

7 Do's & Don'ts for Breeding Season

A checklist of management factors that can help boost heifer and cow pregnancy rates.

by **Kindra Gordon**

“Do things twice as well as you need to because the little mistakes at every point can really add up.” That’s the advice George Perry, a beef reproduction specialist at South Dakota State University (SDSU), gives to cow-calf producers as they prepare their herds — and their management tactics — for breeding season.

To illustrate this point, Perry gives the example that even if you achieve 90%-95% success at each of the four main factors that influence fertility, the end result could be less than satisfactory. For example, 90% of animals detected in standing estrus and inseminated, 95% inseminator efficiency, 90% fertility of the herd and 95% fertility of the semen yields only a 73% pregnancy rate ($90\% \times 95\% \times 90\% \times 95\% = 73\%$).

The fertility level of the herd requires a



PHOTO BY SHAUNA ROSE HERMEL

year-round focus, suggests Perry. “Many people rely on the heritability of fertility, but in my view so much of fertility hinges on management. How cattle are fed, stressed and moved all have an effect on fertility.”

Here, Perry shares a checklist of

management tips to help add success to the heifer and cow breeding equation.

1. Aim to get heifers bred early. SDSU’s Perry shares research that shows heifers that are cycling and conceive during first service are more likely to become productive cows with longevity in the herd.

“If heifers don’t conceive first service, data suggests the odds of them having six calves is greatly reduced, and they will exit the herd before they can pay for their development costs,” says Perry.

His recommendation is that heifers need to calve by 24 months of age to achieve maximum lifetime productivity.

Moreover, Perry says, research indicates later-calving females rob the calf of future weight gain. One study indicated calves from later-calving cows were on average 20 pounds (lb.) lighter at weaning.

“Over eight calves, that adds up,” says Perry.

Another analysis conducted by the U.S. Meat Animal Research Center (USMARC) at Clay Center, Neb., on a database of 3,700 calves indicated 2.4 lb. of potential weaning weight was being lost per day on each calf born after the first day of calving.

Bonus Tip: Review your herd health plan

The recommendation to have a herd health plan in place isn’t new news to cattlemen. But Russ Daly, SDSU Extension veterinarian, reiterates how important herd health can be on reproduction and pregnancy success. He offers these reminders to producers:

- ▶ Prepare heifers prior to their being weaned. He recommends administering a five-way viral vaccine preweaning and with a booster at weaning. Vaccinating against leptospirosis (including *Lepto hardjo-bovis*, if desired) should also be considered for this age group.
- ▶ The best time to administer a reproductive vaccine booster to heifers and cows is 30 days prebreeding. This results in the best levels of immunity early in the breeding season, Daly says.
- ▶ Avoid using modified-live vaccines (MLV) in pregnant animals. Daly reports that several instances where this has caused calf fetuses to be aborted have been reported in recent years. He says even though some products may be labeled for MLV administration during gestation, he believes it’s too high of a risk.
- ▶ Have aborted cases investigated. If you have one or several cows aborting fetuses, Daly suggests getting a diagnosis to see what might have caused it. He suggests keeping records on the aborted/open cows and sending the placenta and fetus — along with a detailed history — to a state lab for diagnosis. The resulting information may help you and your veterinarian identify a herd health concern that can be corrected.
- ▶ Always discuss your vaccine or health programs with your local veterinarian before making any change in timing or products used in your program.

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"After 21 days, that's 50 pounds," Perry points out.

Perry and Rick Funston, beef reproductive physiologist at the University of Nebraska West Central Research and Extension Center, remind producers that the best way to get heifers to start cycling is to have them on a plane of nutrition that allows them to reach 55%-65% of their mature target weight by breeding. However, they caution against under- and over-development, either of which can adversely affect fertility, as well.

2. Consider how heifers are managed before and after breeding.

"You can't turn heifers out after breeding and forget about them," says Perry. He emphasizes the importance of monitoring heifers for body weight change during the first 30 days after AI.

From his research, Perry has found that a sudden change in the diet following insemination can negatively affect pregnancy success. Specifically, he's found that when turned out on pasture after breeding, heifers developed in a feedlot often have a higher percentage cycling prior to breeding, but the heifers developed on grass actually have higher pregnancy success. Perry attributes this to a negative energy crash experienced by the feedlot-developed

heifers after the transition from the feedlot to grass immediately following breeding.

