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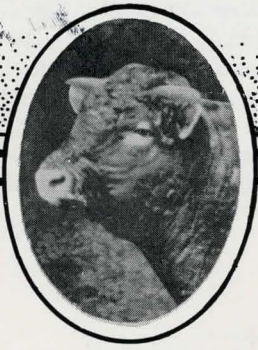
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ARTIFICIAL INSEMINATION of DAIRY CATTLE



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Artificial Insemination of Dairy Cattle

C. W. NIBLER AND M. N. LAWRIE

ARTIFICIAL INSEMINATION means the artificial introduction of semen into the genital tract of the female, as contrasted with the natural way of mating the female with the male animal.

This method of breeding farm animals was first demonstrated in Italy, Russia, and Denmark. Now owners of dairy animals in the United States are using this method to breed their cows and heifers to selected dairy bulls. The artificial breeding program, on a cooperative basis, started in Nebraska in 1941. Since then it has developed until the services are available in practically every area where there are sufficient cows to justify a breeding association. The adoption of improved feeding and management practices must accompany the breeding of cows to carefully selected bulls, if the expected beneficial results are to be secured.

Method of Operating an Association

A cooperative breeding association is a group of farmers owning dairy cattle and organized for the purpose of artificially breeding their cows and heifers to selected bulls. The members of the association should own a minimum of 1,000 cows and live within a radius of 20 miles of a qualified veterinarian or trained technician that does the inseminating. Semen is purchased from central bull studs. Bulls from one stud may furnish semen for thousands of cows. The personnel that operates a bull stud needs to be technically trained and well qualified in order that excellent service can be provided the associations.

The success of the artificial breeding program depends upon the cooperation of the members. They are responsible for noticing cows in heat and informing the veterinarian or technician by telephone at a specified time. The veterinarian or technician is responsible for properly inseminating all cows and heifers.

In a cooperative a membership fee is essential and generally required. It is probably more satisfactory to operate with a lifetime than with an annual membership fee. This fee may be used to purchase permanent equipment. The service fee is used to pay the veterinarian or technician, the bull stud for semen, and local operating expenses. The minimum service fee is about \$6.00 per cow inseminated, and may be more if the cow population is sparse or the roads are difficult to travel. The service fee entitles the member to one, two or three services per cow, depending upon the number required. If more than three services are required, there is an additional charge. Generally, the membership fee and at least 50 per cent of the total service fees are paid in advance.

Method of Organizing an Association

Individuals that are interested determine from farmers the amount of local interest there is in an artificial breeding association. If there is interest they conduct, with the assistance of the county agricultural agent and extension dairyman, an educational program to thoroughly acquaint people with the plan.

The leaders organize a committee that obtains applications for membership, investigates the availability and price of semen and ascertains whether a competent technician is available or can be trained. Afterward they conduct a meeting of those that signed membership applications. These men elect the board of directors for the permanent organization. Before the permanent organization is formed, it is desirable to have 10 to 20 per cent more cows than the minimum because some cows on the original applications will never be serviced, owing to unforeseen circumstances. Officers are elected by the board of directors from the membership.

Requirements for a Successful Association

1. Sufficient cows within a radius of 20 miles of a central point to insure efficient operation. A minimum of 1,000 cows is suggested.

2. The services of a well-trained, reliable, energetic, conscientious veterinarian or technician, who can successfully breed cows.

3. A sound and adequate financial plan, with no delinquent accounts.

4. A complete, efficient, and accurate system of keeping all service and financial records of the association.

5. A board of directors who are substantial leaders in their communities and who use the services of the artificial breeding association. The board of directors should represent different parts of the area covered by the association.

Advantages to the Members

1. Provides the services of more desirable bulls than can be owned by individuals.

2. Eliminates the danger, cost and inconveniences of keeping a bull.

3. Increases the value of offspring when from selected sires.

4. May reduce the spread of disease transmitted by the bull.

5. May lower production costs by increasing production of offspring.

6. Controls the age and size when heifers can be bred.

7. May improve the type of offspring.

8. Permits owners with more than one dairy breed to breed their cows and heifers to the breed desired.

9. May control more uniformly the dates of calving for cows.

10. Generally increases interest in dairying and assists with Dairy Herd Improvement Associations, and with culling, feeding and management practices.

Disadvantages to the Members

1. May increase breeding costs in some herds.
2. Requires excellent telephone service.
3. Requires close observation of the herd to detect animals in the early stages of heat.
4. Severe storms and blocked roads may interrupt service temporarily.
5. Organization and supervision require some time and effort.
6. Difficult to follow a definite breeding program with cow families.
7. Does not make it possible to have cows bred to any certain sire within a breed.

Results

Reproduction is a very complicated process and many factors may interfere with normal conception. Probably 5 to 10 per cent of the cows and heifers are sterile, not having the ability to reproduce. Other animals may be diseased, or nutritionally deficient, lacking such elements as phosphorus or vitamin A, or have retained corpus luteum, or irregular heat or estrous cycles. One or a combination of these will interfere with reproduction. In other cases, eggs will be fertilized and then aborted before they mature to fully developed, normal calves.

Regardless of whether the sperm is introduced artificially or naturally, there should be no difference in the sex, strength, or size of the offspring.

Profitable production of dairy cows depends upon breeding, feeding and management. A dairy heifer inherits the ability to produce. In addition to this she must be fed and managed properly if she produces to the maximum of her inheritance. This means feeding large quantities of high-quality roughages and a balanced grain ration. Proper management, consisting of doing many small things correctly, is as important as breeding and feeding. Following good milking practices, maintaining good herd health, proper care of the dry cows and many similar details constitute good management.

It has been proved that dairy bulls maintained at bull studs have the ability to transmit milk and butterfat production to their offspring. Production is more easily increased on lower-producing cows and more difficult to increase on the higher-producing cows. In general, bulls used in artificial breeding are much better in transmitting type and production to their offspring than are the bulls that the average Nebraska farmer can own for breeding a few cows.