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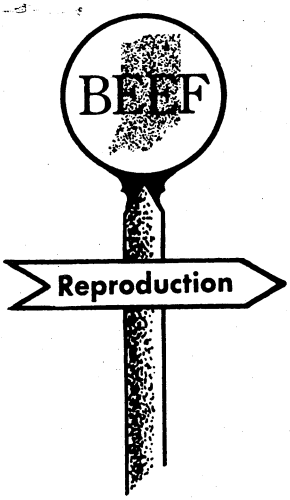

Considerations for a Beef Cow Herd AI Program

W. L. Singleton, Animal Sciences Department

Artificial insemination (AI) is the act of depositing semen into the cow's reproductive tract by means other than a bull. And by using semen from superior sires, AI can profitably increase the quality and gaining ability of beef cattle.

After a rather slow start, AI has more recently been gaining in popularity among beef producers for several reasons, among them (a) relaxation of breed association rules, (b) introduction of exotic breeds, (c) greater realization of the importance of performance testing, and (d) increased interest in crossbreeding. Currently, about 4% of all beef cows are artificially inseminated.

The purpose of this publication is to discuss briefly the advantages and disadvantages of AI, the conditions necessary for success, and the mechanics of starting and carrying out an AI program.

THE BENEFITS OF 'AI'

1. More widespread use of genetically superior sires. Once identified, the use of superior bulls can be maximized. Through AI it is possible to inseminate up to 20,000 cows per year with the semen from one bull, regardless of where the bull or cows are located.

2. Services of proven sires at a lower cost. Through AI a producer's cow can be mated to bulls that he could not afford to own.

3. Elimination of the cost, care and danger of keeping bulls in small herds. In most large herds, however, a clean-up bull is still preferred.

4. Improved reproductive health of the herd. When properly used, the separate sterile pipette for breeding each cow does not spread disease from cow to cow. AI can be helpful in controlling vibriosis and trichomonas.

5. A tool for crossbreeding. Several breeds of bulls can be used in the same year without ownership. Cows can be maintained in one pasture and still be selectively mated to bulls of the producer's choice.

6. Continued use of a valuable sire in the case of his injury or death. Semen can be collected from injured bulls with an electro-ejaculator without requiring them to mount a cow. A bank of semen in storage allows a bull to be used after his death or after a serious injury.

7. More accurate records can be kept. The records kept on heat detection and conception rate focuses more attention on reproductive efficiency in a herd, thus giving a base for improvement. Breeding dates give a good estimation of calving time, thereby enabling the producer to watch cows closer at calving.

THE LIMITATIONS OF 'AI'

1. Requires good herd management. A herd with previously low reproductive performance because of disease, inadequate nutrition, extended calving season or other

fertility problems, will not necessarily be helped by AI.

2. Requires a well trained and interested operator. The person in charge must be convinced that AI will benefit his herd. He must be trained in heat detection, and also in insemination techniques if it is a within-herd AI program.

3. Handling facilities must be available. Facilities for corraling and restraining the cows are essential for AI, but are also desirable for other herd management practices such as identification, performance testing, health programs and pregnancy testing.

CONDITIONS FOR A SUCCESSFUL 'AI' PROGRAM

Beef artificial insemination is not for every producer. In fact, the cowman should be able to answer "yes" to each of the following questions before giving it further consideration.

*Does the producer sincerely believe that genetic gains can be made through the use of proven sires?

*Is the producer willing to spend time with his herd observing for cows in estrus during early morning and late evening hours?

*Is the producer willing to keep records and analyze them in culling and selection?

*Does his herd already have a relatively short breeding season (60-90 days)?

*Is the current calf crop weaned in the 80 to 90% range?

*Is the herd provided with proper nutritional levels before, during and after calving?

*Are pastures or feed available where the herd can be reasonably well concentrated for the 30- to 45-day breeding period?

*Are facilities available to handle the cows with ease and without exciting them?

STARTING AN 'AI' PROGRAM

If the producer can answer "yes" to all of the above questions, and if he is convinced that artificial insemination will work in his herd, he should plan a sound breeding program for his particular herd and farm situation. The following might serve as a check list in formulating such a program:

1. Use quality semen. The most important factor contributing to success or failure of an AI program is the quality of the semen. Quality semen can be obtained from: (a) commercial bull studs; (b) independent semen distributors; (c) individual purebred breeders; and (d) producer-owned bull, either in partnership or full ownership. In most instances, the bull is housed in a stud and the semen collected under quality-controlled conditions. Semen from privately-owned bulls is usually collected on the farm and transported to a laboratory for processing and freezing.

