

Understanding Females

Gary Williams offers tips for understanding puberty and postpartum anestrus.

by **Meghan Richey**

Getting cows pregnant isn't always as easy as it sounds, but understanding puberty and postpartum anestrus can make it a bit easier. Gary Williams, Texas A&M University, addressed these topics Jan. 28 at the Applied Reproductive Strategies in Beef Cattle (ARSBC) symposium hosted in conjunction with the 2010 Cattle Industry Annual Convention and NCBA Trade Show in San Antonio, Texas.

Puberty in heifers

"Lifetime productivity is heavily dependent on a female's ability to reach sexual maturity, conceive early and calve as a 2-year-old," Williams said, noting, however, that many heifers do not reach puberty early enough to conceive early.

Sexual maturation begins in the brain, specifically in the hypothalamus, Williams said. Factors affecting maturation include:

- ▶ breed, breed type and body weight;
- ▶ pre- and postweaning nutrition, time of wean and type of diet; and
- ▶ critical body weight/adiposity.

"We can develop heifers for reaching puberty by using the concept of targeted

body weight," he said. A suckling calf gains 2 pounds (lb.) per day. When the calf is weaned at 7-9 months of age, there is a small dip in daily gains. If she is fed to gain 1.5-2 lb. per day, we can expect her to reach puberty at 12-14 months. However, if she is fed to gain 0.5-1 lb. per day, puberty will more likely be achieved at 14-16 months. By getting the heifer to reach puberty earlier, she will have more cycles — thus more opportunities — to get bred earlier than the rest of the cow herd, thus giving her a better opportunity to rebreed on time.

"Feeding to develop to a targeted body weight does work. It has a cost associated with it, but it works," Williams said.

The postpartum cow

"Twenty years ago we used to think that the sensory stimulation of suckling affected nerves that signaled the body to remain anestrus, but we now know that it is actually the maternal bond that prevents a female from returning to cycling," Williams explained.

In instances of adverse environmental conditions, such as drought, Williams said

that early weaning can markedly enhance reproductive performance. Also, temporary weaning (48 hours) or alien cohabitation (also 48 hours) of cows during estrus synchronization may enhance synchronization efficiency and fixed-time artificial insemination (AI) conception rates.

"If you take away the calf, the cow will often be in estrus within 48-72 hours, but certainly within one week," he said. He clarified the myth that time of suckling during the 24-hour day influences return to estrus, saying, "restricting calves to day-only nursing or night-only nursing has no effect on postcalving reproductive efficiency."

Aside from suckling, Williams said, nutrition is a major factor. Specifically, cows with lower body condition scores (BCSs) have fewer large follicles, making rebreeding more difficult.

He cautioned against viewing fat supplementation as a "silver bullet" to improving reproductive efficiency, saying there is a "narrow margin of opportunity for cows that would benefit from fat supplementation. Only those that are in thin condition already may benefit, but even then it may not be anything more than we would expect to see with any other dietary supplement for a thin cow." Fat supplementation has no significant effect if cows are already in appropriate body condition, he emphasized.

Protein and mineral supplementation to maximize forage utilization is an investment worth making, he said. "Yes, it costs a bit of money, but it will make you more."

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Editor's Note: The ARSBC program was developed by the Beef Cattle Reproduction Task Force to improve understanding and application of reproductive technologies, including AI, estrus synchronization and factors affecting male fertility. For additional coverage — including summaries, proceedings and audio for each presentation — visit the newsroom at www.appliedreprostrategies.com. For API coverage of the Cattle Industry Convention, visit the newsroom at www.4cattlemen.com.

Focus on Females