

A COMPARISON OF TWO ESTRUS SYNCHRONIZATION

METHODS IN MATURE COWS

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Prostaglandin F₂ Alpha (Lutalyse), a naturally occurring compound in animal systems, has been released by the Food and Drug Administration under the direction of veterinarians for synchronization of estrus in beef cattle. Previous research conducted at many universities in the U.S. and at this station clearly shows that estrus cycles can be successfully synchronized in cattle that are cycling normally. Research for FDA clearance was conducted using the double injection method. Each injection costs approximately \$5.00 at today's prices, and requires handling the cows twice. More recently it has been proposed that costs and handling could be reduced by using a single injection method. Very little research in the management of using one versus two injections of Lutalyse has been reported at this time. Therefore, this trial is designed to evaluate the management, economics and reproductive success when using a single or double injection system.

Hereford cows ranging in age from 5 to 10 years were randomly assigned according to their post-calving interval to either the single or double injection group. Each of the methods has been outlined in detail in Table 1.

To reduce sire variability, five different A.I. bulls were used at random, and were as follows: Kadence Shoshone 520 (7An47), PS Sasquatch 904 (7An61), Emulous 494 GDAR (7An41), Black Dot Chaparral King 276 (7An52) and PS Franco 064157 (7An56). An average semen cost of \$6.00 per straw was incurred. Hereford clean-up bulls were used to complete a 60-day breeding season. The cows were palpated in the fall and any indentified as open were sold.

A summary of the first year's results are shown in Table 2.

Summary:

Lutalyse (Prostaglandin F₂ Alpha) can be used several different ways to synchronize estrus cycles in beef cattle. This trial has been designed to evaluate two of those methods in an attempt to reduce labor, handling and costs while maintaining equal or better reproductive performance.

A single injection of Lutalyse given once to all cows not detected and inseminated after five days of artificial breeding was compared with administering two injections separated by eleven days. Detailed description of each treatment is available in Table 1. Results from one year data collection are being reported here. Some trends are evident; however, several more breedings will be needed before final conclusions can be drawn.

Single injection management required more days of labor, but was much more successful resulting in higher conception rate, reduced labor and handling, and substantially lower per head costs. Synchronized conception rate ranged from 52% in the double group to 75% in the single injection group. The number of cows cycling after the 80 hr. synchronized breeding was 6 times greater in the double injection group and synchronized conception rate among them was very low. This aspect accounts for most of the variation in reproductive success between these two management methods.

Economics favored the single injection group by a wide margin. Costs per synchronized cow conceiving ranged from \$13.66 in the single group to \$30.76 in the double injection group.

Table 1. Design for Estrus Synchronization

Single Injection Method:	
Day of Breeding Season:	
1	
2	
Period I	
3	Inseminate normally 1 st five days of breeding season.
4	
5	
6	8 A.M. administer 25 mg Lutalyse to all heifers not inseminated during Period I.
Period II	
7	Continue breeding normally until 80 hrs. post-injection time.
8	
9	At 4 P.M. (80 hrs. after the Lutalyse injection) all heifers not inseminated during Periods I and II were inseminated as a group without regard to standing heat.
Double Injection Method:	
Day of Breeding Season:	
11 days before start of breeding season	Administer 25 mg Lutalyse.
1	The 2 nd injection of Lutalyse is given at 8 A.M. on the 11 th day, which is the start of the breeding season.
2	Inseminate normally all heifers found in standing heat until 80 hrs. post-injection time.
3	
4	At 4 P.M. (80 hrs after the 2 nd injection of Lutalyse) all heifers not inseminated during the 80 hr. period are inseminated as a group without regard to standing heat.

The heifers were placed with a Longhorn clean-up bull after a five day waiting period.

**Table 2. Synchronization, Adjusted Weaning Weights and Partial Economics
among Cows Comparing Two Methods of Estrus Synchronization**

Management Method	Single Injection		Double Injection	
Synchronization:				
No. Head	24		25	
No. Inseminated 1 st 5 days	8 (32%)		--	
No. In heat before 80 hrs.	15 (94%)		19 (76%)	
No. not detected & Insem. at 80 hrs.	1 (6%)		6 (24%)	
No. Conceiving that cycled after 80 hrs.	1 (100%)		2 (33%)	
No. Conceiving at Synchron. Estrus	18 (75%)		13 (52%)	
No. Open after pregnancy test	4 (17%)		3 (12%)	
Days of labor required	8		5	
Adjusted Weaning Weight:				
	Bulls	Hfrs	Bulls	Hfrs
No. Synchron. Calves weaned	8	8	7	6
205-day Adj. Weight, lbs.	485	525	539	488
No. Calves by Clean-up Bull weaned	1	1	3	6
205-day Adj. Weight, lbs.	437	470	520	484
Partial Economics of Synchron:				
Cost 1 straw, \$	6		6	
Cost 1 cow for Lutalyse, \$	5		10	
Total, \$	11		16	
Cost/Synchron. Cow Conceiving, \$	$\frac{11}{.75} = 14.66$		$\frac{16}{.52} = 30.76$	