ESTRUS SYNCHRONIZATION: A REPRODUCTIVE MANAGEMENT TOOL

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Historically, estrus synchronization has been promoted as a labor saving tool for those producers who want to capitalize on the superior genetics available through use of AI. However, the labor saving aspect is peanuts compared to the economic returns available when estrus synchronization is used as a "reproductive management tool".

Before we delve too deeply into discussion, it's important to get dairy and beef producers speaking the same language. Beef producers typically breed cows during "breeding seasons" while dairy producers attempt to get cows pregnant shortly after a "voluntary waiting period." Breeding season and voluntary waiting period are different ways of saying the same thing. In each case, we want all animals to conceive within a reasonable amount of time after calving (45 to 90 days). This is essential to maintenance of a short (12 to 13 month) calving interval and is a primary factor affecting the profitability of any cattle breeding enterprise. In order to lend some unbiased consistency, we'll use the term "breeding period" to refer to that window of time within which you begin your attempts to achieve pregnancies in your cows.

Because the estrous cycle is 21 days long, you (or the herd bull) can only expect to catch about 1/3 of the cycling animals in heat during the first week of the breeding period if you don't use estrus synchronization. Regardless of whether the animals are inseminated naturally or artificially, you can only expect 65 to 70% of them to conceive to a given insemination. Thus, after a week of breeding to natural heats, only 21% of the eligible animals could possibly be pregnant (33% in heat x 65% conception). Because many animals may not have resumed normal cycling activity, the actual pregnancy rate during the first week of the breeding period will likely be considerably less.

Many estrus synchronization protocols can induce 75 to 90% of the cycling animals to display estrus within a 5 day period. Additionally, many protocols can induce a fertile heat in as much as 50% of the anestrous cows. Thus, it is typical for many of these synchronization protocols to result in 45 to 55% of the animals being pregnant by the end of the first week of the breeding period (Figure 1). Several fixed-time AI options can result in 40 to 50% of the cows pregnant following one single day of breeding with zero hours spent for heat detection.

Cows that display estrus during the first week of the breeding period will have 3 opportunities to conceive during the first 45 days while those who don't will have 2 or less. Also, cows that do not respond to estrus synchronization may be problem animals. Early identification of problem cows allows appropriate veterinary therapy to be administered in a timely fashion and reduces the potential for excessive days open.

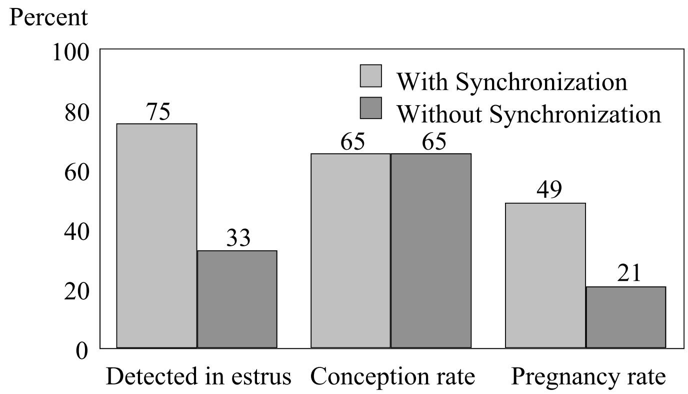


Figure 1. Effects of estrus synchronization on reproductive performance during a single week of breeding.

ADDITIONAL BENEFITS FOR BEEF PRODUCERS

Beef cows that conceive early in the breeding season will produce calves that weigh more at weaning simply because they are older. At 2.0 lb/day of calf growth x $.90/lb, each day older a calf is at weaning means an additional $1.80 in your pocket. Moving an animal up one week is worth $12.60/head in calf weaning weight. A calf conceived on the first day of a 60-day breeding season will be worth $108.00 more than one conceived on the last day. Economic returns like these can more than pay the cost of the average synchronization program.

Cows require time (60 days) to recover from the stress of calving before they can be expected to rebreed. Cows that calve early will have more days postpartum before the beginning of the next breeding season. Thus, compared to late calving cows, more early calving cows will have resumed normal estrous cycles and fertility by the beginning of the next breeding season. Estrus synchronization programs help to keep cows conceiving early in the breeding period which helps to improve reproductive performance during next years' breeding season as well.

Replacement heifers kept from early calving cows will be older at the beginning of their first breeding season and more likely to have reached puberty and targeted breeding weights. Heifers kept from late calving cows will be younger and smaller at the beginning of their first breeding season and predisposed to reproductive problems.

