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## EC628 Revised 1952 Artificial Insemination of Dairy Cattle

C. W. Nibler

M. N. Lawritson

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Nibler, C. W. and Lawritson, M. N., "EC628 Revised 1952 Artificial Insemination of Dairy Cattle" (1952).  
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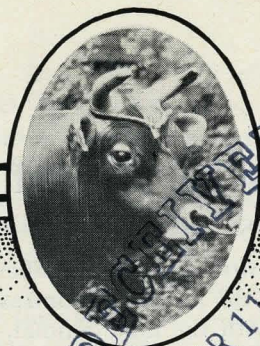
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# ARTIFICIAL INSEMINATION of DAIRY CATTLE



College of Agriculture  
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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 Nebraska are using this method to breed their cows and heifers to selected dairy bulls. Artificial breeding 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. The membership fee should be paid in advance. The service fee should be paid in advance or at the time the cows are bred. In other words, service fees should be cash and not charge accounts.

## **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 their 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 generally 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. Milk production costs may be lowered when offspring increase production.
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 mate their females to the breed desired. In addition, different bulls of the same breed can be mated to females in a herd.
9. May control more uniformly the dates of calving for cows.
10. Generally increases interest in dairying and makes it possible to keep a producing cow in place of a bull.



## Disadvantages to the Members

1. Breeding costs in some herds may be increased; however, this should be partially offset by the services that are available.
2. Requires good telephone service for contacting the veterinarian or technician at the proper time.
3. Requires close observation of the herd to detect animals in all stages of heat.
4. 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. Some cows and heifers do not have the ability to reproduce because of a physical defect; others will reproduce once or twice and then fail to reproduce afterward. 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.

Whether the sperm is introduced artificially or naturally, there should be no difference in the number of times a cow is bred before she conceives nor 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 is to produce 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 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 or maintain 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.

Distributed in furtherance of Acts of May 8 and June 30, 1914. Extension Service of the University of Nebraska College of Agriculture, the U. S. Department of Agriculture cooperating. W. V. Lambert, Director, Lincoln, Nebraska.

(3-46-5M) (4-50-5M) (3-52-5M)