

Article Id  
AL04201

## SCIENTIFIC BREEDING MANAGEMENT OF DAIRY ANIMAL vis-à-vis ARTIFICIAL INSEMINATION FOR COMMERCIAL DAIRY FARMING

Email

[mail.asif.m@gmail.com](mailto:mail.asif.m@gmail.com)

Asif Mohammad

ICAR-National Dairy Research Institute, E.R.S., Kalyani-741235,  
West Bengal, India

**B**y rearing dairy animals, farmers not only generate enough income to sustain their farm operations profitably, but dairy farming also ensures efficient input management in the whole farming system. The bi-product of crop farming can act as inputs in dairy farming, on the other side, the bi-product of dairy farming like cow dung, and urine act as essential inputs for crop farming in the form of manure. Increased milk production from dairy breeds would be realized if appropriate genotypes are used alongside optimum management and other husbandry practices (Murage & Ilatsia, 2011). Excessive rainfall, drought, or other climatic aberrations affect negatively the agricultural farming system as a whole and the crop farming system in particular. Dairy farming acts as a cushion to compensate for the losses due to extreme weather events. Dairy cattle farming are in constant development worldwide to improve dairy production and welfare which is done through the advanced management strategies that permitted the introduction of many technologies in cattle breeding (Meskini *et al.*, 2021). For successful and economically sustainable dairy farming, breeding management of dairy animals is a very important aspect. Poor conception rates in highly productive lactating cattle are especially prevalent in large, intensively-managed commercial herds (Larson *et al.*, 2007). Artificial insemination (AI) has remained the main vehicle for the rapid dispersal of valuable genes and it has been the method of choice for dairy farmers around the world to improve the genetic quality of their stock (Vishwanath, 2003). The selection of proper breeds and management of reproduction is of utmost importance for dairy farming.

### Different Breeds of Cattle

Different breeds of cattle are reared in different agro-climatic regions of the country. Broadly, cattle breeds can be classified into two categories; Indigenous breeds and exotic

breeds. The indigenous breeds are also reared for different reasons; they are described in the following points:

**A. Breeds reared for milk:** These types of indigenous breeds are reared specially for milk production purposes. Some examples of this type of breed are Sindhi, Sahiwal, Gir, Tharparkar, etc.

**B. Breeds reared for draught purpose:** These types of cattle are reared for mainly draught purposes. Their service is utilized in tilling the land or pulling weights. Milk production from these breeds is very low. Some examples of this type of cattle breed are Amritmahal, Nagouri, Hallikar, Malvi, Khillari, Dangi, etc.

**C. Dual purpose breeds:** These types of cattle breeds are reared for both milk production and draught purpose. Milk production from these breeds is satisfactory, as well as the male animals are capable of drawing weights. Some important breeds of this category are Haryana, Ongole, Tharparkar, Krishnavalley, Rathi, etc.

Some examples of good quality exotic breeds which are reared in India for milk purposes are Brown Swiss, Jersey, Holstein Friesian, etc. Apart from pure breeds crossbred of these cattle breeds with local breeds are preferred due to their high milk yield potentiality and more adaptability in Indian conditions than the pure exotic breeds.

### **Artificial Insemination (A.I.) of Dairy Animals**

Artificial Insemination or A.I. is the procedure through which semen from male animals is collected and deposited in the female reproductive tract at the right time. Through this method, rearing of male cattle is not required, which substantially reduces the cost of dairy farming. Crossbreeding can lead to a combination of favorable characteristics from the breeds involved, based on breed-additive genetic effects (Freyer *et al.*, 2008). Moreover, the chances of disease contamination (which is more in natural service) can be reduced significantly. A.I. is generally performed by qualified veterinary doctors or trained animal husbandry technical manpower.

### **Advantages of Artificial Insemination in Dairy Animals**

There are several benefits or advantages of scientific animal husbandry, which are enlisted as follows:

- Female dairy animals can be inseminated by good quality semen from cattle
- There is no need to rear male animals to inseminate female animals which substantially reduces the cost of dairy farming
- Several reproductive diseases can be controlled through Artificial Insemination
- Through Artificial Insemination, female animals can be inseminated in the remotest part of the country with high-quality bull semen
- Artificial Insemination helps in maintaining proper records of a dairy farm and reduces the cost of farming operations, thereby increasing the operating profit margins
- The success rate of insemination in female dairy animals can be increased if the A.I. is performed by qualified manpower

### **Identification of Heat in Dairy Animals for Successful Insemination**

Dairy animals show several signs of heat and those signs should be taken into account for the proper time of Artificial Insemination. Right detection of heat in dairy animals can ensure timely insemination which increases the success rate of A.I. The signs of heat in dairy animals are as follows:

- Female animals make themselves separate from the herd while in heat
- Reduces food intake
- Licks the body of other animals
- Vaginas of dairy animals swelled
- Frequent urination can be observed
- Clear discharge from the vagina of dairy animals can be seen
- The animal in heat tries to mount on the other animals or allows other animals to mount on it

### **Scientific Breeding Management of Dairy Animals**

Identification of heat and insemination of dairy animals at right time are major breeding strategies for successful dairy farming. Selection of the right breed for the right environment can ensure high productivity from dairy animals. Dairy farmers must be vigilant to check the status of heat in dairy animals and in case of heat; the animals must be inseminated between 12 to 18 hours. Case of discharge along with puss from the vagina of dairy animals indicates infection in the reproductive tract. In that case, the immediate veterinary doctor should be consulted. If the duration of heat is more than 24 hours, then it

also indicates a problem in the reproductive organ, and doctors should be consulted. If the dairy animal does not come to heat then also doctors may be consulted. Healthy dairy animals should be inseminated after 2 to 3 months of parturition.

### Conclusion

Dairy farming is an effective enterprise with a high benefit-to-cost ratio. This enterprise can safeguard the farmers from crop loss or low prices of products. Farmers can get income from dairy farming throughout the year from livestock rearing if proper care on breeding is taken. Identification of heat in female animals, the right time of insemination, insemination by qualified manpower, and inseminating animals with high-quality semen can ensure better profitability in dairy farming. In a nutshell, it can be said that proper breeding management along with suitable breed selection can enhance farm profitability.

### References

- Freyer, G., König, S., Fischer, B., Bergfeld, U., & Cassell, B. G. (2008). Invited review: crossbreeding in dairy cattle from a German perspective of the past and today. *Journal of Dairy Science*, **91**(10): 3725-3743.
- Larson, S. F., Butler, W. R., & Currie, W. B. (2007). Pregnancy rates in lactating dairy cattle following supplementation of progesterone after artificial insemination. *Animal reproduction science*, **102**(1-2): 172-179.
- Meskini, Z., Rechidi-sidhoum, N., Bounaama, K., Dahou, A. E., & Homrani, A. (2021). Management practices on dairy cattle breeding farms in northwest of Algeria. *Animal Science and Biotechnologies*, **54**(1): 237-242.
- Murage, A. W., & Ilatsia, E. D. (2011). Factors that determine use of breeding services by smallholder dairy farmers in Central Kenya. *Tropical animal health and production*, **43**(1): 199-207.
- Vishwanath, R. (2003). Artificial insemination: The state of the art. *Theriogenology*, **59**(2): 571–584. [https://doi.org/10.1016/S0093-691X\(02\)01241-4](https://doi.org/10.1016/S0093-691X(02)01241-4)