

Working with marbling

By Sara McGaha
Tecumseh, Okla.

Consumers want to be overwhelmed when they bite into a juicy steak. To get that sensation, the steak must have adequate marbling, and researchers at Oklahoma State University are working to “meat” consumer demands.

Three faculty members and three students are using genetic selection and management in cattle to address the development of marbling in the cattle industry.

Their research program is called “Identifying the Stages of Marbling Development in Beef Cattle.” In 1991, Kirby Childs started this project as part of the research for his master’s thesis. Childs, now a doctoral student at Colorado State University, began studying the genes of cattle in an effort to speed up the marbling process.

“Research began about two years ago,” said Rod Geisert, OSU animal science professor. “We are trying to understand how marbling actually occurs.”

The researchers are trying to determine why some cattle marble faster than others. Marbling is the last stage of fat development in the muscle.

“If we could understand how the process (of mar-

bling) works, then we could manipulate it, and that’s our long-term goal,” Geisert said.

The program is funded by the Oklahoma Beef Industry Council through the checkoff program. A considerable need exists for producers to develop new ways to raise higher-quality animals to meet consumers’ demands, said Brad Morgan, OSU animal science associate professor.

Each year, production inefficiencies in the beef industry account for a loss of approximately \$7.4 billion, according to Childs’ research study.

According to the 1995 National Beef Industry Council Quality Audit, the beef industry lost nearly \$280 for every fed animal marketed in 1991. Most of the loss was caused by excess fat, lack of marbling and other defects in the cattle carcass.

However, the OSU project is trying to manipulate the genes of cattle to save producers time and money.

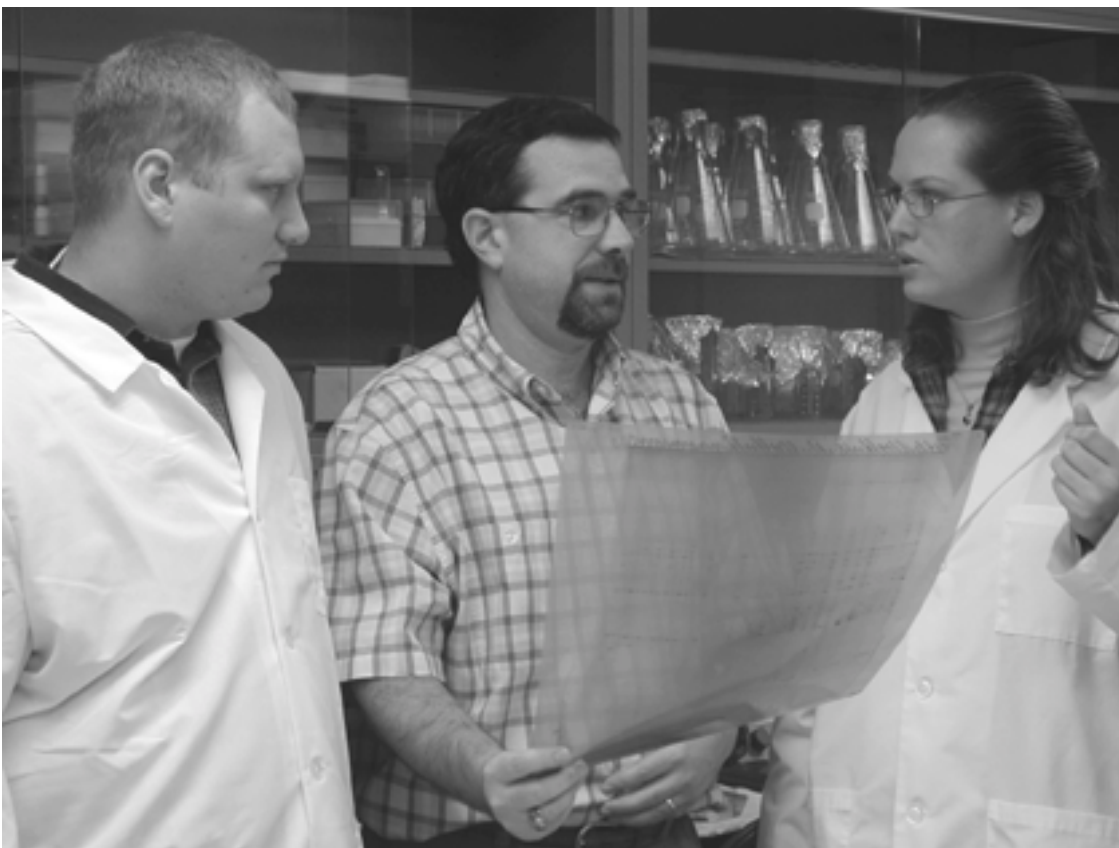
“This project could be extremely beneficial,” Morgan said. “The people who will be affected most are the producers who feed stocker steers or heifers. It will help the entire industry in the long run.”

Whether producers raise stockers or show cattle, this program will help them by developing the type of cattle the industry needs, Morgan said.

Marbling, however, is not the only aspect the research program explores. Also included are the genes associated with feed efficiency and calving ease.

“Some health-related problems have genes associated with them,” Morgan said. “If we could turn them on, turn them off and regulate things, it would make us more efficient as a beef cattle industry.”

This program is designed to identify the genes that are associated with a specific problem and to discover ways to regulate them in a positive manner.



Jerry Malayer, associate professor of physiological science (center), discusses the latest cattle marbling results with two research assistants, Zach Stevenson (left) and Kalyn Brown. (Photo by Sara McGaha)

“Right now, 58 percent of people in the United States are cooking beef medium well or well,” Morgan said. “If you cook a product to a high degree of doneness, one thing you do is increase toughness.”

Several studies on the importance of marbling and its impact on tenderness are underway around the world.

“Marbling in beef serves somewhat as an insurance policy,” Morgan said. “You can cook it to higher degrees of doneness while still maintaining a very tender product.”

To please customers and improve the quality of beef, producers should realize problems associated with the lack of quality marbling, Morgan said.

“Sometimes you get a steak that’s just not good and nobody knows why,” said Jerry Malayer, OSU associate professor of physiological science.

If the beef industry is going to survive, the consumer is going to have to become the most important thing. The industry must realize the cattle business in Oklahoma is a major economic component in the state, Geisert said.

“You have to meet what consumers want,” Geisert said. “They want a uniform product, so that when they buy a steak, they know it’s going to be good.”

Understanding the biology of marbling could lead to a

better understanding of tenderness in beef and better management practices of cattle during the feedlot stages.

“If we could produce carcasses high in quality from a marbling standpoint, it would make beef a lot more competitive against other types of protein sources in the marketplace,” Morgan said.

“We could get the best of both worlds: efficiency from a growth standpoint and, after we harvest the animal, a high-quality product.

“The beef industry must find ways to put animals in the feedlot and get them to marble faster,” Morgan said. “If the program will get cattle to marble faster, then it will save producers money by cutting the number of days on feed.”

As marbling develops sooner, factors such as breed type, quality grades, post-mortem aging and geographical source of cattle can influence consumers’ overall taste and palatability of the beef, Morgan said.

“All breeds have individuals that work,” Morgan said. “We just have to identify the individuals that actually will contribute something positive to the cattle mix.” CJ

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