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Research Reveals Genetic Influence On Beef's Health Profile

[Burt Rutherford](#)

Thu, 2014-07-24 16:51

The tide is turning in how consumers perceive the [healthfulness of beef](#), says [Raluca Mateescu](#), a University of Florida geneticist. And that's good news, she says, considering that surveys on consumer attitudes about beef show that healthfulness is rising rapidly on consumers' radar as a trait they consider important in their [buying decision](#).

Which begs the question—can beef producers improve the healthfulness of beef through genetic selection? Yes, she says. “I think we have some opportunities to take a closer look at beef to see what we have and where it goes in terms of a [healthy diet](#),” she says.

In fact, that research is ongoing now, and what they've found so far is encouraging.

According to data generated by the [Beef Healthfulness Project](#), a multi-university effort, some of the nutrients that comprise beef's healthfulness profile have very good heritabilities. Take [iron](#) and zinc for instance, two of beef's most important nutrients.

“If we look at iron, we've got a serving of beef contributing about 8% to 18% of the recommended daily value, depending on whether we're looking at women, elderly or men,” she says. The iron concentration in beef has very high heritability at 54%.

“Zinc follows, with a serving of beef contributing 26% of the recommended daily value. It has a lower heritability but not bad at 10%.” However, she says the data show a very strong and positive correlation between iron and zinc. “So if we're going to focus our efforts on iron and say that's the one we want to increase, we are also going to benefit from an increase in zinc concentration.”

Focusing on the genetics of iron has some definite upsides, she says. “The first is human health. [Iron deficiency](#) is the most common and widespread nutritional disorder worldwide.”

But iron concentrations in beef are also important to cattlemen. “If we look at economically important traits, iron concentration is related to color stability and shelf life. And we also showed in our research that there is a strong and positive genetic correlation between iron concentration and [beef flavor](#). We know that's right at the top in terms of consumer preference.”

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However, she cautions, anytime you start thinking about adding another trait to your selection criteria, you need to worry about the downside of genetic antagonisms. “The good news, at least for iron, is there's nothing to worry about with genetic correlations and phenotypic correlations with a number of carcass traits,” she says. “The only carcass trait with a moderate genetic correlation is [yield grade](#), and that is positive—higher iron, higher yield grade.”

As research continues, and as the beef industry is more successful in getting closer to its consumers, traits that

affect the nutrition profile of beef may loom larger in selection indexes. "Research is very important, looking at how much we have of those components and what role they play in a healthy diet," she says. "They're novel and needed traits. We have an opportunity to really change the way beef is portrayed to the consumer."

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