

BREEDING MANAGEMENT OF CATTLE AND BUFFALOES

(LPM-601)



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OBJECTIVES

- To know the factors affecting the breeding efficiency of cattle and buffaloes.
 - To know the management practices to improve the breeding efficiency of cattle and buffaloes.
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INTRODUCTION

- **Reproduction:** An important consideration in the economics of cattle production.
- **Primary goal:** A healthy calf each year by increasing the breeding efficiency of the animals.
- **Successful reproduction:**
 - Ability to mate
 - Capacity to conceive
 - Nourish the embryo
 - Deliver the viable young calves

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- Breeding efficiency is a complex phenomenon controlled by both genetic and non-genetic factors.
 - Non-genetic factors: Climate, nutrition and level of management.
 - Breeding efficiency: Varies between species and breeds and even among the animals within the same breed.
 - A sound breeding programme: Necessary part of the total animal production system.

Factors Affecting Breeding Efficiency

1. Number of ova

- First limitation: The number of functional ova released during each cycle of ovulation.
- In cow, usually a single ovum is capable of undergoing fertilization only for a period of 5-10 hours.
- The time of mating insemination in relation to ovulation is important for effective fertilization.



2. Percentage of fertilization

- Causes of failure to be fertilized:
 - Spermatozoa: Few or low in vitality.
 - Service: Either too early or too late.
 - The sperms and eggs do not meet at the right moment to result in fertilization.



3. Embryonic death

- Hormone deficiency or imbalance: Failure of implantation of fertilized ova which die subsequently.
- Death: Lethal genes for which the embryos are homozygous.
- Accidents in development and over-crowding in the uterus.
- Insufficient nutrition or infections in the uterus.



4. Age of first pregnancy

- Breeding efficiency lowered seriously by increasing the age at first breeding.
 - Females bred at a lower age are likely to appear stunted during the first lactation.
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5. Frequency of pregnancy

- Greatly enhanced by lowering the interval between successive pregnancies.
- The general policy: To breed for the first time at an early age and to rebreed at almost the earliest opportunity after each pregnancy.
- Cows can be rebred in 9-12 weeks after parturition.



6. Longevity

- Length of life of the parent: Return over feed cost is greater in increased length of life.
- Affects the possibility of improving the breed.
- Longer the life of the parents, smaller the percentage of cows needed for replacement every year.

Management Practices to Improve Breeding Efficiency

- Keep accurate breeding records of dates of heat, service and parturition for predicting the dates of heat.
- Breed cows during near the end of mid heat or heat period.
- Cows with abnormal discharges: Examined and treated.
- Veterinary examination females not settled after three services.

Table: Herd reproductive targets (Noakes *et al.*, 2009)

Index	Target
Mean calving to first service interval (days)	65
Mean calving to conception (pregnancy) interval (days)	85
Mean interval from first service to conception (pregnancy) (days)	20
First service submission rate (%)	80
Overall pregnancy rate (%)	58
First service pregnancy rate (%)	60
Reproductive efficiency (%)	46
Cows served that conceive (%)	95

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- Pregnancy diagnosis: At 45 days to 60 days after breeding.
 - Buy replacements only from healthy herds and test them before putting them in the existing herd.
 - Calving: In a calving pen and clean up and sterilize the area once parturition is over.
 - Follow a programme of disease prevention, test and vaccination for diseases affecting reproduction

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- Practice a general sanitation programme at the dairy farm.
 - Supply adequate nutrition at all stages of dairy animals.
 - Employ the correct technique for heat detection and servicing.
 - Provide suitable shelter management.
 - Detect silent or weak heat by using a teaser bull.

Table: The postpartum reproductive targets to be met to obtain high reproductive efficiency and the associated key risk factors affecting these targets (Roche, 2006)

Reproductive process	Target to be achieved	Risk factors affecting targets
Normal uterine involution	Day 50 post-partum	Dystocia, RFM, Uterine infection
Resumption of ovulation	90% by day 42	Loss of > 0.5 BCS unit, Low feed intake, Uterine health
High estrous detection	85% per cycle	Infrequent checks, Sub-estrus, High yield
High conception rate to AI	50% per breeding	Excess BCS loss, Prior uterine problems

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- Protect the animals from inclement weather conditions.
 - Adoption of artificial insemination for improved fertility, longevity and profitability in dairy cattle to overcome inbreeding depression.
 - Use of sexed semen for production of replacement heifers from genetically superior animals.
 - Timely rebreeding in postpartum lactating cows for reducing average days open and ultimately calving interval.



THANKS