2. Start with a well-managed herd that already has a short breeding season and high fertility. Cows should be 50 to 60 days postpartum (after calving) before the breeding season begins.

3. Begin with a healthy herd. Venereal diseases, such as leptospirosis and vibriosis, will cause reproductive failure even under natural breeding conditions.

4. Provide proper facilities for quiet and easy handling of the cows during insemination (see Figure 1).

5. Individually identify the cows with either ear tags, neck chains or brands.

6. Insure both labor and training are available when needed. Help is needed to detect estrus and bring cows to the insemination area. Training and know-how are a must for successful heat detection and insemination. Several commercial AI firms conduct excellent insemination schools for beef producers at reasonable cost. (Check

with your veterinarian or local county Extension office for further information.)

MECHANICS OF AN 'AI' PROGRAM

Once high quality semen from proven bulls is purchased and the cow herd is in a good reproductive status, the AI program is ready to begin. The following is a brief explanation of the mechanics of an AI program.

Heat Detection

The cow has an 18- to 22-day estrus (heat) cycle. That means once every 18 to 22 days she sheds an egg (ovulates). It is during this 18- to 30-hour ovulation period that she will show signs of estrus and accept the bull. The herd should be observed for estrus twice daily, early morning and late evening. The signs of estrus include: (a) swollen vulva; (b) nervousness, bawling and excessive walking; (c) mounting other animals; or (d) standing and allowing other animals to mount.

In addition to visual observations, there are two other "aids" which can improve the chances of detecting estrus. The first is a heat detector patch. This is a white patch glued on the cow's rump just in front of the tail head. When activated by pressure from a riding cow, it turns red.

The other aid is a "Gomer" bull with a chin marking harness. The "Gomer" bull has been penectomized (penis removed) yet still has his libido or sex drive. As he dismounts from the cow in estrus, she is marked with a bright dye from his chin marker.

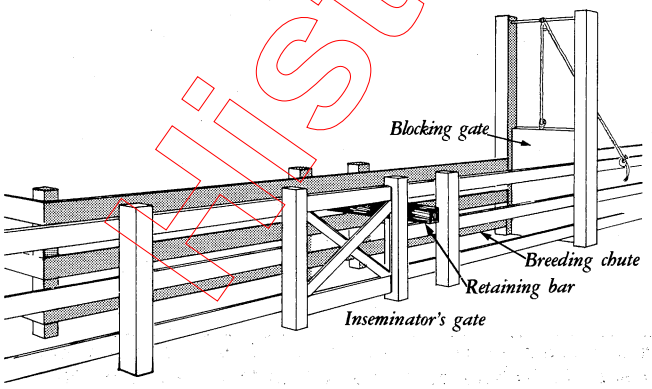

Figure 1. Basic Handling Facilities for Beef AI.

Insemination

Cows detected in standing estrus in the morning should be inseminated that evening. Those detected in the evening should be inseminated the following morning. This schedule is important because it insures that the sperm reaches the egg at the most optimum time for fertilization.

AI semen is stored at -320°F in liquid nitrogen and may be packaged in ampules or in straws. It is thawed and placed into the cow via a 14- to 16-inch plastic pipette by the recto-vaginal method (Figure 2). AI is best accomplished while the cow is standing in a blind chute with a pole behind her.

SUMMARY

Beef artificial insemination can be a valuable tool in a well-managed beef breeding herd. Its success depends upon several factors, the most important being the manager's ability and determination. AI will show more promise in the future if a satisfactory method of group breeding (synchronization) becomes available. This would allow the breeder to inseminate a large number of cows within a 4- to 7-day period or less, and would reduce the labor required for estrus detection.

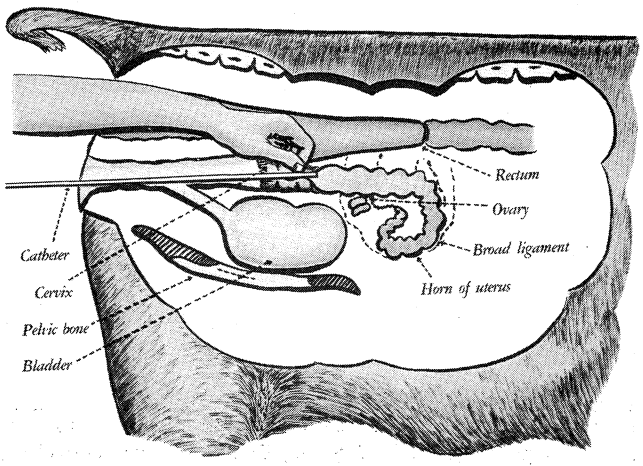

Figure 2. Deep Uterine Insemination of the Cow.

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