

A COMPARISON OF TWO ESTRUS SYNCHRONIZATION

METHODS IN MATURE COWS

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Lutalyse, a naturally occurring compound in animal systems, has been released by the Food and Drug Administration for use 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.

Refer to Table 1 for a detailed description of each synchronization method.

A summary of accumulated breeding results and partial economic analysis is shown in Table 2.

Discussion:

Very poor response to synchronization was obtained in the double injection group during the 1982 breeding season. Due to the nature of each of the two management methods, inseminations, particularly the timed inseminations, were not done on the same day. The single injection group was inseminated just before a rainy cool period, and the double injection group was inseminated during the rainy period. Total accumulation of moisture was 3.41 inches over a 4-day period. Rain, fog and mud made heat detection difficult because expression of heat is depressed substantially in this type of weather.

Table 1. Design for Estrus Synchronization with Mature Cows

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.

Table 2. Single vs. Double Injection Synchronization With Lutalyse^(R) In Mature Cows

	Single Injection					Double Injection				
	1980-81	1981-82	1982-83	Combined Years	% ^{1/}	1980-81	1981-82	1982-83	Combind Years	%
No. head	22	25	25	72		25	24	23	72	
No. inseminated 1 st five days, %	8	12	5	23	32	--	--	--	--	--
No. responding to 1 st injection in the double injection group, %	--	--	--	--	--	19	16	11	46	64
No. in heat before 80 hrs.	9	8	6	21	29	19	13	10	42	58
No. that did not show heat but were inseminated at 80 hrs.	5	5	9	18	25	6	11	13	30	42
No. conceiving that cycled after 80 hrs.	5	1	7	13	18	2	0	1	3	4
No. not responding to synchronization	0	4	5	9	13	2	7	9	18	25
No. open	2	5	0	7	10	3	0	2	5	7
Conception rate for each management system	18	15	15	48	67	13	15	7	35	49
Economics:										
Days of labor	8					5				
Breeding cost for semen + Lutalyse, \$	256	275	237	= 768		450	432	369	= 1251	
No. conceiving to synchronized estrus	18	15	15	= 48		13	15	7	= 35	
Semen + Lutalyse Cost/Cow conceiving to synchronization, \$	16.00					35.74				

^{1/} Percent will not add due to rounding.

Summary:

1. 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.
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 was variable between treatments and between years. When results from individual years are combined, a single injection of Lutalyse^(R) yielded the highest conception rate of 67%. The double injection scheme was consistently lower and when combined over years, yielded a 49% conception rate.
4. Based on these data, breeding by appointment is a labor saver. However, higher conception rates would have been attained by inseminating at estrus, which would necessitate more work.
5. Using the single injection method has resulted in a substantial reduction in the cost per cow conceiving, and ranged from \$16.00 to \$35.74 in the single and double injection groups respectively.