



A Guide to the Hormones Used in Cattle Estrus Synchronization for Artificial Insemination

Ashley Wright, M.S.

This information does NOT replace the advice of your veterinarian. Work with your veterinarian to establish a veterinary-client-patient relationship and determine the products that are available to you and best suited to your needs. Always follow all product instructions, including storage information, dosage, route of administration, and withdrawal times before harvest. The manufacturer-provided packaging and instructions, as well as the guidance of your veterinarian, take precedence over any information provided here. It is also worth noting that all products, except for the CIDRs, are available only with a veterinary prescription.

The University of Arizona hosts several Artificial Insemination (A.I.) clinics for cattle producers each year. One of the most common points of confusion for producers navigating the A.I. process is understanding estrus synchronization and determining which products are equivalent to each other across manufacturers. This fact sheet is provided as a guide to help identify equivalent estrus synchronization products across major brands, it is not intended to promote any specific brand or product. The University of Arizona does not endorse any specific product and recommends users do their own research and work with their veterinarian to determine which products are appropriate for them and their operation.

Why estrus synchronization?

Ranchers can improve the overall health and reproductive capacity of their cattle herd, shorten their calving season, and send a more uniform set of cattle to market (potentially improving returns/profit) by shortening the calving season and utilizing artificial insemination. Successful implementation of an A.I. program into your cattle operation begins with estrus synchronization. This process uses synthetic versions of the naturally occurring reproductive hormones to reset and then stimulate ovulation in large groups of animals, resulting in estrus cycles occurring close together at a predictable time. Estrus synchronization can also be incorporated in operations without A.I. to shorten the breeding/calving season. However, the rancher needs to ensure there are adequate bulls available to cover all the cows during the compressed breeding season.

Synthetic versions of reproductive hormones go by different chemical names than the hormones they replace, and names vary by manufacturer. For example, prostaglandin F2 alpha (PGF2 α) is given during most estrus synchronization protocols, but the synthetic version of the hormone is called cloprostenol sodium, cloprostenol, or dinoprost tromethamine depending on which company you purchase from. It can be difficult to identify the correct product from the product packaging alone and giving the right hormone at the right time is key for success in estrus synchronization.

Where can I find estrus synchronization protocols?

Specific protocols are available from a variety of sources, the most recommended of which are the American Breeders Service A.I. Management Manual (*A.I. Management Manual*, 2011) or the Beef Reproduction Task Force website (*Beef Reproduction Task Force*). Your veterinarian or genetics/ semen company representative may have a preferred protocol as well..

CAUTION: All of these products can also affect human biological processes and are easily absorbed through the skin. Wear gloves when handling, including the bottles and packaging. Wash your hands thoroughly immediately after use and if any product comes into contact with the skin. If you are or may be pregnant or have a respiratory condition such as asthma, it is advised to handle these products with extreme caution or avoid handling them entirely

Commonly Available Estrus Synchronization Products in the USA

	Zoetis	Elanco	Boehringer Ingelheim	Merck Animal Health	Parnell	Bimeda
<p>Melengestrol Acetate (MGA): This product is mixed into feed and included in some heifer specific estrus sync protocols. It is used at the beginning of a protocol to suppress estrus and ovulation for a short period of time. MGA is only approved for use in heifers at this time (J. Thomas, 2019).</p>	<p>MGA 500® (melengestrol acetate) 0.5 mg per head per day mixed with feed</p>	<p>HeifermaX® (melengestrol acetate) 0.5 mg per head per day mixed with feed</p>				
<p>Progesterone Controlled Internal Device Release (CIDR): This small T-shaped plastic device is impregnated with 1.38g progesterone and inserted into the uterus of the cow or heifer to inhibit estrus and ovulation for a short period of time.</p>	<p>Eazi-Breed™ CIDR (1.38g progesterone) Intra-Uterine Device</p>					
<p>Prostaglandin F2 alpha (PGF2α): This hormone is administered via injection and acts on the ovaries to regress any existing corpus luteum, allowing an increase in follicle stimulating hormone (FSH) to stimulate the development of follicles. Eventually, a dominant follicle will develop and be released during ovulation as an egg to be fertilized.</p>	<p>Lutalyse® (dinoprost tromethamine) 5ml via intramuscular injection</p>		<p>Synchsure® (cloprostenol Sodium) 2ml via intramuscular injection</p>	<p>Estrumate® (cloprostenol) 2ml via intramuscular injection</p>	<p>estroPLAN® (cloprostenol sodium) 2ml via intramuscular injection</p>	<p>ProstaMate® (dinoprost) 5ml via intramuscular injection</p>
<p>Gonadotropin Releasing Hormone (GNRH): This hormone is administered via injection and stimulates a surge of luteinizing hormone (LH), which causes the ovulation of any dominant follicle.</p>	<p>Factrel® (gonadorelin) 2-4ml via intramuscular injection</p>		<p>Cystorelin® (gonadorelin) 2ml via intramuscular or intravenous injection</p>	<p>Fertagyl® (gonadorelin) 2ml via intramuscular or intravenous injection</p>	<p>GONAbreed® (gonadorelin acetate) 1ml via intramuscular or intravenous injection</p>	<p>OvaCyst® (gonadorelin) 2ml via intramuscular injection</p>

*Products included in this table do not imply endorsement by the University of Arizona.

Additional Resources/Works Cited:

Beef Reproduction Task Force. (2023). Retrieved 6/1/2023 from <https://beefrepro.org/>

A.I. Management Manual. (2011). (6th ed., Vol. 1). ABS Global, INC.

J. Thomas, S. P., R. Bonacker, K. Stoecklein, J. Ketchum, G. VanWye. (2019). Guide to Estrus Synchronization Products. University of Missouri Extension. Retrieved 6/1/2023, from <https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/agguides/ansci/g02022.pdf>



THE UNIVERSITY OF ARIZONA
Cooperative Extension

AUTHORS

ASHLEY WRIGHT, M.S.

Area Assistant Agent, Livestock

CONTACT

ASHLEY WRIGHT

awright134@arizona.edu

This information has been reviewed
by University faculty.

extension.arizona.edu/pubs/az2065-2023.pdf

Other titles from Arizona Cooperative Extension
can be found at:

extension.arizona.edu/pubs