



Got beef? Nutrient profile of beef can be genetically altered

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Written by Madeline Robinson

Lincoln, Neb. – Raluca Mateescu discussed the idea of potentially genetically changing the nutrient profile of beef at the 2014 Beef Improvement Federation Research Symposium and Annual Meeting. The conference took place in Lincoln, Neb. on June 18-21 and was hosted by the University of Nebraska-Lincoln.

Mateescu is an associate professor of animal science at the University of Florida.

She explained at the conference, beef has a high concentration of minerals and other bioactive nutrient components, which contribute to improving human health.

Consumers

“When consumers are buying foods and beverages, taste is the most important factor, followed by price and then healthfulness,” described Mateescu.

The prevalence of consumers choosing foods based on their healthfulness has increased since 2006 when the International Food Information Council (IFIC) first began conducting surveys about consumers’ preferences.

The survey Mateescu used for her research was the IFIC food and health survey on consumer attitudes towards nutrition, food safety and health.

“Healthfulness is catching up with price in terms of its importance on consumers’ decisions about buying food and beverages,” stated Mateescu. “This is important because we have been talking about healthfulness for a number of years, and now, we are coming to the point where healthfulness is an important factor in our buying decisions.”

Malnourished

While the U.S. is seeing a significant increase in its citizens becoming overweight, many of those people are also not meeting the recommended daily allowance for a number of minerals and vitamins from their food.

“We also notice that from every year since the 1940s, we have enriched some of our food products for a number of components, including iron,” stated Mateescu. “Still today, there are iron deficiencies in certain population segments, particularly in women and the elderly.”

Mateescu noted women and the elderly are generally more receptive to recommendations made by food professionals and news stories to change their diet.

“There are a number of recent studies showing the decrease in intake of red meat is not reducing the risk of cardiovascular disease,” said Mateescu.

She adds, “A clear link is shown between decreasing beef consumption and the increased iron deficiency currently being seen in today’s population. Beef is a great source of a high quality protein, vitamins and minerals, particularly iron.”

Beef profile

Mateescu referenced the Beef Healthfulness Project on the benefits of beef. Iowa State University, Cornell University, Oklahoma State University and the University of California-Davis conducted the project.

The project encompassed three Angus herds in Iowa, Oklahoma and California to collect data and look at the cattle's growth and carcass traits, as well as meat quality.

When looking at one serving of beef – 3.5 ounces or 100 grams – the mineral composition of it contained eight to 18 percent of iron, 26 percent zinc, 10 percent of potassium and 28 percent phosphorus of an individual's recommended daily intake value.

"In our studies, we showed a very strong and positive genetic correlation between iron and zinc in beef," explained Mateescu. "When we increase the levels of iron in beef, we are also going to increase the levels of zinc in beef."

"Based on the data we have in terms of heritability for minerals and other nutrients in beef, I think it is possible to change the nutrient profile of beef," she mentioned. "If we were to change the beef profile, I would stress that we change the iron concentration."

Increased iron

The importance of changing the iron levels in beef would benefit the iron deficiency seen in humans and improve the tastefulness and shelf life of beef.

Mateescu noted iron deficiency is the most common and widespread nutritional disorder worldwide.

"Sarcopenia is the loss of muscle mass and strength in aging adults and is related to an iron and zinc deficiency," she explained. "The U.S. is seeing a very fast growing amount of people in this age group, and an increased amount of iron in beef would be beneficial for these people."

Shelf life

Iron is also important for the beef industry when looking at the economic important traits. Iron concentration is related to color stability, more commonly known as shelf life.

"The more iron there is in beef, the longer shelf life the meat has," commented Mateescu. "Also, our research showed a strong and positive genetic correlation between iron concentration and beef flavor. An increased iron concentration leads to an increased beef flavor."

She added, "We have some opportunities to really take a closer look at beef to see what we have in it and where it goes in terms of a healthy diet for humans."

Madeline Robinson is editor of the Wyoming Livestock Roundup and can be reached at madeline@wylr.net.

SIDEBAR:

Obesity

Lincoln, Neb. – Raluca Mateescu, an associate professor from the University of Florida, gave a talk at the Beef Improvement Federation in Lincoln, Neb. about changing the nutrient profile in beef.

She referenced that healthfulness is becoming more of an important factor in consumers' buying decisions because the nation is facing a serious problem with increased obesity rates.

Starting in 2010, no state in the U.S. had an obesity prevalence lower than 20 to 24 percent, with the average obesity rate being at 34 percent.

“It’s definitely a problem we have in terms of our health, but can we blame beef for this problem?” asked Mateescu.

Mateescu noted that in the last 30 years, beef consumption has declined due to the recommendations from health professionals over the past 25 to 30 years to reduce the intake of red meat. This recommendation was based on the perception that red meat was the main contributor to total fat and saturated fat.

It was believed at the time that saturated fat was related to an increase in cholesterol level. High cholesterol levels were known to be a risk factor for other cardiovascular diseases and scoliosis.

“I think we can make the point that the increased obesity rates being seen in the last 30 years are probably not related to beef consumption,” she comments. “There are also more reports coming out today that show there is really no evidence that saturated fat causes heart disease.”