“Conception rate is the No. 1 profitability driver in anyone’s operation,” states Matt Perrier of Dalebanks Angus. When the seedstock operation looked at their own artificial insemination (A.I.) conception rate data, comparing semen used from four semen companies, they found differences they weren’t expecting.

Real World Data
In a comparison of 1,612 matings over seven breeding seasons (3.5 years), A.I. conception rates were compared. The data revealed a 6 to 11 percent Select Sires advantage over semen companies A, B and C. (See Table 1.) Perrier explains, “Before now, we had never looked at our data and made these comparisons. So, it’s very honest data and I think it’s worth talking about. I’d hate to make huge determinations off of a one-herd project, but looking at our data, it’s hard to argue this: The Select Sires bulls we used have shown they can get more females pregnant.”

An unbiased, third party sorted and analyzed the data according to individual sire and semen company. The statistical model used to analyze the data took into account the effect of year, season, age (cow vs. heifer) and technician.

It’s important for beef producers to be reminded that environmental and herd management factors greatly affect a herd’s fertility. The females in the study were managed the same at the Dalebanks operation near Eureka, Kansas. The heifer calves are developed on a fairly low to moderate nutrition plan postweaning. “A few years ago, we began this practice after analyzing research. Heifers are put on a moderate energy ration 30 days prior to A.I., vaccinated and synchronized with the 14-day CIDR protocol. After the second round of A.I., heifers are moved to native grass where they spend the rest of the breeding season with clean-up bulls.” The cows are also vaccinated before synchronization. Then, Perriers uses the Select Synch plus CIDR protocol, detecting heat through 72 hours post prostaglandin, followed by timed-A.I. breeding for those not detected.

Dalebanks Sire Selection Process
When making mating decisions, Dalebanks keeps their customers’ needs top-of-mind, most of which are commercial cow-calf producers. They choose sires that are significantly above average for a variety of customer-demanded traits. “Calving ease, rapid early growth, optimal end product merit, docility and scrotal circumference are some of those customers’ top priorities. After that, we evaluate progeny phenotypes for traits like feet and leg soundness and udder quality. Reproductive efficiency of a sire’s daughters is a high priority, so we’ll continue to use that in our selection matrix, hopefully replacing anecdotal observation with more scientific genetic predictions in the future,” Perrier further explains.

When selecting A.I. sires, they search for high-accuracy, progeny-proven bulls, and begin that search using a 0.8 EPD accuracy search criteria for frontline performance traits such as birth weight, weaning weight and yearling weight, signifying presence of performance data. Then, from that narrowed search, they look at those with ultrasound and carcass records. “We will give more credibility to a bull that has carcass records, especially from a good data set, that fairly and equitably compared him well. We will also step out and use a moderately proven bull, but won’t use a bull that doesn’t have any progeny. It’s rare that we’ll use a moderate to low accuracy bull,” says Perrier.

Select Sires Semen Fertility Advantage
What’s a possible explanation for the difference in conception rates between Select Sires and semen companies A, B and C at Dalebanks Angus? Dr. Matt Utt, director of research at Select Sires, shares “If there’s one thing that gives us a fertility advantage, it would probably be our decision to throw away semen that doesn’t pass our tests and not send it to the field. If you want to maintain quality, the easiest thing to do is, if there’s any doubt on quality, do not put it into inventory.”
Select Sires employs a rigorous multistep semen evaluation process and quality control system using the latest technology, assessing whether sperm can complete their job successfully. If the semen doesn’t pass all quality control evaluations, then it doesn’t get the Select Sires stamp of approval and isn’t placed into inventory for sale.

“A lot of the steps we take are under the umbrella of Certified Semen Services (CSS). Look for that stamp at the bottom of the straw of semen. In my mind, it’s a value-added indicator,” says Utt. Once a bull arrives at Select Sires, and his period of isolation is complete and he passes health testing requirements, semen is collected. Once collected, it’s prepared by adding antibiotics (as dictated by CSS) and extender. The antibiotics are an effort to mitigate the potential for disease transmission.

Extended semen is subject to several quality control evaluations after freezing. First, sperm motility is evaluated under a microscope immediately after thawing, using a warm water bath just as one would for breeding, and then again three hours after incubation in a warm water bath, which is called a thermal stress test. Second, sperm morphology (shape) is evaluated to determine if the sperm are abnormally shaped. An abnormally shaped head, midsection or tail of the sperm could lead to a multitude of problems, such as deterring the sperm from getting to the site of fertilization, embryonic mortality and others. Last, a flow cytometer is used to evaluate sperm viability (plasma membrane integrity) and DNA stability.

“Semen must pass all tests to go into inventory. If they don’t pass the tests, they go into the garbage,” says Dr. Utt.

Superior Settler™ Designation
Sometimes, a bull has outstanding semen quality and appears to also have above average fertility data from use in the field. When this happens, he is given the Superior Settler designation. Dr. Utt explains, “Having above average semen quality and appearing to have above average fertility gives us more confidence in making inferences about a bull’s fertility. Then, we can give the bull the above average designation of Superior Settler.”

As a reminder, all Select Sires semen passes the same semen quality tests. Dr. Utt equates the Superior Settler designation to getting an A+ grade (exemplary) versus a B grade (good, satisfactory).

Initially, Perriers didn’t pay a lot of attention to the Superior Settler designation. But, they do use it as a way to help choose A.I. sires. It’s not their first selection criteria, but it can help them refine their choices. When analyzing the same Dalebanks data, Superior Settlers achieved a 2 percent advantage in percent pregnant A.I. compared to Select Sires bulls without the Superior Settler designation.

More Industry-Wide Data Needed
“I think this data comparison opens the door to the possibility of a robust set of genetic predictions that can compare conception rates on A.I. sires. It’s one of the most economically relevant traits for anyone using A.I.,” states Perrier. “If the American Angus Association continues to get more adoption of MaternalPlus® and reproductive efficiency programs through AGI [Angus Genetics, Inc], we can hopefully find out the probability of a bull’s ability to get a female pregnant. But, more data needs to be submitted.”

Dr. Utt agrees that an industry-wide push would be needed to collect A.I. conception rate data in a consistent and standardized way to help develop fertility estimates.

Collecting data and improving conception rate will certainly go a long way in determining profitability in a beef producer’s operation.

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