Even in the best management scenarios, first-calf heifers can be problems to get rebred. Estrus synchronization allows you to breed virgin heifers 3 weeks prior to the cow herd. This allows the first-calf heifer additional recovery time after calving before the next breeding season begins. Also, synchronization of virgin heifers facilitates the use of high reliability, calving ease, AI sires. Calving assistance labor is then more efficiently utilized because the heifers will calve within a narrow window of time. Thus, estrus synchronization of virgin heifers is particularly important to reduce calving problems, subsequent breeding problems, and calf mortality rates.

The economic benefits of estrus synchronization apply to every herd, regardless of how the animals are bred (AI or natural service). However, estrus synchronization with natural service is usually cost prohibitive because of the number of bulls required to breed cows during this short period of time. AI becomes the logical, cost-effective alternative and, yes, estrus synchronization will help you save on the labor required for heat detection. The added benefit of superior genetics from proven AI sires is "icing on your cake." In reality, the economic benefits available through AI alone pale in comparison to the return on investment when estrus synchronization and AI are used together as "a reproductive management tool".

ESTRUS SYNCHRONIZATION PROTOCOLS

PROSTAGLANDINS

Prostaglandin (PGF) is a naturally occurring hormone. During the normal estrous cycle of a non-pregnant animal, PGF is released from the uterus 16 to 18 days after the animal was in heat. This release of PGF functions to destroy the corpus luteum (CL). The CL is a structure in the ovary that produces the hormone progesterone and prevents the animal from returning to estrus. The release of PGF from the uterus is the triggering mechanism that results in the animal returning to estrus every 21 days. Commercially available PGF (Lutalyse, Estrumate, Prostamate) gives the herd owner the ability to simultaneously remove the CL from all cycling animals at a predetermined time that is convenient for heat detection and breeding.

The major limitation of PGF is that it is not effective on animals that do not possess a CL. This includes animals within 6 to 7 days of a previous heat, prepubertal heifers and postpartum anestrous cows. Despite these limitations, prostaglandins are the simplest method to synchronize estrus in cattle.

TWO-SHOT PGF PROTOCOL

The most common method of synchronization with PGF is to inject all animals and breed those that come into heat over the next 5 to 7 days. Animals not detected is estrus after the first injection are reinjected 14 days later and bred over the next 5 to 7 day period (Figure 2; Option 1). Animals detected in standing heat should be inseminated 8-12 hours later. If labor availability is a limitation, all heat detection and breeding can be delayed until after the second PGF injection (Figure 2; Option 2). This allows the producer to breed a high percentage of the herd during a single 5-7 day period, but requires two doses of PGF/head versus 1.3 to 1.5 doses/head if animals are bred after each injection. Overall estrus response rates may be slightly reduced (~5%) when animals are bred only after the second injection as some animals that responded to the first injection may not respond again to the second.

Although historic recommendations were to inject PGF at 11-day intervals, from a scheduling consideration, the 14-day interval is much easier to implement. The second injection is always 2 weeks down on the calendar from the first and all activities (injections, heat detection, breeding) are conducted on the same days of the week from one week to the next. This can be particularly important in dairy herd reproductive management programs (See Select Sires brochure "Prostaglandin Based Breeding Programs For Dairy Cattle"). Also, animals that respond to the first injection, but are not detected in estrus, will be between day 7 and 9 of the cycle at the next injection using the 11-day interval. These "early" CLs typically do not respond to PGF as well as older more mature ones. Using a 14-day interval, a missed heat from the first injection will be on days 10 to 12 of the cycle at the second injection. This 3-day difference significantly improves the probability of the animal responding again.

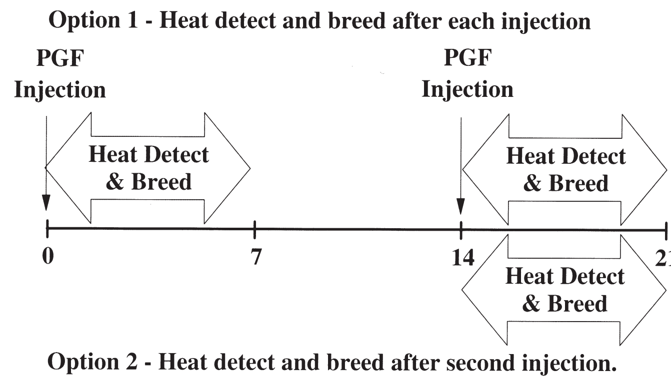


Figure 2. Options for estrus synchronization using 2 injections of prostaglandin 14 days apart.

