



DNA testing is

At Home on the Range

by *Becky Mills*

►With multiple sires used on the large acreages of Bradley 3 Ranch, Minnie Lou Bradley says DNA testing solves parentage questions.



Minnie Lou Bradley doesn't cut her cows any slack. The Memphis, Texas, rancher insists they breed within 60 days or they're history, even the ones that go through one round of artificial insemination (AI). That's no small feat considering the pastures on the Bradley 3 Ranch are measured in sections, not acres.

"In our country we can only run a cow for every 25 acres," Bradley says. "A cow can be in heat, and 2 miles away another cow is in heat. A bull can get his tongue wrung out pretty good and still can't get 'em all bred."

The answer is using multiple sires for each pasture, as well as turning the cleanup bulls in as soon as AI is done. But one more thing — before Bradley puts the sire's name on a calf's registration papers, she wants to know she's right.

DNA testing is the answer.

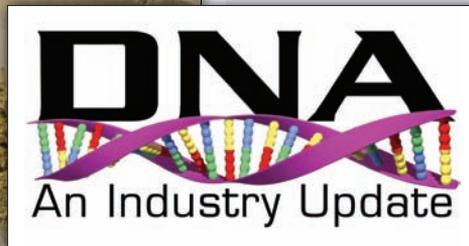
"Every calf born on this ranch is DNA-tested," Bradley says. "Now every animal on our outfit is DNA-tested, because we don't bring in any cows."

However, Bradley says DNA testing isn't cheap. Even though they had to cut back on cattle numbers last year because of drought, she still usually DNA-tests at least 350 calves a year. The American Angus Association furnishes the test cards free to its members, but breeders pay \$18 per test for

identification and parentage to MMI Genomics, the company that conducts the test.

"It definitely pays for us in this country," she says. The

alternative is to stretch out the calving season and just use one bull per cow group. "If we had a 100-day season, assuming calves gain 2 pounds (lb.) a day, then calves born at the first of the season would weigh 200 pounds more than ones born at the last. That would really show up. As it is, we





calve in 60 days and get a 93% to 95% breed up.”

University of Georgia animal scientist Ronnie Silcox agrees that multiple sires can increase the chances of cows getting bred in a timely manner. “If you have a bull with fertility problems or one that gets injured, it isn’t as big an issue if you are using multiple sires,” he explains.

Lisa Kriese-Anderson, Auburn University animal scientist, adds, “With multiple sires, there is more competition between bulls. They do their job rather than getting lazy.”

With DNA testing, Bradley has those advantages but can still be accurate on parentage. “We’re correct. We know if a neighbor’s bull gets across the fence,” she says. “We definitely know if one of our bulls gets across the fence into another pasture.”

Avoiding AI mix-ups

Although multiple sires normally aren’t used on Apex Angus Ranch, AI breeding for a month is standard on the Valier, Mont., ranch. Pamela Swanson says, “We DNA-test the calves to make sure a mix-up didn’t happen while we were AI breeding, either putting the wrong straw in or getting a straw that was mislabeled.”

Like Bradley, Swanson says they also have a short time lag from the time they finish AI breeding until they turn the cows in with a cleanup bull. “If we have a cow calve early or late, we get the calf DNA-tested so we can be sure whether it was AI-sired or sired by a cleanup bull,” she says.

Swanson says they also have problems with mountain lions and grizzly bears spooking cattle and running them through fences. Then the cows get scattered and end up in different pastures. If they have any doubts after they get the cows sorted out, the calves are DNA-tested.

Between the AI calves they have doubts about and the cattle that end up in the wrong pastures during breeding season, Swanson says they have anywhere from 80 to 100 calves DNA-tested per year.

“It is expensive, but to be right, it is worth it,” she states.

The technology does have its limitations, however. Kriese-Anderson says, “The bulls have to be genetically diverse. There is a good possibility DNA testing would not

Just a little dab’ll do you

While running the actual DNA test is definitely high-tech, getting the sample ready for the lab is not.

First, call or e-mail Bryce Schumann or Carol Waller in the American Angus Association’s Member Services Department. If you’re a member, they’ll send you the cards you need, at no charge, to send the DNA samples off for testing.

Then, get a drop of blood from the animal you want to have DNA-tested, fill the circle on the card and mail it to MMI Genomics. The base charge is \$18 per test for identification and parentage.

“Our calves are born in November and December,” says Minnie Lou Bradley, Bradley 3 Ranch, Memphis, Texas. “We take the blood when we brand, vaccinate and tattoo in March. We usually get a little drop of blood when we tattoo.”

Pamela Swanson, Apex Angus Ranch, Valier, Mont., says they usually aren’t tattooing at the same time they are drawing blood for DNA testing. So she puts a white label with the calf’s number on a small syringe. Blood is drawn from the underside of the calf’s tail. She puts the syringes in a box and takes them back to her office. There, she takes the sheet that comes with the DNA card and fills out the member code, address and phone number, type, the tag number of the calf, sex, the birth date, the dam’s registration number, and the possible sires and their registration numbers.

“I list a number of sires,” Swanson says. “If the sire isn’t on the list, they have to go to a third marker — and that is extra time and expense.”

Then, she staples that sheet to the DNA card and puts the member code and the calf tag number on it, puts the drop of blood on the card and lets it dry.

Next, the sheets go in the mailer.

“It is so convenient,” Swanson says. “You can put them in your desk drawer and wait to mail them.”

Eric Johnston, lab manager at MMI Genomics, appreciates the efforts Swanson and other American Angus Association members make to provide clean samples and accurate information. “In general, the members are doing an excellent job,” he states. “The Angus Association has done a good job of providing their members with instructions.”

When the blood samples get to MMI, they usually start running sample batches on Wednesdays and usually have the results by the Friday of the following week. They send the results back to the American Angus Association. There, the office updates the member’s AAA Login account with the information. It is usually somewhere around two weeks, excluding mail time, before the members have the information.

For larger operations that submit quite a few samples, Johnston says they can provide a spreadsheet so the members can submit the information electronically.

Swanson still sends the information through the mail and says, “It is hard to wait when you are trying to get catalogs done, but they are trying to fine-tune it.”

“Bryce has been so helpful and patient,” she adds.

There have been a couple of instances where MMI couldn’t match the calf DNA to any of the potential sires Swanson listed, and she couldn’t register the calf. But she still says, “We like DNA testing. It is a good tool.”

distinguish which bull sired which calf if you are using bulls that are full brothers.”

Bradley is willing to manage around the limitations. And now that she is comfortable with DNA testing, she’s using it in other ways, through other companies. “With genetic markers coming aboard, we’re using them, too. We’re doing feed efficiency, tenderness and marbling tests.

“We think it is necessary to stay on the cutting edge,” she states.

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