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## COMPARISON OF LUTYLASE AND BOVILENE FOR ESTRUS SYNCHRONIZATION OF HEIFERS

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### CATTLE 91-19

#### Summary

A total of 533 yearling heifers were used to compare the effect of Lutylase vs Bovilene on estrus response within 5 days of injection. There was no difference between products in the percentage of heifers showing estrus within 5 days of injection. The average time from injection until detection of estrus was longer for Bovilene than Lutylase (64.5 hours vs 60.7 hours,  $P < .05$ ).

(Key Words: Lutylase, Bovilene, Prostaglandin, Synchronization.)

#### Introduction

Prostaglandin is a naturally occurring hormone produced by the uterus. One function of naturally occurring prostaglandin is to regress the corpus luteum on the ovary, which terminates the estrous cycle when a cow is not pregnant. This sets the stage for the next estrous cycle. Artificially supplying prostaglandin via injection into the body can be used to manipulate the timing of estrus and, because of this, is a very valuable tool for estrus synchronization.

Pharmaceutical advancements have resulted in the clearance of three prostaglandin products for estrus synchronization of beef cattle. These include a natural preparation, trade name Lutylase<sup>3</sup>, and two synthetic preparations, trade names Bovilene<sup>4</sup> and Estrumate<sup>5</sup>. Currently, there is considerable opinion but little

research data comparing prostaglandin products for estrus synchronization. The objective of this field research was to compare the effectiveness of Lutylase vs Bovilene for estrus synchronization of replacement heifers.

#### Materials and Methods

A total of 533 yearling heifers were synchronized with MGA<sup>6</sup> and prostaglandin injection. Beginning 33 days prior to the start of breeding, heifers were fed .5 mg per head per day of MGA for 14 consecutive days. Seventeen (17) days after the last day of MGA feeding, heifers were injected with either Bovilene or Lutylase according to label directions. Specifically, either 5 cc of Lutylase were injected into the muscle or 2 cc of Bovilene were injected under the hide (subcutaneous). Heifers within a location were allotted to prostaglandin treatment according to birth date when possible. Cycling status was not determined. Heifers were subdivided into five injection groups within the three locations. Injection groups 1 to 3 were managed on one ranch, group 4 on a second ranch and group 5 heifers were managed at the SDSU Range and Livestock Research Station near Philip.

The approximate time the heifers came into estrus was recorded on a quarterly basis for each of the 5 days heat was detected. The daylight hours of each day that the heifers were heat detected were broken down into four observation periods, with 8 am, 12 pm, 4 pm and 8 pm representing the approximate

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<sup>6</sup>Melengestrol acetate, The Upjohn Company, Kalamazoo, MI.

midpoint of each period. Thus for each heifer that came into estrus within 5 days (or 120 hours) of injection, the hours from injection until the quarter of the day that standing heat was first observed was calculated. Each group of heifers was injected within a 3-hour time period or less.

The percentage of heifers showing estrus by 5 days after injection was analyzed separately for each group of heifers using the Proc Freq/Chi square option of SAS. The hours to estrus were analyzed by the GLM option of SAS.

## Results and Discussion

The number of heifers within each of the five groups and the percentage of heifers showing estrus within 5 days of injection is presented in Table 1. Approximately equal numbers of heifers were injected with either product within a group. The percentage of heifers showing estrus within 5 days after injection did not differ between Lutylase or Bovilene at any of the five locations. Averaged over the five groups, 87% of the heifers injected with Bovilene came into heat compared to 86% for the heifers injected with Lutylase.

TABLE 1. EFFECT OF BOVILENE OR LUTYLASE ON ESTRUS SYNCHRONIZATION RESPONSE WITHIN INJECTION GROUP

Group no.	No. of heifers	Percentage of heifers in estrus within 5 days of injection		Prob. value
		Bovilene	Lutylase	
1	147	89	91	.72
2	75	92	82	.22
3	145	83	89	.23
4	118	93	86	.23
5	48	71	67	.75
Overall average		87	86	

Of the heifers responding, the percentage of heifers coming into estrus on each of the 5 days following prostaglandin injection for all groups combined did not differ between prostaglandin products ( $P=.34$ , Table 2). However, numerically, those heifers injected with Lutylase tended to have a higher peak response on day 2 and were quicker to slow down on days 3 and 4. For this reason, the average hours to estrus were slightly longer ( $P<.05$ ) for those heifers injected with Bovilene (64.5 hours) compared to the Lutylase treatment (60.7 hours). From a practical standpoint of managing an estrus synchronization program, these differences are probably of little importance.

TABLE 2. EFFECT OF BOVILENE OR LUTYLASE ON TIMING OF ESTRUS RESPONSE FOR ALL INJECTION GROUPS COMBINED

Days after injection	Percentage of heifers in estrus on each of 5 days after injection <sup>a</sup>	
	Bovilene	Lutylase
1	14.6	15.4
2	41.5	49.5
3	32.7	26.0
4	8.9	7.0
5	2.3	2.2

<sup>a</sup> Includes only those heifers which came into estrus.

Based on the heat detection data, it would appear that the choice between Lutylase and Bovilene should be based on economics and operator preference in giving intramuscular or subcutaneous injections. However, no definite conclusions regarding a biological difference can be made until first-service conception rates are calculated from 1992 calving dates.

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