6-DAY HEAT DETECTION PLUS PGF

A lower cost alternative is to breed animals to natural heats for 6 days and then inject the unbred animals with PGF and breed over the next 5 to 7 days. This system allows all cycling animals to be bred during a two week period and requires only 0.75 PGF injections/head. Although this system is conservative in terms of hormone usage, it is probably one of the more labor intensive synchronization options. If <20% of the animals have been inseminated following 6 days of heat detection, you may have a cyclicity problem. Don't waste your time and money trying to synchronize a herd of cows that are not cycling. Instead, reevaluate the body condition, herd health and nutrition program in your herd.

PGF LIMITATIONS

Fixed-time AI - Fixed-time insemination after single or double injections of PGF alone seldom yields acceptable results and in general, is not recommended.

Suckled beef cows - A major limitation of PGF is that it only works in cycling animals. Therefore, PGF-based protocols work very well in properly managed beef or dairy heifers and in many dairy herd systematic breeding programs. However, even in the best of management scenarios, reasearch suggests as many as 50% of postpartum, suckled beef cows may still be anestrus at the beginning of the breeding season. For these reasons, use of PGF alone for estrus synchronization is not recommended for beef herds or in any situation wherein the herd cyclicity status is in question. In such situations, use of PGF in combination with GnRH and/or a progestin source are much more effective options.

UNDERSTANDING GnRH-PGF BASED SYNCHRONIZATION PROTOCOLS

Numerous new synchronization protocols currently recommended for cows use gonadotropin-releasing hormone (GnRH) in conjunction with PGF. A naturally occurring hormone, GnRH is more popularly known by the commercial brand names of Cystorelin, Factrel, and Fertagyl. Each GnRH-based protocol uses the same basic framework, which involves an injection of GnRH followed 7 days later with an injection of PGF. The way animals are subsequently handled for heat detection and breeding is where the protocols begin to vary. To understand the benefits of GnRH-based synchronization protocols and how they work, you must first understand the concept of follicular waves in cattle.

FOLLICULAR WAVES

Follicles are blister-like structures that grow on the ovaries. Each follicle contains an unfertilized egg that will be released to the oviduct if the follicle ovulates. Research using ultrasound technology has revealed that follicular growth occurs in waves throughout the estrous cycle (Figure 3). Each wave is characterized by rapid growth of numerous small follicles. From this wave of follicles, one follicle is allowed to grow to a much larger size than the others (12 to 15 mm). This large follicle is called the dominant follicle because it has the ability to regulate and restrict the growth of other smaller follicles. A few days after reaching maximum size, the dominant follicle begins to regress. As the dominant follicle regresses, it looses the ability to restrict the growth of other follicles. Thus, a new follicular wave is initiated coinciding with the regression of the previous dominant follicle. From the new follicular wave, another dominant follicle will be selected. Most cows will have two or three follicular waves during an 18 to 24 day cycle.

FOLLICULAR WAVES AND PGF

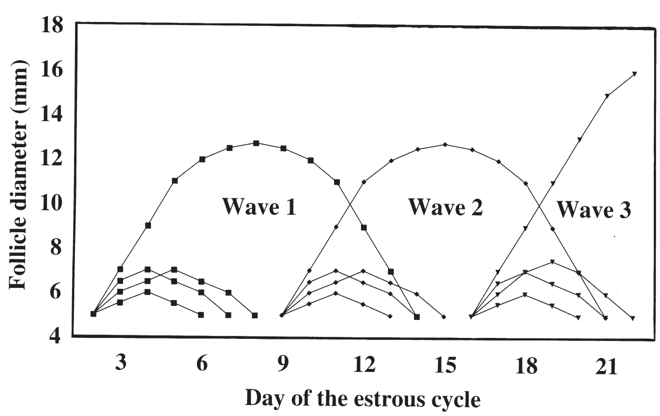


Figure 3. Graphic illustration of follicular waves in cattle.

Any dominant follicle has the capacity to ovulate provided the inhibitory effects of progesterone can be removed at an opportune time (see Select Sire's "Anatomy and Physiology" brochure). Prostaglandins serve this function by destroying the CL, however, PGF has no direct effect on the normal pattern of follicular waves. Thus, the stage of follicular development at the time of PGF injection will affect the interval from injection to standing estrus (Figure 4). Animals injected when the dominant follicle is in the growing phase (A&B) will display estrus within 2 to 3 days, whereas animals with aged or regressing dominant follicles (C) may require 4 to 6 days before a new follicle can be recruited for ovulation. Thus, the interval from PGF injection to estrus and ovulation is highly variable due to differences between cows in the stage of follicular development at the time of PGF injection.

