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Popular Article

Breeding Management of a Dairy Farm

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Introduction

Breeding management is a vital and important component for a dairy farm. The farm will not be profitable if there is no regular breeding and calving at the appropriate period. A healthy calf each year is the primary goal. This is possible only by increasing the breeding efficiency of the animals. The breeding efficiency is a complex phenomenon controlled by both genetic and non-genetic factors (climate, nutrition, and level of management). The breeding efficiency varies among species, breeds and animals within the same breed. Improving the genetic merits of livestock populations is important at all levels of management. A sound breeding programme is an important part of the total animal production system. Selective breeding of cattle and buffalo to increase milk production has been going on for a long time in our country and has made admirable progress in certain areas. In order to increase the milk production in our country, there is a need to increase the production potential of non-descript local animals through scientific methods like crossbreeding. Along with this, improving the milk production potential of indigenous breeds in their native breeding tracts is also equally important. Progeny testing (PT) and Pedigree Selection (PS) coupled with Artificial Insemination (AI) and milk recording have been identified as activities leading to steady genetic progress. For a profitable milk business, it is also necessary for the cow/buffalo to calve every 1 to 1.5 years.

Factors Affecting Breeding Efficiency

The factors which influence the breeding efficiency of cattle are as follows:

- **Number of ova:** The first limitation on the breeding efficiency of fertility of an animal is the number of functional ova released during each cycle of ovulation. Ovulation is the process of release of ovum from the Graffian follicle. In the case of cow, usually a single ovum is capable of undergoing fertilization only for a period of 5-10 hours. Therefore, the time of mating in relation to ovulation is important for effective fertilization.
- **Percentage of fertilization:** The second limitation is fertilization of ova. Failure to be fertilized may result from several causes. The spermatozoa may be few or low in vitality. The service may be either too early or too late. so that the sperms and eggs do not meet at the right moment, to result in fertilization.
- **Embryonic death:** From the time of fertilization till birth, embryonic mortality may occur due to a variety of reasons. Hormone deficiency or imbalance may cause failure of implantation of fertilized ova which die subsequently. Death may occur as a result of lethal genes for which the embryos are homozygous. Other causes may be accidents in development, over-crowding in the uterus, insufficient nutrition or infections in tile uterus.
- **Age of first calving:** Breeding efficiency may be lowered seriously by increasing the age of first breeding. Females bred at a lower age are likely to appear stunted during the first lactation, but their mature size is affected little by there having been bred early.
- **Calving interval:** Rebreeding after calving is management decision depending upon involution and uterine health of the calves. Extension in the inter-calving period from 12 to 14 months or more on an average result into a substantial reduction in the annual financial return over feeding costs (Berka et al., 2004). This extension results into loss of milk as well as calves produced per cow. Economically, there will be considerable financial loss to the farmers for each day's extension of the calving interval beyond 365 days in cows and 395 days in buffaloes.
- **Age at puberty:** It means the age at which the young female shows the first heat. Generally, heifers show heat when they attain 50% of the adult body with irrespective of age. Environment and management affect the age at first puberty. Animals attain puberty early when they managed properly.
- **Service period:** It is the time interval between calving and next successful conception. Management during pregnancy and postpartum period and milk yield of the animals affect



the service period. In high milk yielder and suckling animals service period is generally longer.

Breeding Parameters

Parameters mentioned below should be optimum for good breeding efficiency of animal

Parameters	Indigenous	Exotic/ Crosses	Buffaloes
Age at puberty	24 months	12-15 months	24-30 months
Age at first mating	30 months	18-20 months	30-36 months
Optimum weight at first mating	250 kg	180-275 kg	300-350 kg
Oestrus cycle length	17-24 days	21±3 days	21 days
Duration of oestrus	12-18 hours	12-18 hours	12-18 hours
Time of ovulation	12-16 hour after end of estrus		
Optimum time of insemination	Mid heat / towards the end of heat		
Gestation period	280-290 days	280-290 days	305-318 days
Dry period	80 -90 days	60 – 70 days	90 – 120 days
Calving to first service	60 days or less		
Lactation length	305 days		
Calving interval	12 months	12 months	13-14 months

Managemental Practices

- Accurate breeding records keeping consist of date of heat, service and parturition. Use records in predicting the dates of heat and observe the females carefully for heat.
- General management of the breeding stock related to their body condition, stress and disease prevention to ensure the adequate growth and health of the stock.
- Breed cows during near the end of mid heat or heat period and regular observation of animal precisely and carefully for any heat signs, and discharges. It must be at least once in a day.
- Provide appropriate environment to breeding stock to express their natural breeding behavior, for any abnormality in discharge or those who have not settled for three services consult a veterinarian.
- Get the females checked for pregnancy at 45 days to 60 days after breeding.



- Semen used should be of good quality and deposited carefully on the site based on the technique used. Before deposition assess the functional condition of the reproductive organ of the breeding animal.
- Replacement stock should be from healthy herd and complete breeding history, past breeding difficulties of the animal must be known to breeder.
- Transfer the pregnant animal 8-10 days before calving in calving pen which must be properly cleaned, scrubbed and sanitized before shifting of the animal. Bedding must be provided with good ventilation.
- Supply adequate diet/ nutrition and clean drinking water availability which helps for optimum growth support.
- Provide suitable shelter/ housing and avoid stress to the breedable population. Apply appropriate disease control programme, regular deworming and vaccination.
- Detect silent or weak heat, by using a teaser bull regularly and modern techniques should be used such as hormone detection kit, chin ball marker, activity scores, pedometer etc.
- Natural service should be provided as far as possible otherwise correct artificial insemination technique is better and must performed by skilled person.
- Culling of the animal having repeat breeding, infertile, animal not showing heat sign regularly at expected interval, lamed etc.

