A COMPARISON OF TWO ESTRUS SYNCHRONIZATION METHODS IN MATURE COWS

D.G. Landblom and J.L. Nelson

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. Each injection costs approximately $5.00 at today's prices, and requires handling the cows twice. While requirements for the FDA clearance were being satisfied, extensive data was collected with the double injection method. At the same time alternate methods using a single dose of Lutalyse were being proposed in an effort to obtain equally good results at a lower cost to the producer. This experiment, which compares single versus double injections of Lutalyse, is designed to evaluate overall effectiveness, management requirements and economics of the two methods under typical ranch conditions.

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). Average semen cost was $6.00 per straw. Hereford clean-up bulls were used to complete a 60 day breeding season. The cows were palpated in the fall and any identified as open were sold.

A detailed description of each synchronization method is shown in Table 1.

Two years breeding results have been accumulated and summarized in Table 2.

Summary:

1. Lutalyse (Prostaglandin F_2 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.

2. Labor requirements for injections and heat detection ranged from five days in the double injection group to eight days in the single injection group.

3. Conception rate favored the single injection group by 13% after two years of data collection.

4. Using the single injection method has resulted in a substantial reduction in the cost per cow conceiving, and ranged from $16.09 in the single group to $31.50 in the double injection group.

5. Following the first injection in the double injection group, 71% of the cows responded. Although those cows responding were not inseminated until after the second dose of Lutalyse, this is one of the other single injection methods that have been used. The major problem with using a single dose of Lutalyse is that if any group of cows is not cycling sufficiently, Lutalyse will not work and money and time are wasted. Therefore, when selecting methods to research, we placed our emphasis on the five day pre-breeding method before the single injection so we could evaluate estrus activity while breeding conventionally.

6. Synchronization of estrus was successfully completed using Lutalyse in this study. Using five day pre-breeding followed by a single dose of Lutalyse resulted in the highest conception rate of 70% and the lowest cost per cow conceiving.

Table 1. Design for Estrus Synchronization with Mature Cows

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

Table 2. Single vs. Double Injection Method of Synchronization among Mature Cows

	Single Injection					Double Injection			
Management Method:	**1980-81**	**1981-82**	**2-Yr. Total**	**%**		**1980-81**	**1981-82**	**2-Yr. Total**	**%**
No. head	22	25	47			25	24	49	
No. inseminated 1st 5 days	8	10	18	38		-	-	-	-
No. responding to 1st injection in the double injection group	-	-	-	-		19	16	35	71
No. in heat before 80 hours.	9	6	15	32		19	13	32	65
No. that did not show heat but were inseminated at 80 hours	5	4	9	19		6	11	17	35
No. conceiving that cycled after 80 hours.	5	1	6	66		2	0	2	12
No. open	2	5	7	15		3	0	3	6
Conception rate for management system	18	15	33	70.2		13	15	28	57
Days of labor	8					5			
Economics:									
Breeding costs for semen and Lutalyse	$256	$275 =	$531			$450	$432 =	$882	
No. head conceiving to synchronized estrus	18	15	15			13	15	28	
Semen and Lutalyse cost/cow conceiving to synchronization	$16.09					$31.50			