

ESTRUS SYNCHRONIZATION SUCCESS HINGES ON COMPLIANCE

Pedro Fontes Department of Animal and Dairy Science

Estrus synchronization protocols rely on the use of exogenous hormones to manipulate the estrous cycle of beef cows or heifers. The goal of these protocols is to control when females express behavioral estrus and consequently ovulate. By controlling timing of ovulation in cows, these protocols were developed to facilitate the adoption of assisted reproductive technologies such as artificial insemination and embryo transfer. In fact, since estrus synchronization protocols were developed, the beef industry has seen a significant increase in the use of these assisted reproductive technologies, which in turn have played a pivotal role in rate of genetic improvement of beef cattle herds.

To fully capture the value of estrus synchronization protocols, these programs must be implemented in compliance with science-based recommendations. Compliance refers to how closely the protocol is followed in terms of timing of hormone administration, dosage, product handling, and administration techniques. While the protocols themselves are well-tested and highly effective, their success in the field depends on our commitment to executing them as intended.





A common mistake in estrus synchronization programs is using hormonal protocols that have not been thoroughly validated through randomized research trials. While synchronization protocols offer a practical way to manage a complex biological process, their effectiveness depends heavily on following research-backed methods. Deviating from recommended protocols can reduce pregnancy rates and compromise results. To ensure consistency and effectiveness, producers are encouraged to use only protocols endorsed by the Beef Reproduction Task Force (BRTF). These protocols are listed in the back of most major semen company sire directories and are available at www.beefrepro.org. The BRTF reviews and updates these protocols annually, based on rigorous scientific criteria. Each listed protocol has been evaluated in thousands of animals across diverse environments and has demonstrated solid pregnancy outcomes under realworld conditions. Using these validated protocols is one of the simplest ways to stack the odds in your favor before you start your breeding project.

Another common compliance mistake is failing to follow the precise schedule recommended for hormone administration. This includes both injectable hormones, such as GnRH and prostaglandin F_{2a} , and intravaginal progesterone inserts like the CIDR (controlled internal drug release). Timing errors, even by a few hours, can reduce the effectiveness of the protocol and lower pregnancy rates. In addition to the protocol sheets, one valuable tool to help ensure proper timing is the Estrus Synchronization Planner. This free, Excel-based tool is also available at <u>www.beefrepro.org</u>. The Estrus Synchronization Planner allows you to input your desired breeding date and herd size, then automatically generates a detailed hormone administration schedule based on BRTF-approved protocols. It also provides an estimated cost of implementing estrus synchronization and artificial insemination, helping producers compare strategies and choose the one that best fits their operation.

Product labels should always be read carefully, and all hormonal injections should follow Beef Quality Assurance (BQA) guidelines. The volume of injectable estrus synchronization products varies by product and manufacturer, typically ranging from 2 to 5 cc. Likewise, the route of administration depends on the specific product. For instance, Estrumate (Merck Animal Health) and Lutalyse (Zoetis Inc.) are both prostaglandin $F_{2\alpha}$ products that



serve the same physiological purpose within synchronization protocols, yet Estrumate is administered at 2 cc, while Lutalyse requires a 5-cc dose. Another example is the difference between Lutalyse and Lutalyse HiCon. Both are prostaglandin $F_{2\alpha}$ products; however, Lutalyse is labeled for intramuscular administration only, whereas Lutalyse HiCon can be administered either intramuscularly or subcutaneously (SQ).

Proper needle selection is equally important. A 1.5-inch needle is generally recommended for intramuscular injections, and a ³/₄-inch needle is appropriate for subcutaneous injections. Ensuring the correct dose, route, and needle length helps deliver the product effectively and consistently in every animal. Deviating from these guidelines may reduce the biological response to the protocol and compromise overall reproductive success. The same can be said for product storage. Product storage is just as critical. Labels should be read carefully, and products must be stored according to the manufacturer's recommendations to maintain potency and safety.

Estrus synchronization is a powerful tool for improving reproductive efficiency and genetic progress in beef herds, but its success relies on attention to detail. By following validated protocols, adhering to proper timing, and maintaining best practices for hormone handling and administration, producers can maximize the return on their investment associated with estrus synchronization. For more information, contact your local large-animal veterinarian or local Extension office.

UNIVERSITY OF GEORGIA EXTENSION