"Because of the change in nutrition, heifers are crashing, and they can't maintain the embryo," Perry explains. Research suggests that if nutrition decreases even by as little as 15% after AI, it can affect embryo quality.

To minimize this period of negative energy gain, Perry suggests producers adapt heifers to grass for up to a month before breeding. Heifers can then be drylotted and supplemented for 10 days while AIing, but when they are turned out to grass post-AI, they should not go through the negative gain period.

3. Pay attention to heat detection. If you are using an AI program on cows or heifers, pregnancy success will be determined by accurate heat detection and insemination at the proper time. Perry notes that the more frequently that cattle are monitored or observed — early morning, midday and evening — the more accurate detection of standing estrus will be. Cows should be inseminated 12 hours after standing estrus is observed.

He reports that continuous observation of more than 500 animals exhibiting natural estrus in three separate studies indicated 55.9% of cows initiated standing estrus from 6 p.m. to 6 a.m. Furthermore, when cows were observed for standing estrus every 6 hours (6 a.m., noon, 6 p.m., and midnight), estrous detection increased by 10% with the addition of a mid-day observation and

by 19% when observed four times daily compared to detecting standing estrus at 6 a.m. and 6 p.m. alone.

For cattlemen who use bulls for natural service of the herd, Perry says heat detection is still important to observe to make sure bulls have libido and are getting heifers and cows bred.

“Watch a bull after introducing him to a cow herd and determine that he is detecting cows in estrus,” he explains.

4. Inseminator efficiency also important. Again, for operations using bulls to get females bred, Perry emphasizes the importance of making sure each bull has an annual breeding soundness exam, and then observe the bull with the herd to make certain he is physically able to breed cows.

In AI situations, inseminator efficiency

is influenced by semen handling and the ability of the technician to deposit semen in the correct location. Semen should be deposited in the uterine body. With regard to semen handling, Perry provides these reminders:

When removing a straw from a liquid nitrogen tank, keep the canister, cane and unused semen straws as low as possible in the neck of the tank. The temperature of liquid nitrogen in a semen tank is -196°C ; sperm injury can occur at temperatures as warm as -79°C .

Perry suggests that having a detailed inventory of semen may help in locating and removing straws quickly from the tank to avoid exposure of semen to ambient temperature.

Most AI organizations recommend

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thawing ½-cc straws for approximately 45 seconds in a 95°-98° F water bath. It is not recommended to thaw more straws of semen than you can deposit into cows in a 15-minute period.

5. Use only CSS semen. Perry stresses the importance of using quality semen from a reputable dealer. He recommends semen be marked CSS, indicating it has gone through the Certified Semen Services audit for quality and disease testing.

6. Consider heat stress. Researchers have reported that heat stress 42 days prior to and up to 40 days after breeding can affect pregnancy rates. Perry emphasizes keeping this in mind as you plan your breeding program. He suggests shade, fans and misters can reduce the effects of heat stress in natural-service or AI programs. Perry says timed-AI protocols may also be useful to increase pregnancy rates during the hot summer months, because it does not require heat detection. He notes that estrus is more difficult to detect when cows are experiencing heat stress.

7. Be careful shipping cows after breeding. Shipping cows between days 5 and 42 postbreeding can be detrimental to embryo survival and cause around a 10% decrease in pregnancy rates, reports Perry. He explains that critical time points for the embryo such as blastocyst formation, hatching, maternal recognition of pregnancy, and adhesion to the uterus take place during this early time of pregnancy.

“If any of these time points are disturbed, the result would lead to increased embryonic mortality and decreased pregnancy rates,” he states.

Additionally, research has demonstrated that shipping cattle 45 to 60 days after insemination can result in 6% of embryos being lost.

Thus, Perry says it is important to plan on transporting cattle before the breeding season or immediately after insemination. He says shipping between 1 to 4 days after insemination appears to have minimal effect on the embryo because it is still in the oviduct. After cows have been bred 60 days, shipping is less risky.

Perry reminds producers to keep stress minimal whenever transporting cattle by handling cattle calmly and not overcrowding trailers.