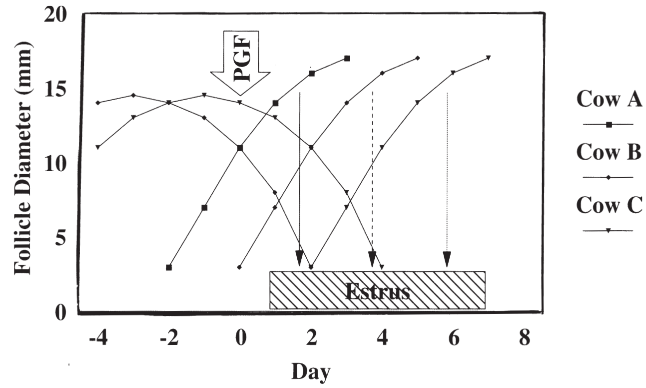


Figure 4. Effect of follicular waves on synchrony of estrus following a single prostaglandin injection.

FOLLICULAR WAVES AND GnRH

An injection of GnRH causes a release of Luteinizing Hormone (LH) from the pituitary gland in the brain. This LH "surge" results in ovulation or luteinization of most large dominant follicles (Figure 5). A new "synchronized" follicular wave is initiated in these animals 2 to 3 days later. Because GnRH stimulates development of luteal tissue in place of the dominant follicle, a higher percentage of cows will possess sufficient luteal tissue to respond to PGF 7 days later. Injecting cows with PGF 7 days after a GnRH injection synchronizes luteal regression in animals with previously synchronized follicular development. The result is a higher estrus response rate and much tighter synchrony of estrus when compared to PGF alone.

Although GnRH synchronizes follicular development in most cows, some cows do not respond to the first GnRH injection. If the GnRH injection fails to luteinize a follicle in animals that were due to show heat naturally around the time of the PGF injection, the treatment fails to prevent those animals from displaying estrus as they normally would. Select Sires' research in both beef and dairy cows has consistently revealed that 5 to 10% of cows treated with GnRH will display standing estrus 6 to 7 days later (9,11). These natural heats should be bred when detected and subsequent injections are not administered.

Because they do not respond to GnRH injections as consistently as do mature cows, GnRH-based synchronization protocols are not currently recommended in virgin heifers.

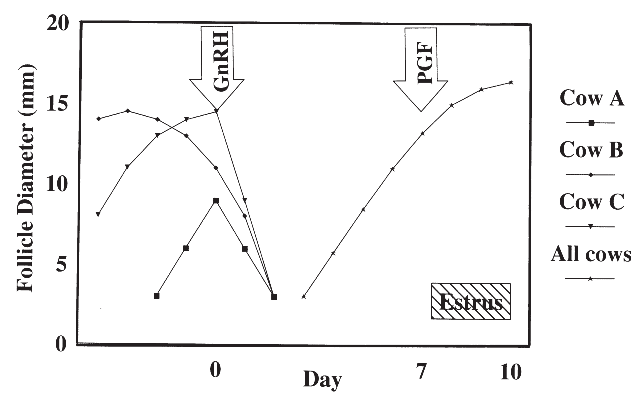


Figure 5. Effect of GnRH on follicular waves and synchrony of prostaglandin induced estrus.

GnRH-PGF BASED SYNCHRONIZATION OPTIONS

SELECT SYNCH

With the Select Synch System (Figure 6), cows are injected with GnRH and PGF 7 days apart. Heat detection begins 24-48 hours before the PGF injection and continues for the next 5-7 days. The PGF injection is excluded for cows detected in estrus on day 6 or 7. Animals are inseminated 8 to 12 hours after observed in standing estrus. Alternatively, heat detect and A.I. until 48 to 60 hours after PGF and then mass-AI the rest of the herd at 72 hours and give GnRH to those cows that have not exhibited estrus.

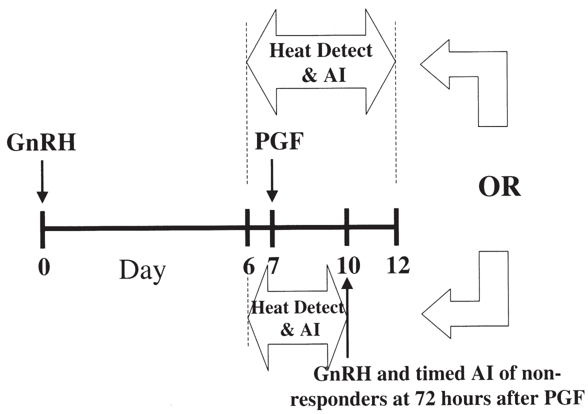
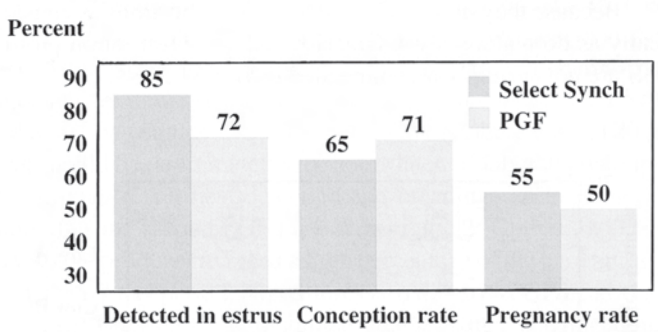


