DNA: To paternity and beyond

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For years, consumers have clamored for a better and more consistent eating experience from their beef. ¶ That experience is based on the parameters of palatability: flavor, juiciness and tenderness — but the greatest of these is tenderness. If meat is not tender, dissatisfaction ensues. Meat guaranteed to be tender is worth a higher price to consumers, according to research. ¶ How to deliver that? Enter DNA testing, which some producers are using to identify tenderness potential, among other things. While the industry already does a good job of identifying marbling through EPDs, marbling does not correlate perfectly with, or cause, tenderness, so DNA testing can pick up where EPDs leave off. In one study, researchers found the distribution of genetic tenderness scores was almost identical across the Select and Choice quality grades. Now, with DNA, producers can identify both marbling and tenderness.

Several companies are now offering DNA marker capabilities to do this. MMI Genomics Inc. has introduced Tru-Marbling and Tru-Tenderness DNA-based selection products. Bovigen has two new quality grade markers and also offers tests for tenderness, sire verification and black coat color. IGENITY, a business unit of Merial, offers to create a genetic profile instead of doing individual tests. Included are markers for parentage, coat color and carcass characteristics such as back fat, ribeye area, carcass weight, quality grade and tenderness.

Whereas three or four years ago it was mainly seedstock producers who were using DNA testing, now commercial producers are getting involved, initially to determine parentage in multi-sire situations, then moving into making marker-assisted selection decisions in breeding and culling. Some customers are using the information for marketing bulls or females in sales by enhancing the genetic information they can provide to potential customers.

Now marker-assisted management is taking hold beyond selection. Feedlots and alliances are using this information to make judgments about how to feed and how to market individual animals. Knowing an animal's genetic potential allows feeders to manage cattle more efficiently; these days, feed efficiency is at a premium because of grain prices, but there are not many animals capable of grading Choice after only 110 days on feed. DNA markers help find them. And packers can eliminate waste in their operations by knowing where the Yield Grade 4 and 5 carcasses are coming from.

Another promise of what DNA testing can provide is the ability to identify all this genetic potential right away. Instead of waiting for progeny to be produced, grow up and be slaughtered, DNA tells us immediately.

Beef production is a case where more information is better, and with this information the industry will be able to make better decisions and institute changes faster, thereby speeding up the process of providing quality food to the consumer. The battle for consistency in beef has gone on for years — not just with tenderness, but carcass weight, ribeye size and marbling. With quality grade, it's been a mystery for decades why more improvements haven't been made. DNA testing may help solve that mystery.

That's something that would be good for everyone, and the result — a better and more consistent product — should mean a higher price and a more profitable marketplace for beef.