Practical Applications

Veterinarian, industry professionals and cattlemen discuss real-world benefits of using reproductive technology.

*by **Shelby Mettlen,** assistant editor, & **Troy Smith,** field editor*

The Applied Reproductive Strategies for Beef Cattle (ARSBC) symposium, hosted Aug. 29-30 in Manhattan, Kan., offers the latest in reproductive technologies and research. In addition to hearing from researchers, attendees also heard from those who have put the technologies to use themselves.

Characteristics of successful breeding programs: An AI industry perspective

What's the secret to successful application of artificial insemination (AI) in beef breeding herds? Sandra Levering, a Kansas-based ABS Global representative, was among the industry professionals asked to share their opinion at ARSBC. She emphasized the importance of accountability and dedication among all team members involved in implementing an AI program, along with open communication.

Levering cited the "Equation of Reproduction," A × B × C × D = % Pregnancy, and its factors:

A = Percentage of herd members detected in heat and inseminated or time-bred.
B = Inseminator efficiency percentage.
C = Percentage fertility of the herd.
D = Semen fertility percentage.

Levering said the percentage of herd members detected and inseminated or time-bred is dependent upon an effective estrous synchronization program that utilizes proper administration of the correct products administered in accordance with an appropriate protocol. She advised producers to take the time necessary for effective heat detection, if used, and to take advantage of available detection tools.

Inseminator efficiency is achieved by using a qualified AI technician with knowledge, experience and a passion for the job. An adequate amount of help and sound, safe facilities are needed to complete the job in timely fashion.

Levering said herd member fertility is influenced by genetics, herd health management and nutrition. She also emphasized the importance of good stockmanship to minimize stress and save time, and sound decisions regarding post-AI relocation or transportation of animals.

►You can't get around the equation of reproduction," stated Sandra Levering, a Kansas-based ABS Global representative. "The total can't be larger than the smallest percentage, so every team member has to perform at a high level."

Semen fertility level will be affected by the attention paid to storage and handling prior to use, as well as the adequacy of equipment and adherence to correct procedures at the time of use. Producers also should be aware that fertility varies among sires.

Levering reiterated the importance of a dedicated, cooperative spirit and ready communication among all who participate in an AI breeding program.

"You can't get around the equation of reproduction," stated Levering. "The total can't be larger than the smallest percentage, so every team member has to perform at a high level."

— by Troy Smith

Joint effort

There is no "silver bullet" to ensure the success of a herd health program; it's a group effort. Those were the words of Randall Spare, veterinarian with Ashland Veterinary Clinic in Ashland, Kan. "What I've learned over the years is that I've got to do a better job of communicating."

It's important to have and maintain reproductively efficient females with early growth that produce a calf that will add value to the cow herd.

Producers are in control of their genetic choices, and Spare stressed the importance of selecting for docile animals. Those cattle "will perform better," he said.

Spare added that solid nutrition and health programs are necessary, as well as fertility testing bulls. He reminded producers, "When there's a fertility problem, rarely is it just one cause."

Those four components — docility, nutrition, health and sound bulls — help ensure a reproductively efficient cow herd.

"Immunity is a lifetime experience starting at conception, and we have to make sure we're making the right decisions to create that possibility," Spare said.

A calf's level of immunity is very low at the time of birth, so colostral intake is of utmost importance.

"It's not black and white," Spare said. "It's a degree of response to colostral intake." Providing an environment for calves to nurse immediately to provide colostrum following birth is necessary.

"The cornerstone of a herd health program is to know what our BVD (bovine viral diarrhea) status is," Spare said. Test for the disease, test for persistently infected (PI) calves, and vaccinate at the right time. When the herd is confirmed BVD-free, make biosecurity a priority to keep it that way.

Regarding the debate of modified-live virus (MLV) vs. killed vaccine, Spare says any vaccine can provide protection when used in the appropriate time and place. "It's about timing," he said.

In situations where cattle are already stressed, even a great vaccination protocol may get poor results.

"When we add stress to a vaccination program that would appear to be right, maybe it's wrong," he said, urging producers

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to use the right timing with the right vaccine.