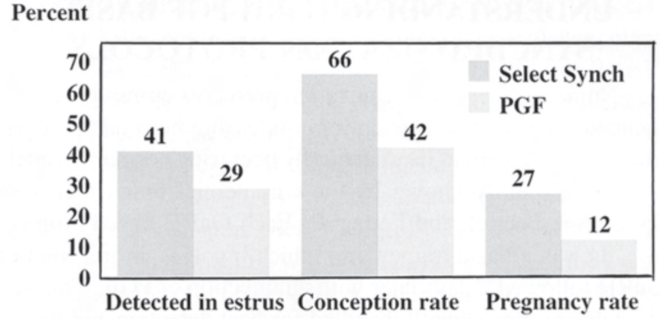
Figure 6. The Select Synch System

The figures below compare estrus response, conception and pregnancy rates for Select Synch and the two-shot PGF system in beef cows that were cycling (Figure 7) or not cycling (Figure 8) at the beginning of treatment (31). In each comparison, Select Synch resulted in more cows in standing estrus, equal or better conception rates and ultimately more cows pregnant during the synchronized breeding period. These benefits were particularly evident in the anestrous cows where estrous response rates were improved by 25% and conception rates (66%) were comparable to those of cycling cows. The Select Synch system more than doubled the percentage of anestrous cows that became pregnant during the synchronized breeding period.



(Stevenson et al., 2000)

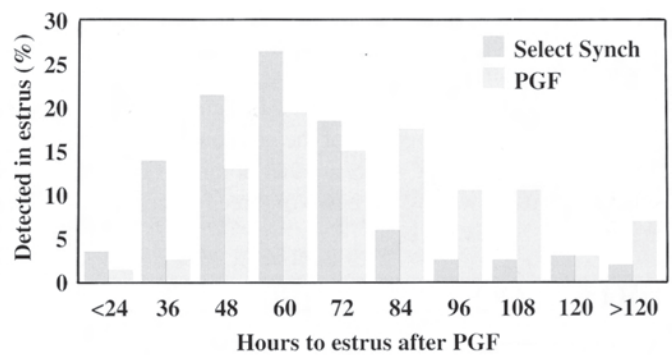
Figure 7. Effects of Select Synch or 2 PGF injections 14 days apart on estrus detection, conception and pregnancy rates in cycling beef cows.



(Stevenson et al., 2000)

Figure 8. Effects of Select Synch or 2 PGF injections 14 days apart on estrus detection, conception and pregnancy rates in anestrus beef cows.

Major benefits of the Select Synch system are simplicity and tighter synchrony of estrus. Most animals will display standing estrus 2 to 4 days after the PGF injection (Figure 9). Overall, estrus response rates in well-managed beef herds average ~70 to 75% with no adverse effect on conception rates (60 to 70%), resulting in synchronized pregnancy rates that average between 45 and 50%.



(Stevenson et al., 2000)

Figure 9. Synchrony of estrus in cycling cows treated with Select Synch or 2 PGF injections 14 days apart.

Select Synch followed by heat detection and 72 hour fixed-time A.I. allows producers to maximize potential pregnancy rates while minimizing labor requirements for estrus detection (7,8). Heat detection is used to catch the early cows and to breed the majority of the herd (60 to 70%) to standing heats. Estrous detection can be terminated at 48 to 60 hours after PGF followed by mass-AI of the non-responders at 72 hours with GnRH. This option gives all cows an opportunity to conceive and, compared to strict fixed-time AI options such as Ovsynch and Cosynch, drug costs are reduced as only 30 to 40% of the herd will receive the second GnRH injection. Additionally, if less than 40 to 50% of the herd is detected in estrus by 72 hours, the mass mating can be aborted, saving drugs, money and semen that might otherwise be wasted on anestrous cows.

OVSYNCH

Ovsynch is a fixed-time AI synchronization protocol that has been developed, tested and used extensively in dairy cattle (23, 24, 29). The protocol builds on the basic GnRH-PGF format by adding a second GnRH injection 48 hours after the PGF injection (Figure 10). This second GnRH injection induces ovulation of the dominant follicle recruited after the first GnRH injection. All cows are mass inseminated without estrous detection at 8 to 18 hours after the second GnRH injection.

