

# **BREEDING MANAGEMENT OF CATTLE AND BUFFALOES**

## **LPM-601 (Unit-III)**



**Date: 02.11.2020**

**Dr. S. P. Sahu, M.V.Sc., Ph.D. (LPM)**

**Assistant Professor**


**Department of LPM**

**Bihar Veterinary College, Patna- 800 014**

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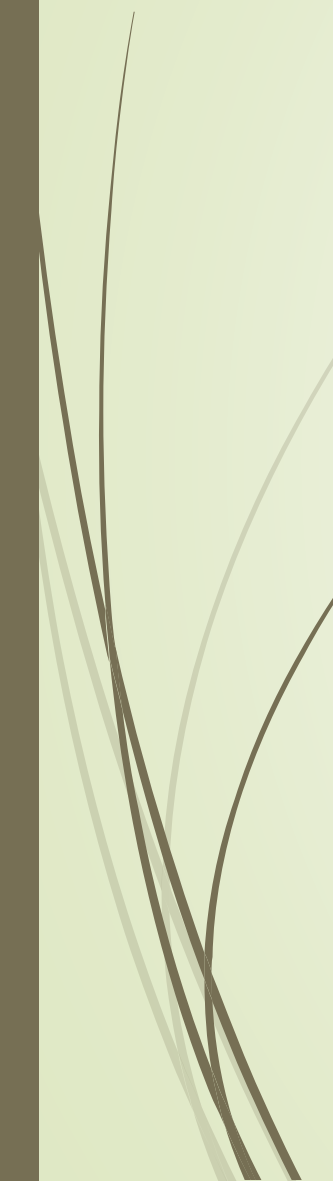


# OBJECTIVES

- 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)**


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

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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)**

<b>Reproductive process</b>	<b>Target to be achieved</b>	<b>Risk factors affecting targets</b>
<b>Normal uterine involution</b>	Day 50 post-partum	Dystocia, RFM (Retained Fetal Membrane), Uterine infection
<b>Resumption of ovulation</b>	90% by day 42	Loss of >0.5 BCS unit, Low feed intake, Uterine health
<b>High estrous detection</b>	85% per cycle	Infrequent checks, Sub-estrus, High yield
<b>High conception rate to AI</b>	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**