

Boosting Dairy Herd Productivity: Key Strategies to Tackle Major Reproductive Problems in Cattle

Pushpendra Yadav^{1*}, Brijesh Kumar Yadav¹ & Ankit Kumar Singh¹

Introduction:

Reproduction is the biological process through which organisms produce offspring, ensuring the continuation of their species. In dairy farming, reproductive efficiency is crucial for maintaining herd productivity and profitability. However, reproductive problems—such as infections, congenital abnormalities, and hormonal disorders-can significantly impact an animal's ability to conceive, carry, and deliver healthy calves. These issues are classified based on when they occur: before gestation (e.g., anoestrus and repeat breeding), during gestation (e.g., abortion, vaginal prolapse, and dystocia), or after gestation (e.g., retained fetal membranes and uterine prolapse). Over the years, as major epidemic diseases have been controlled, reproductive health has emerged as a key concern for dairy producers, directly affecting milk production, calf survival, and overall farm sustainability. Addressing these challenges through proper management, nutrition, and veterinary care is essential for optimizing herd performance.

Managing Reproductive Problems in Dairy **Cattle: Key Challenges and Solutions Abortion in Dairy Cows**

Abortion, the premature termination of pregnancy after organ development but before viability, represents a significant economic loss for dairy operations. The condition typically occurs following fetal death in utero, with timing determining classification - early embryonic death (1-2 months gestation) or stillbirth (near-term). Infectious causes include viral agents like BVD and IBR, bacterial infections such as brucellosis and leptospirosis, while non-infectious causes range from genetic defects to environmental stressors like heat stress.

Effective management requires a multipronged approach:

- ⇒ Strict biosecurity measures including proper disposal of aborted materials
- ⇒ Strategic vaccination protocols (noting critical timing restrictions)
- ⇒ Nutritional management to prevent metabolic disorders
- ⇒ Environmental controls to minimize

Pushpendra Yadav^{1*}, Brijesh Kumar Yadav¹ & Ankit Kumar Singh¹ ¹PhD Scholar, ICAR-Indian Agricultural Research Institute, New Delhi-110012

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stress factors

 \Rightarrow Careful breeding management during disease outbreaks

Retained Fetal Membranes (RFM):

RFM, defined as failure to expel placental membranes within 12 hours postcalving, poses significant health risks. The condition stems from incomplete separation of attachments, with placental contributing factors including:

- ⇒ Infectious agents (Brucella, Leptospira)
- ➡ Nutritional deficiencies (particularly selenium)
- \Rightarrow Multiple births
- → Metabolic disorders

Modern management protocols emphasize:

- ➡ Hormonal therapy (prostaglandins/oxytocin) over manual removal
- ➡ Emphasis on transition cow management
- ➡ Nutritional supplementation programs

Endometritis:

This uterine inflammation, characterized by purulent discharge and palpable uterine changes, frequently follows dystocia or RFM. The Whiteside test with NaOH) (assessing cervical mucus provides a practical diagnostic tool. Prevention focuses on:

➡ Optimal calving management

- ➡ Prompt treatment of RFM
- ⇒ Judicious use of intrauterine therapies
- ⇒ Systemic antibiotic protocols for severe cases

| Colour | Degree of endometritis |
|--------------|------------------------|
| Turbid | Normal |
| Light yellow | Mid |
| Yellow | Moderate |
| Dark yellow | Severe |

Dystocia

Dystocia refers to abnormal or difficult birth, characterized by prolonged labor (exceeding 6 hours) that requires intervention. It can result from various factors, including breeding faults, overconditioning of the dam, fetal or maternal malformations, abnormal gestation fetal-maternal length, incompatibility, malposition of the fetus, or secondary conditions such as milk fever ⇒ Targeted antibiotic use for febrile cases JR (which reduces calcium levels and weakens contractions) and uterine torsion. Proper management involves preventive measures like balanced nutrition, good reproductive practices, and close monitoring of heifers during labor. Early intervention is crucial to minimize risks to both the dam and calf. Farmers should be trained to recognize dystocia and seek veterinary assistance when needed. Keeping detailed records of calving history, including previous difficulties and gestation length, helps predict and manage future cases.



Uterine prolapse:

It is a post-parturition emergency where the uterus inverts and protrudes through the vulva, often occurs due to excessive straining, hypocalcemia, or uterine inertia. Prevention focuses on reducing risk factors like poor nutrition and lack of exercise. Treatment options include manual reduction or, in severe cases, amputation. The decision depends on factors such as placental attachment, trauma, hemorrhage, and the animal's overall condition. Proper positioning during treatment is essential to avoid complications like bloat.

Repeat breeding, a major infertility issue in herds, occurs when healthy animals with regular estrous cycles fail to conceive after three or more inseminations. Causes include endometritis, nutritional deficiencies, poor semen handling, improper Al timing, and RE MA Improve farmer awareness on heat low-quality semen. Addressing this problem requires improved reproductive management, accurate heat detection, proper semen storage, and skilled insemination techniques. Studies show that managemental factors, such as incorrect AI timing and poor nutrition, contribute significantly to repeat breeding, emphasizing the need for better training and protocols.

Anestrus, the absence of estrus for over two months, results from factors like nutrition, suckling, postpartum health, and hormonal

imbalances. Treatment varies based on the cause and may involve hormonal therapy (e.g., GnRH or progesterone) or non-hormonal approaches, such as phytochemical-rich plants that stimulate cyclicity. Proper herd management, including balanced nutrition and minimizing stress, helps prevent anestrus.

Mastitis:

It is an inflammatory disease of the mammary gland, leads to economic losses due to reduced milk yield and quality. Common pathogens include Staphylococcus aureus, Streptococcus spp., and E. coli. Prevention focuses on hygiene (e.g., postmilking teat disinfection), timely treatment of clinical cases, and culling chronic carriers. Optimizing housing, nutrition, and stress management further reduces incidence.

Recommendations

- detection, proper AI techniques, and sire-dam compatibility.
- \Rightarrow Conduct regular pre- and postpartum health screenings to detect disorders early.
- ➡ Implement strict hygiene and biosecurity measures to control mastitis and reproductive infections.
- ⇒ Maintain detailed health records to monitor and manage reproductive efficiency.



Reproductive disorders significantly impact dairy productivity, making proactive management essential for sustainable farming. Conclusion

The ultimate goal in dairy farm should be to shorten calving interval of animal, number decrease the of services per conception thereby increasing farm production. But reproductive health disorders such as anestrous, abortion, dystocia, repeat breeding and mastitis, and a RFM affect the reproductive performance of dairy animal, the number of potential replacements needed to maintain a constant dairy animal's size and the longevity of the animal in the herd. Up on closer examination of the reproductive process in dairy animal, the reproductive diseases was the most varied and the most vulnerable problems that incidentally coincides with the reduction of milk production, G prolonged JRE MOGstrategies for dairy cows. Journal of uterine involution, resumption of ovarian activity and conception.

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