Across large numbers of dairy cattle, pregnancy rates to Ovsynch generally average in the 30 to 40% range. Although these numbers may not appear impressive at first, it is important to understand them in terms of an applied reproductive management program. Records from DHIA processing centers suggest that the average dairyman achieves less than 20% pregnancy rates for each 21 days of estrus detection. In that context, a 30 to 40% pregnancy rate to a single fixed time A.I. with no heat detection doesn't sound so bad.

Recent research (17) suggests Ovsynch pregnancy rates in dairy herds can be significantly improved if cows are set-up or "pre-synchronized" to be in the early luteal phase of the estrous cycle at the time of the first GnRH injection. This can be accomplished with 2 injections of PGF given at 14-day intervals with the last injection administered 12 to 14 days prior to starting Ovsynch.

Although Ovsynch allows for acceptable pregnancy rates with no heat detection, it does not eliminate the need for heat detection. Ovsynch treated animals should be observed closely for returns to estrus 18 to 24 days later. Additionally, natural heats can occur on any given day and as many as 20% of cows will display standing estrus between days 6 and 9 of the Ovsynch protocol. Conception rates in these animals will be compromised if bred strictly on a timed AI basis.

COSYNCH

Although Ovsynch has proven to be a reliable timed AI program for beef cows as well (11), Ovsynch requires four trips through the working chute. Research at Colorado State University demonstrated that comparable pregnancy rates can be achieved with only animal handlings by breeding all cow coinsiding with the second GnRH injection (12). Thus, the name Cosynch (Figure 10). As with any fixed time AI protocol, results to Cosynch can be variable, but in general range from 40 to 50%. As with Ovsynch, pregnancy rates are maximized if the early heats are visually detected and bred using the AM/PM rule.

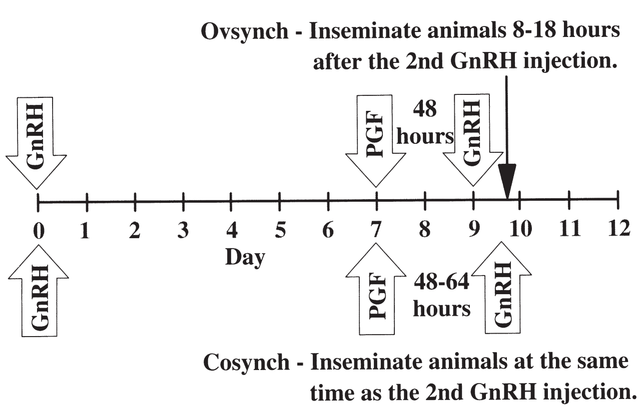


Figure 10. Ovsynch and Cosynch synchronization protocols.

THE MGA® - PGF SYSTEM

The MGA-PGF system (Figure 11) is a time tested, proven method for synchronizing estrus in beef and dairy heifers. Melengestrol Acetate (MGA) is a synthetic form of the naturally occurring hormone, progesterone. For best results, mix MGA with 3 to 5 lbs of a grain supplement and feed at a rate of 0.5 mg/head/day for 14 days. Topdressing or mixing MGA in a TMR can work, but intake (and thus results) tends to be more variable. Within 3 to 5 days after MGA feeding, most heifers will display standing heat. DO NOT BREED at this heat as conception rates are reduced. Wait 17 to 19 days after the last day of MGA feeding, and inject all heifers with a single dose of PGF. For the next 5 to 7 days, inseminate animals 8 to 12 hours after detected estrus.

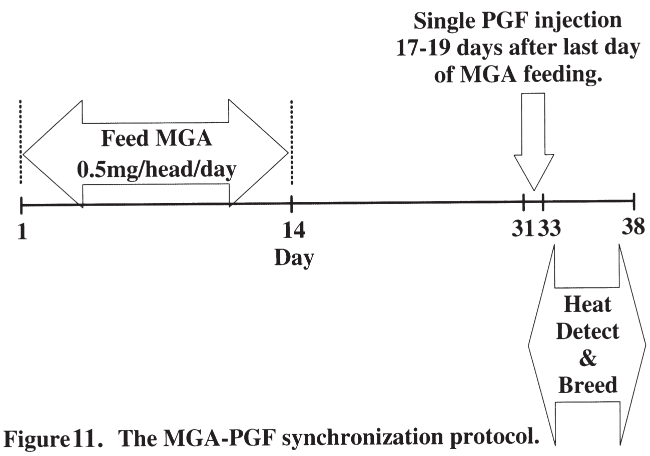


Figure 11. The MGA-PGF synchronization protocol.

