

Researchers add value to beef fat

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LACOMBE, Alta. — Turning beef fat into a healthy product could be possible as scientists learn more about the effects of feed and genetics.

A 1,200 pound steer with a half inch of back fat and average muscling yields a 750 lb. carcass. Breaking down that carcass produces 490 lb. of boneless trimmed beef, 150 lb. of fat trim and 110 lb. of bone. The fat is often a low value byproduct.

Some of the more than 100 fatty acids found in beef have potential health benefits to fight cancer, heart disease and inflammatory diseases.

“We are trying to improve the economic and health value of the fat,” said Mike Dugan, meat lipid specialist at Agriculture Canada’s Lacombe Research Centre.

The research was presented during an Aug. 19 tour of the centre.

Work starts at the molecular level.

Researchers know fatty acids are toxic to rumen bacteria, so the microbes alter them in a process called biohydrogenation. The result is the production of beneficial fats such as rumenic and vaccenic acid. Rumenic acid is a CLA isomer and vaccenic acid is a trans-fat.

“We are trying to enrich the omega 3 fatty acids, and we are also trying to increase the biohydrogenation production,” said Dugan.

Beef contains some trans fatty acids, which many people think are bad because they are associated with increasing LDL, the bad cholesterol, and reducing the good cholesterol in the blood.

“You can get a different class of trans fatty acid in beef, and so the work we are trying is to differentiate between the two,” Dugan said.

Molecular biologist Jon Meadus studies the reaction of these fats at the cellular level with tissue culture that can be transformed to behave like fat cells, white blood cells or liver cells.

Part of this research involves feed programs to adjust an animal's fat profile.

The latest project incorporates a product called Linpro-R, which is a combination of flaxseed and yellow beans. It is fed at a rate of 30 percent with hay and provides five percent of the oil in the diet, which is the maximum before cattle suffer digestive upset.

The researchers fed 2.5 kilograms per day at a cost of 60 cents per kg, so the 250 day feeding period cost \$375 per animal.

The cattle have gained better than expected. A two pound per day gain was anticipated, but the current crop of steers has an average daily gain of three lb.

This is an expensive feeding program, but Dugan said consumers buy chemically synthesized CLA for 50 cents per one gram capsule at a drug store. The value of fat would add value to the carcass if people received the same benefit from eating beef.

"If we take a low value product like kidney fat and we are able to turn that into more of a functional or a nutraceutical, the value of that could really go up," said Dugan.

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