"Just because we vaccinate and vaccinate often doesn't mean we'll get a more robust response," Spare said. "We have to be careful of how we use it, and ask ourselves what's the appropriate way."

BVD has a unique and efficient way of hiding out in herd sires, Spare added. If the virus ends up in the testicles, it can hide out for as long as 18 months completely undetected. That's a problem.

Spare urged producers to buy young, virgin bulls. The veterinarian strongly discouraged the practice of leasing bulls, calling it "a bad idea."

With trichomoniasis, Spare said, "Know who your neighbors are and what their practices are." He recommended vaccinating for vibrio and leptospirosis yearly.

As a final note, Spare again stressed the importance of selecting for docile cattle, reminding his audience that calves out of tame cows gain better and are more reproductively efficient throughout their lives.

— by Shelby Mettlen

Make reproductive strategies pay: A seedstock perspective

It is heard repeatedly at nearly any cattlemen's meeting where discussion includes both genetics and reproduction. Apparently, people need to be reminded that fertility is "the" most important trait of beef cattle. According to Galen Fink, it is the responsibility of seedstock producers like himself to address challenges to fertility through the genetics they provide to commercial cattle producers.

"We can fix some fertility problems with genetics," stated Fink, whose family operation near Randolph, Kan., annually markets some 700 bulls representing two breeds.

Fink noted several potential problem areas that seedstock breeders should prioritize. These included feet and other structural soundness issues in seedstock and semen viability of yearling bulls. Fink pointed out that hair coats that don't shed out in summer are problematic, particularly in hot humid climates. He also called extremely large mature cow size and high milk production antagonisms to high conception rates.

"All of these things do affect fertility, but we can control them with genetics," said Fink, who issued a challenge to seedstock producers. "Can you look your commercial customers in the eye and tell them you are doing all you can to produce genetics that promote better fertility?"

Fink challenged breeders to consider whether the fertility of their customers' cattle might be challenged by man-made problems, such as keeping a subfertile cow in production and passing her genetics along to customers. He called low fertility due to "fattening" of bulls during development a huge problem. He also called the use of "rare and valuable" semen another issue that sometimes contributes to low fertility.

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"Why is it rare and valuable? Is it from a proven sire that produced good semen until he died at 15 years of age, or is it from a bull that never did produce good semen?" asked Fink.

"We have to be alert," cautioned Fink, "so we don't create problems that will have long-term negative effects for the commercial producer."

— by Troy Smith

Make reproductive technologies pay: A commercial perspective

"We've used AI since 1990. We've always synched the heifers; that was low-hanging fruit," said rancher Barb Downey. "Since 2011, we've been synchronizing the cows, too."

►"It's been a snowball effect," said rancher Barb Downey of implementing reproductive technologies. "The advantages build up for a positive net effect on ranch profit."

Downey talked about the cow-calf operation she operates with her husband, Joe Carpenter. She explained how estrous synchronization, AI and other reproductive technologies have improved profitability for their Wamego, Kan., ranch.

"It's been a snowball effect," stated Downey. "The advantages build up for a positive net effect on ranch profit."

According to Downey, the Flint Hills ranch relies primarily on grazed forages, including native grass and grazed crops, and harvested forage plays a steadily declining role. Except for virgin heifers under development, breeding females graze on range year-round. Reducing production inputs is a management goal.

While some cattlemen might question whether extensive AI, following estrous synchronization is a "low-input" practice, Downey said the return justifies the cost. Benefits of AI include the ability to use "proven conception rate" semen from sires representing genetics that promise superior

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performance. AI also allows the ranch to maintain purebred cows, while using sexed semen to produce purebred replacement females while also operating a crossbreeding program to produce sought-after F_1 females to sell.

Estrous synchronization has resulted in a shorter calving season with a high percentage of cows calving in the first 25 days. This allows a longer period of postpartum recovery. The synchronization protocol used on cows provides for timed AI, which eliminated labor associated with heat detection.

Use of sexed semen allows Downey Ranch to produce more replacement-quality heifers, which are developed and bred prior to marketing. Downey cited figures from 2015, when the ranch's 18-month-old bred heifers brought $2,764 and 15-month-old fed cattle sold for $1,875. Considering respective costs of production, the heifers were worth $684 per head more.