Success of the MGA system depends on adequate bunk space and proper feeding rates so the appropriate dosage is consumed by each heifer on a daily basis. In addition to stimulating cyclicity, researchers at the University of Kentucky (18) found the MGA-PGF system to result in higher estrus response and conception rates when compared to synchronization using PGF alone (Figure 12). With good heat detection of well-managed heifers at the proper age, weight and body condition, you can expect to achieve synchronized pregnancy rates of 50 to 70%.

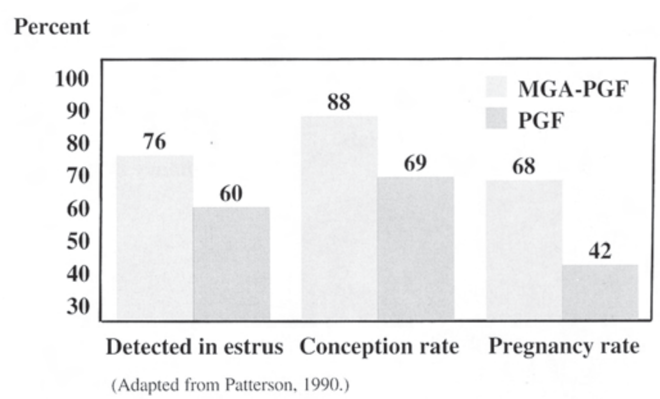
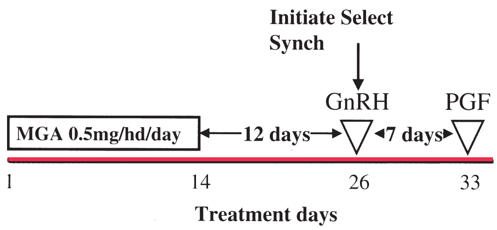


Figure 12. Effects of MGA-PGF or a single PGF injection on estrus detection, conception and pregnancy rates.

Because the synchrony of heats following the MGA-PGF protocol can be variable, pregnancy rates to single, fixed time inseminations are also variable. However, very acceptable pregnancy rates (45 to 55%) have been achieved to a single insemination at 72 hours or by double inseminating at 60 and 96 hours following the PGF injection.

MGA® - SELECT

The MGA-Select system superimposes the MGA heifer protocol on the Select Synch protocol. Cows are fed MGA (0.5 mg/head/day) for 14 days and treated with Select Synch starting 12 days after the last day of MGA feeding (Figure 13). As with Select Synch, cows are bred to observed heats for 72 to 80 hours after PGF and non-responders are mass-mated with a concurrent injection of GnRH (Option 1). Alternatively, cows may be mass-mated with a concurrent GnRH injection at 72 to 80 hours after PGF (Option 2).



Option 1 – Heat detect and A.I. Until 72 to 80 hours after PGF, then GnRH and time A.I. non-responders.

Option 2 – Mass-mate all cows at 72 to 80 hours with GnRH at A.I.

Figure 13. The MGA-Select System

The MGA feeding helps to "jump start" cyclicity in many anestrous cows and presynchronizes cycling cows for optimum response to Select Synch. Numerous studies indicate the MGA-Select system yields outstanding synchroinzed A.I. pregnancy rates ranging from 55 to 65% with both heat detection and fixed-time A.I. breeding options (Table 1). As with the heifer protocol, DO NOT breed cows detected in estrus within 10 days of MGA feeding.

®MGA is a registered trademark of Pfizer Animal Health and is not approved for use in lactating dairy cows.

Table 1. Pregnancy rates to the MGA-Select protocol in published research trials.

Reference:	**No.**	**Pregnancy rate %**
Heat detection		
Patterson et al., 2000	39/60	65
Patterson et al., 2001	67/103	65
Patterson et al., 2002	67/101	66
Stegner et al., 2004	61/109	56
DeJarnette et al., 2004	378/648	58
Combined total	612/1021	60
Fixed-time A.I. at 72 hours		
Perry et al., 2002	70/115	61
Stegner et al., 2003	69/108	64
Bader et al., 2003	142/213	67
Combined total	281/436	64

EAZI-BREED™ CIDR® APPLICATIONS

The EAZI-BREED CIDR is the most recently approved product for synchronization of estrus in cattle (16). The CIDR, as it's commonly called, is a T-shaped vaginal insert that delivers the natural hormone progesterone during the 7-day treatment period. Cows and heifers receive Lutalyse (5 mL) on day 6 or 7 after CIDR insertion with CIDR removal on day 7 (Figure 14). Females are bred 8 to 12 hours after observed estrus for the next 3 to 5 days or at a single fixed time 48 to 64 hours after CIDR removal. Select Sires research indicates the extra animal handling to give Lutalyse on day 6 versus day 7 may reduce the average interval to estrus by about 12 hours with a slight improvement in synchrony of response, but will have no impact on the overall estrous response rate.

