BREEDING MANAGEMENT OF CATTLE AND BUFFALOES (LPM-601)

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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.
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
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.
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)

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

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