In the past, Downey Ranch hired pregnancy detection by ultrasound for heifers only to determine early which heifers were bred to AI. In 2014, an ultrasound machine was purchased in cooperation with two other area ranches. Downey now uses it for early pregnancy detection on all females. Identifying open cows early, and marketing them prior to the seasonal decline in cull-cow price has generated enough more revenue to pay for the ultrasound machine.

In conclusion, Downey listed management strategies that help reproductive technologies do more for the ranch's bottom line, including implementation of the Sandhills Calving System, which results in cow groupings for easier management of nutrition. Fenceline weaning means cows are penned for five days in September — an opportune time for pregnancy detection and marketing of culls.

— by Troy Smith

Selling bred heifers: What makes an operation successful.

"Boy, heifers are a lot cheaper."

That's what Doug O'Hare's father told him on the phone years ago while he was buying steers to feed at their ranch near Ainsworth, Neb. After some debate, heifers were purchased, and later bred and sold.

"It worked," O'Hare told his audience of those attending the ARSBC symposium. So began the bred-heifer program at O'Hare Ranch.

The first year, O'Hare Ranch purchased, bred and sold 500 heifers. The cow herd was sold to focus on the bred heifer program. The next year, the ranch purchased, bred and sold 1,200 heifers. Today, they're up to 1,800.

"A lot of the callers that called on the heifers wanted to know if they were pelvic-measured, wanted to know the EPDs of the bulls and wanted to know the background of the heifers," O'Hare said. "We didn't know any of that."

The next set of 1,200 heifers was pelvic-measured, AIed, and pregnancy-checked. O'Hare called the first year "a disaster," with about a 33% conception rate. The following year, O'Hare Ranch utilized ABS Global to set up an AI breeding program, using MGA with a shot of prostaglandin on Day 17. A few years later, O'Hare Ranch partnered with the University of Nebraska–Lincoln (UNL) to experiment with giving the shot on Day 19. Accuracy of heat detection and conception rates improved.

Today, O'Hare Ranch breeds about 1,800 heifers in three days using a double alley and Bud Box system. They still use MGA for 14 days with a prostaglandin shot on Day 19. All heifers are given a shot of GnRH at breeding.

A few years ago, the ranch partnered with ABS and UNL to try out CIDRs. In a trial, 1,400 heifers were split into two groups of 700 head: One group received CIDRs for 14 days and the other group received MGA for 14 days. The results were very similar, O'Hare says, and they scrapped the CIDR idea for the original MGA, prostaglandin and GnRH system.

What's made the ranch successful?

"We try to buy good heifers," O'Hare said. All heifers are purchased Angus or Angus-Hereford-cross. Heifers are still pelvic-measured and palpated prior to sale.

Customer service keeps customers returning, O'Hare said. The ranch keeps track of purchasers and keeps in contact to ensure customer satisfaction.

"Service is a big seller," he said.

Even with the ranch's success over the years, O'Hare said there have been plenty of mistakes.

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"Do not run your heifers through the chute on Day 5, 6 or 7," O'Hare said. "It's a very fragile state for the embryo."

O'Hare also emphasized the importance of minimizing stress. The double alley and Bud Box system minimizes stress on cattle and people.

"AI has been a big seller for us," he said, adding that O'Hare Ranch has utilized the same sire for 12 years. "Our customers like him; we like him."

Ultimately, what's made the ranch successful is the use of AI, the use of ultrasound, the use of pelvic measurement and good customer service, O'Hare concluded.

These presenters spoke during Tuesday's ARSBC session focused on application of reproductive technologies. Visit *www.appliedreprostrategies.com,* for comprehensive coverage of the symposium, to view their PowerPoints or to listen to their presentations. Compiled by the *Angus Journal* editorial team, the site is made possible through sponsorship by the Beef Reproduction Task Force. To access video of the presentations, visit the Beef Reproduction Task Force page on Facebook.

The 2017 ARSBC Symposium was hosted by the Task Force and Kansas State University Research & Extension. Next year's symposium will be Aug. 29-30 in Ruidoso, N.M.

Editor's Note: *Troy Smith is a cattleman and freelance writer from Sargent, Neb.*