

Source is the Key for Beef Quality Research

Researchers focus on Angus genetics.

Story & photo by *Miranda Reiman*

Black and Angus don't mean the same thing. Animal scientists have come to recognize that as they have set up research trials throughout the years.

Across the broad sweep of beef research, from nutrition and feedlot performance to health and breeding, science looks for responses from treatments. The less "noise," or variation in the control, the better. As today's studies look increasingly at correlations with meat quality, scientists now fashion experiments around cattle of known Angus genetics.

"You can't do research on producing high-quality beef if the cattle don't have the genetics in the first place," says Robbi Pritchard, South Dakota State University (SDSU) ruminant nutritionist. He knows the cattle he gets for his feedlot research have the ability to marble. He's been buying them from the same ranch for more than 20 years.



"When you do an experiment, origin is a huge source of variation," Pritchard says. "All the 'ranch-to-rail' programs in all the states try to plug in everything that adds up

to value. The biggest unknown out there is still ranch of origin."

Pritchard gets his cattle from Centennial Angus Ranch, Faith, S.D. Owners Hugh and Eleanor Ingalls sell more than 130 bulls each year. They sell their steers, usually a couple hundred, to SDSU.

"They have quality, uniform genetics to work with," Pritchard says. "It's great." His feedlot research is focused on increasing the value of feeder

calves. Grid marketing while shooting for a USDA premium Choice or Prime target has helped.

This year, a one-day closeout on 200 Ingalls steers resulted in 59% *Certified Angus Beef*[®] (CAB[®]) and CAB Prime acceptance.

"If you don't keep going back to the same place every year," Pritchard says, "where you end up on percent Choice and ribeye per hundredweight is a crapshoot reflecting how you bought them."

Larry Corah, Certified Angus Beef LLC (CAB) vice president and longtime university researcher, agrees.

"Even within Angus there's obvious variability," he says. "Continuity with the source of

the cattle or working with an Angus breeder with known genetics gives you repeatability in a study."

Consistent management

The same source of genetics usually provides the benefit of consistent management.

Retired Kansas State University (K-State) beef scientist John Brethour says management variability can greatly affect research results.

"You could get one group out of a good backgrounding lot and another group of cattle out of drought-stricken pasture," he says. "Putting those together, you've got a lot of variability in

compensatory performance."

At the Hays, Kan., research center where Brethour worked for 47 years, he learned to source cattle from a single ranch, working directly with a producer.

"The genetics were pretty consistent, and they had the same previous environment," he says.

Brethour says trials with sale barn cattle and put-together groups produce more variability. "Your statistical variance is higher when you don't have consistent genetics," he explains. "That makes it more difficult to determine whether you have treatment responses."

The Ingalls-SDSU relationship is about more than reducing variability and getting good calves, though.

"It becomes pretty valuable that Hugh doesn't just sell me a set of cattle — I get reactions and feedback, too," Pritchard says. "If there's something that could help

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the value of a calf and you have people who will honestly talk to you about it, you can find a way to make an improvement, a management step that people can really take.”

From vaccination studies to implanting, Pritchard finds year-to-year replication is important.

“We can look at the entire system,” he says, “and then look at that system more than once.”

Data interpretation

Dave Patterson, Extension beef specialist at the University of Missouri, conducts reproductive work on purebred Angus cattle from university and cooperating herds across the state.

“Our research is ongoing,” he says. “Because our cows are of a similar genotype, we don’t have major changes in genetics from year to year.”

That helps in data interpretation.

“We’re able to see where we’ve come from relative to past research, and don’t have to wonder, ‘Is that change in response because of change in genotype?’” Patterson says.

Much of his research deals with artificial insemination (AI) and protocols for estrus synchronization.

“If you have lots of variation in genotype, there’s going to be a greater difference in cow maintenance requirements and all those sorts of things,” Patterson says. The range is naturally wide, but adding other genetics or another breed would “create more of a challenge.”

The university tracks pedigree information on each animal and sees the

need to continue research with Angus cattle.

“I think it’s important to work with breeds or breed-crosses that are pretty reflective of what’s out there in the industry,” Patterson says. “People rely on us to do work that has some relevance to the genetics of their cow herds.”

He adds, “AI has been used far more extensively in the Angus breed than any other breed, so having that herd to work with has been an ideal situation.”



PHOTO COURTESY OF HUGH INGALLS

► Hugh Ingalls, Centennial Angus Ranch, Faith, S.D., has sold his steers, usually a couple hundred, to South Dakota State University for research for more than 20 years.

Where variety is needed

There’s a place for variety, however.

Extension beef specialist Greg Lardy, of North Dakota State University, explains certain situations call for cattle with mixed genetics and management history.

“If we want the research to be applicable to general, run-of-the-mill feedlot cattle, we’re going to look for sale-barn- and order-buyer-sourced cattle that are put together,” he says. “We’ll give them a weight range we want. It would be all colors and all breeds.”

Knowing the genetics of the cattle can help scientists stratify animals into these diverse groups, he says. University cattle from research herds across the state find their way into feedlot projects. These herds vary among Angus, Simmental and crossbred commercial cattle.

“Breed is certainly one variable we consider as we assign cattle to certain

treatments,” Lardy says. “If we went out and bought that same set of black cattle from a sale barn we wouldn’t know what percentage were Angus or Simmental or other breeds with black influence.”

That breed knowledge allows them to create evenly mixed groups.

Brethour remembers when order buyers would look for loads of “blacks.”

“When I started evaluating the cattle with ultrasound, I pretty well determined they were what I call ‘black frauds,’” he says. “Ultrasound helped me determine whether they were true Angus. If they didn’t have any marbling potential, I knew I had a Limousin- or Simmental-cross in the bunch.”

Corah says there is a natural transition to using more Angus-influenced cattle in research.

“If Angus make up more than half of the cattle population, it makes sense that any research looking at quality beef production would include Angus,” he says. “They are evolving into the major breed in the cattle industry.”

Research goals are still the main consideration when picking cattle type.

“We try to fit the genetics and the breed type to the objectives of the projects,” Lardy says.

If that goal is trying to see how certain inputs or management affects quality, then you’ll most likely see an Angus tie.

“If you’re trying to measure quality grade as an end point, you have to have cattle that have grading potential,” Corah says. “It makes total sense that Angus cattle become part of that research project, because they have the potential to give you variations in the numbers of Prime, premium Choice and low Choice.”



PHOTO COURTESY OF NDSU

Extension beef specialist Greg Lardy, North Dakota State University.