxseed makes up 10% of the

diet and when flax is added during the first five to six weeks (30-42 days) after calves arrive in the feedlot," he says.

"When fed to finishing cattle (70-120 days before slaughter), the omega-3 fats

contained in flaxseed

were deposited into muscle tissues and enriched the final consumer product."

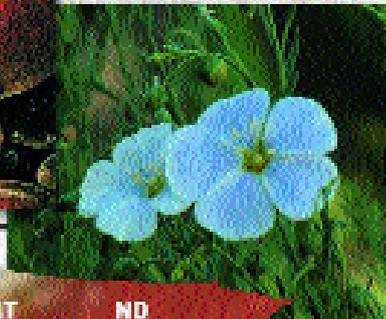
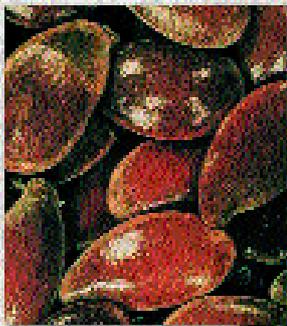
Economic additive

The flaxseed — grown primarily in North Dakota and Canada — is either processed into oil or ground and added to rations. Although there are additional transportation fees, Drouillard said a preliminary comparison of costs indicates that shipping flaxseed to major cattle-producing states in the Plains — including Kansas, Texas and Nebraska — is feasible. He says producers can feed flaxseed at a cost similar to diets with the same fat and protein content, such as a tallow and soybean meal mixture.

"As far back as the 1920s, the U.S.

Department of Agriculture (USDA) reported that the climate of Kansas was 'unsuitable for production of flax,'" Drouillard says, confirming that most producers interested in trying flax may very well have to pay transportation costs. "On the low side, we estimate feeding flax will improve the value of all animals by \$5.50 per hundredweight (cwt.)."

K-State researchers are continuing the flaxseed studies to determine differences between responses to the diet in steers and heifers and their effect on implant strategies. Researchers also are interested in finding the optimal feeding times for finishing cattle and the best ways to process flax before feeding. Finally, researchers are testing the benefits of adding vitamin E to flax diets to improve the shelf life of beef.



Flax expanse

According to the Flax Council of Canada, flaxseed first came to North America when the first farmer settled in Canada in 1617. Flaxseed has been grown as a commercial crop in the United States and Canada for more than 100 years, with varied applications in human food, linen and paper production, industrial oil applications, and animal feed.

Flaxseed is grown in North Dakota, South Dakota, Minnesota and Montana, but North Dakota is the largest producing state with more than 95% of U.S. production. Flaxseed acreage in the United States has grown from 96,000 acres in 1996 to more than 555,000 acres today. Nearly three times as much flaxseed is grown in Canada.

