Artificial Insemination... It's Pros And Cons

Artificial insemination is, by definition, the deposition of spermatozoa in the female genitalia by artificial rather than by natural means.

Legend has it that this method had its origin in 1322, at which time an Arab chieftain used artificial methods to impregnate a prized mare with semen stealthily collected by night from the sheath of a beautiful stallion belonging to an enemy tribe. However, the first scientific research relative to the artificial insemination of domestic animals was conducted with dogs by the Italian physiologist, Lazarro Spallanzani, in 1780.

Currently, artificial insemination is most widely practiced with dairy and beef cattle. Accordingly, many of the techniques and much of the application which follow are based on experiments and experiences with this particular species.

Advantages of Artificial Insemination

Some of the advantages of artificial insemination are:

1. **It increases the use of outstanding sires** — Through artificial insemination, many breeders can avail themselves of the use of outstanding sires, whereas the services of such males were formerly limited to a relatively few females of one owner, or, at the most, a small group of owners.

2. **It alleviates the danger and bother of keeping a sire** — Some hazard and bother are usually involved in keeping a sire, especially a bull or a stallion. Usually, the stockman may choose from the breeding programs of one or more established artificial insemination organizations and eliminate the necessity of maintaining a sire.

3. **It makes it possible to overcome certain physical handicaps to mating** — Artificial insemination is of value in (a) mating animals of greatly different sizes — for example, in using heavy, mature sires on young females, and (b) using stifled or otherwise crippled sires that are unable to perform natural service.

4. **It lessens sire costs** — In most herds, artificial insemination is usually less expensive than the ownership of a worthwhile sire together with the accompanying housing, feed, and labor costs.

In beef herds, it reduces bull numbers by three-fourths, thereby lessening sire costs and freeing range for more cows.

5. **It reduces the likelihood of costly delays through using infertile sires** — Because the breeding efficiency of sires used artificially is constantly checked, it reduces the likelihood of breeding females to a sire that is of low fertility or even sterile for an extended period of time.

6. **It helps control diseases** — Since no sire is present to make sexual contact, artificial insemination reduces the spread of venereal diseases, such as vibriosis and trichomoniasis in cattle.

Of course, to gain the benefit of disease control through artificial insemination, it is essential that the sires from which semen originates be free from infectious diseases.

7. **It makes it feasible to prove more sires** — Because of the small size of the herds in which they are used, many sires used in natural service are never proved. Still others are destroyed before their true breeding worth is known. Through artificial insemination, it is possible to determine the genetic worth of a sire at an earlier age and with more certainty than in natural service. The best of the sires proved at an early age are put into heavy use and have a longer period of usefulness than is possible under natural breeding methods.

8. **It creates large families of animals** — The use of artificial insemination makes possible the development of large numbers of animals within a superior family, thus providing uniformity and giving a better basis for a constructive breeding program.

9. **It increases pride of ownership** — The ownership of progeny of outstanding sires inevitably makes for pride of ownership, with accompanying improved feeding and management.

10. **It alleviates distance and time as limiting factors** — The male and the female may be separated by thousands of miles, and, with frozen semen, years may pass between the time of collection of the semen and insemination of the female.

11. **It increases profits** — The offspring of outstanding sires are usually higher and more efficient producers, and thus more profitable. A.I. provides a means of using such sires more widely.

Limitations of Artificial Insemination

Like many other wonderful techniques, artificial insemination is not without its limitations. A full understanding of such limitations, however, will merely accentuate and extend its usefulness. Some of the limitations of artificial insemination are:

1. **It requires trained technicians** — To be successful, artificial insemination must be carried out by skilled technicians. This means training, preferably training augmented by experience. While the cow breeding process is not complicated, it has been found that a small percentage of people who attempt to learn it never succeed in doing so.

2. **It may accentuate the damage of a poor sire** — It must be realized that when a male sires the wrong type of offspring his damage is merely accentuated because of the increased number of progeny possible. For this reason, untried or untested males are seldom used extensively in a stud. Fortunately, suitable standards for evaluating sires of meat and dairy animals have evolved through performance and progeny testing. Thus, it is noteworthy that 60 per cent of the dairy sires are proved, and that these sires account for about 80 per cent of the matings made. This precautionary measure virtually eliminates the possibility of using a genetically inferior dairy sire.

3. **It restricts the sire market** — It has been argued that the widespread adoption of artificial insemination has greatly decreased the market for poor or average sires. Such an argument is shortsighted. The principal thrust of artificial insemination is in the direction of

Continued on page 122

HOUSTON

Continued from page 59

George M. Young, Paluxy, Texas, had the Reserve Junior Bull Calf Champion, Deep Down Discovery.

Balynda K. Brewster, Marietta, Oklahoma, showed the Junior Champion Heifer, Bones Lady Elban 321.

Thunder Valley Angus Farm, Hereford, Texas, showed the Senior Heifer Calf Champion, Dynamic Cherry Blossom TVAF. Reserve Junior Heifer Calf Champion was Logsdon Miss Emulous 18096, shown by Logsdon Angus Ranch, Guthrie, Oklahoma.

ARTIFICIAL INSEMINATION

Continued from page 109

maximum improvement through maximum use of superior sires. Obviously, this eliminates the necessity for using poor or average sires; hence, it must be regarded as an attribute, rather than a limitation.

4. **It may be subject to certain abuses** — If semen is transported from farm to farm, the character of the technician must be above reproach. Trained workers can detect differences in the spermatozoa of the bull, ram, boar, stallion, or cock; but even the most skilled scientist is unable to differentiate between the semen of a Thoroughbred and a Morgan, to say nothing of the difference between two stallions of the same breed. However, it appears that such abuse is more suspicioned than real. In a blood type study with cattle, Rendel of Sweden found 4.2 per cent family records in error out of 615 animals by natural service, compared to 4.0 per cent family records in error out of 199 sired by artificial insemenation.

5. **It is not yet fully practical to bring females in "true heat" at will** — Many advantages would accrue from bringing females of all species in heat and ovulation when desired and with certainty. By using hormones, planned parenthood may be imminent; perhaps we shall soon be able to breed on the day desired instead of waiting for the natural occurrence of the estrual cycle. With such a development, (a) breeding artificially would be simplified; and (b) it would be possible to have the young born exactly when desired—stockmen could then swap help with each other at parturition time.