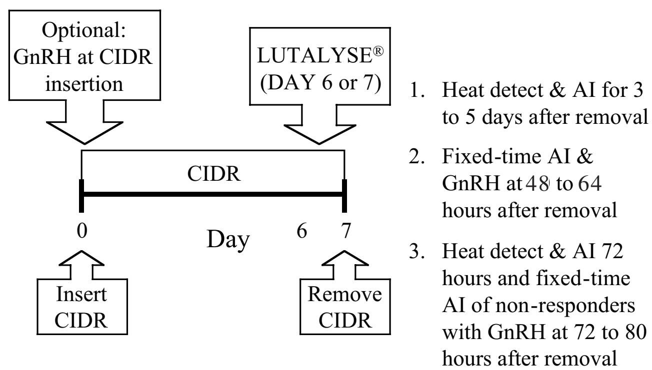


Figure 14. EAZI-BREED™ CIDR® Applications

Numerous research trials (Table 2) indicate an injection of GnRH at CIDR insertion may further improve synchronized reproductive performance, especially among anestrous cows. In other words, pregnancy rates of the many popular GnRH-PGF protocols such Ovsynch, CO-Synch and Select Synch are improved by inserting the CIDR at GnRH injection and removing the CIDR at the Lutalyse injection on day 7. Breeding cows and heifers to detected estrus for 72 hours after CIDR removal, followed by timed AI of non-responders with GnRH appears to minimize the herd to herd variation in pregnancy rates by breeding most cows to standing estrus with a minimum investment in estrus detection labor, while the timed AI gives all females the opportunity to conceive.

Table 2. Effects of GnRH & CIDR protocols on pregnancy rates of lactating cows.

Reference	Treatment	N	% Preg
Ryan et al., 1995	CIDR + EAI	522	40
	GNRH+CIDR+EAI	517	51
Lamb et al., 2001	CO-Synch	287	48
	CO-Synch+CIDR	273	59
Stevenson et al., 2003	CO-Synch	92	61
	CO-Synch+CIDR	95	66
Larson et al., 2004	CIDR + EAI	511	52
	GnRH-PGF+EAI	513	53
	GNRH+CIDR+EAI	508	58
	CO-Synch	551	43
	CO-Synch+CIDR	547	54

MANAGEMENT TIPS TO MAXIMIZE SUCCESS

Nutrition - The major factor affecting the success of any estrus synchronization protocol is the percentage of animals cycling at the initiation of treatment. The single most important factor affecting cyclicity is nutrition. Feed cows to achieve a moderate or better body condition score by the time of calving and increase energy levels in rations to minimize the body condition loss. Body condition score your cows regularly to ensure that your nutrition program is allowing for optimum reproductive performance in your herd.

Herd Health - Work with your veterinarian to maintain an intensive herd health and vaccination program that addresses all diseases of relevant concern to your geographic region. Perform all vaccinations at least three weeks ahead of the synchronization and breeding period to provide ample time for the immune system to respond and provide protection from the disease in question.

Bull Exposure - Exposure of females to bulls in the early postpartum period has been shown to decrease the number of days to the first postpartum ovulation and to increase the percentage of cows cycling at the beginning of the breeding season (5, 6, 9, 32). Bulls should be surgically altered to prevent insemination and disease transmission. Androgenized females also have a biostimulatory effect equal to that of bulls (2, 4) and are inexpensive to produce.

Calf Removal - The suckling stimulus of a nursing calf extends the duration of postpartum anestrus in cattle (13, 28). While not commonly practiced, early weaning of calves provides an excellent means to improve the cycling status of the average beef herd (3). Temporary calf removal (48 hours) initiated concurrently with the PGF injection of any synchronization protocol is a more common and easily implemented procedure (12).

Miscellaneous Details - First-calf heifers, late calving cows, difficult births, and retained placentas are all associated with reduced fertility. Group these "high risk" animals separately so maximum nutrition, veterinary care and TLC can be efficiently provided.

Estrus detection aids applied at the time of PGF injection improve heat detection efficiency and facilitate identification of cows that should also receive GnRH at 72 hour timed-AI.

Make sure adequate labor will be available for heat detection and breeding and that each person is adequately trained for their assigned task. Recheck the semen tank and breeding kit to ensure adequate quantities of semen and all breeding supplies are in your possession before you synchronize. Make sure all handling facilities are in proper working order and safe for both man and beast.

If you have further questions regarding use of estrus synchronization as a reproductive management tool in your herd, contact your local Select Sires member co-op. Our experienced and knowledgeable sales force is eagerly waiting to serve your needs.

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