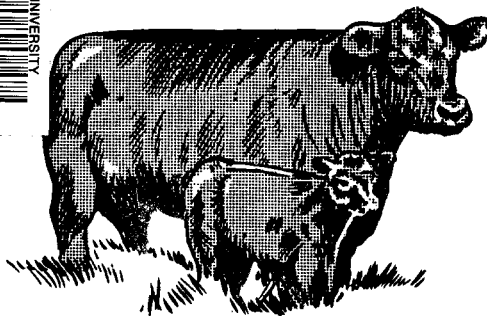


CIRCULAR A-504

JANUARY 1967

Synchronization of Cattle

3 0109 00598 3831
NORTH DAKOTA STATE UNIVERSITY



JAMES TILTON
ASSISTANT PROFESSOR
ANIMAL SCIENCE DEPARTMENT

S
544.3
N9
A8
no-504

IVE
APR 6 1967

EXTENSION SERVICE
NORTH DAKOTA STATE UNIVERSITY
FARGO, NORTH DAKOTA 58102

Researchers have succeeded in synchronizing the heat periods in cattle with several compounds, including Repromix, CAP, and MGA. CAP was originally developed by the Eli Lilly Company as a synchronization compound and found to be very successful in doing so, but it has not passed all Food and Drug Administration (FDA) clearance barriers. MGA was initially manufactured for feed-lot heifers to prevent them from showing heat during the feeding period. Experiments so far show that MGA has done this with additional benefits observed in increased rate of gain and feed efficiency. Another compound being tested is Bovitrol, a combined progestogen-estrogen treatment to control heat periods.

Why Synchronize?

Synchronizing heat periods in cattle limits mating to certain desired times. As a result the cows tend to calve nearer the same time with some decrease in labor requirements. Feeding these compounds regulates heat occurrence by stopping the release of the ovulating hormone in the cow. Most of the hormonal compounds used can effectively limit mating to within five or six days after the producer stops feeding the hormone.

How to Feed Hormones

Most hormones fed are mixed with the regular ration and fed for various periods of time. For example, the feeding period for Repromix, the only compound approved by the FDA for commercial use usually lasts 18 days. The prescribed dosage is 180 mg. for each cow daily mixed with two to five pounds of feed. If the cows have been on pasture, it is wise to grain them for about 10 days before starting hormone treatment. This also helps to flush them. Cows conceive best when they are in a gaining condition. The hormone treatment must be given for 18 consecutive days or some of the cows will come into heat.

4.3
9
8
2.504

When Should Hormone Treatment Begin?

The start of treatment depends on when calving is desired. Consider first the reproductive status of the herd. Keep cows that have recently calved and others that for various reasons such as disease or under-nutrition are not cycling normally out of the treatment groups. Repromix or any other fed compounds are not cure-alls and will not overcome all reproductive problems.

To determine when to start hormone treatment, decide when the cows should calve and figure back the 280 days of gestation to find when conception should occur. Remember too that all cows will not settle to their first service. Feeding Repromix usually results in about 80 per cent of the cows settling in a 25-day period, or two heat cycles. Add to the 280 days for gestation 18 days for the Repromix feeding period and another 10 to 21 days for the preliminary feeding stage. The following calendar will help set the breeding and calving schedule.

SYNCHRONIZED BREEDING CALENDAR					
Desired Calving Date	Start 20-day Supplemental Feeding	Start 18-day Repromix Ration	Discontinue Repromix	Start Breeding	
				First Service	Second Service
March 1-March 20	April 16	May 6	May 24	May 25	June 14
March 15-April 5	April 30	May 20	June 7	June 8	June 29
April 1-April 20	May 18	June 6	June 24	June 25	July 16
April 15-May 5	June 1	June 20	July 8	July 9	July 29
May 1-May 20	June 15	July 5	July 23	July 24	August 3
May 15-June 5	July 1	July 20	August 7	August 8	August 28

Synchronization and Conception Results

In these trials the average degree of synchronization was about 88 per cent. First service conception rate was a very low 31 per cent, but 63 per cent of the cows had conceived by the second service. Control cows in the same experiments had a first service conception rate

**TABLE I. INFLUENCE OF REPRIMIX
ON SYNCHRONIZATION AND CONCEPTION RATE***

Number Treated	Percent Synchronized	Conceived	
		First Service	Total by two Services
20	100	55	80
46	96	24	48
74	82	24	72
32	75	25	38
270	96	27	50
20	85	30	70
79	92	30	65
20	80	35	65

*Data from eight university beef cattle trials with Reprimix

of 55 per cent, about 25 per cent better than that of the treated cows. Their conception rate by second service was, however, 69 per cent, only 6 per cent better than the treated cows. Most commercial drug companies supplying the progestogen compound for field trials or use in prepared feeds suggest breeding at both the first and second post-treatment heat periods. After that pick-up bulls can be used to breed all open cows.

To treat large numbers of cows it would be necessary to consider artificial insemination. Artificial insemination has not been as successful as natural mating in getting a first service conception when breeding at the first heat after treatment. However, artificial insemination at both the first and second post-treatment heat periods has raised the conception rate after the first 25 days of the breeding season about 85 per cent.

Using natural mating, only a few cows could be removed from treatment at one time. This type of manage-

ment program is more complicated and results in a wider spread at calving time than using A.I. and removing all cows from treatment at once.

Synchronization Costs

Total cost of a synchronized breeding program depends on feed costs including hormone, veterinary service, A.I. service, labor and handling facilities, and other directly chargeable costs. Artificial insemination is not needed when synchronizing small groups of cows but may eliminate one bull for each 20 to 30 cows on the program when larger groups are synchronized. Bull costs for each calf dropped in a natural service program have been estimated at from \$7-\$10 with other costs pushing breeding costs to about \$15 a calf.

In a synchronization program that uses A.I., costs are: a 10-day conditioning feed, \$2 a head; 18-day Reprimix feeding, \$6.25 including both hormone and energy rations; A.I. service, \$3 to \$6 a head, depending on whether or not an inseminator is used; follow-up feeding, \$1.50 to \$2.50; labor, \$2 a head. This results in an average cost of from \$15 to \$20 a cow.

Using synchronization methods does have advantages, such as a more intensive mating program in a shorter time, with the potential advantage through A.I. of improved calf quality. The main disadvantage of a synchronization program is the temporary infertility that results after terminating feeding of the hormone. Breeding costs will run slightly higher in a synchronization and A.I. program than in a natural mating scheme.

