



Optimizing Dairy Productivity: A Comprehensive Guide to the Drying-Off Process

(*Sathe P. M.¹, *Phate N. D.², Tirpude S. V.¹, Patil R. A.¹, Vaidya M. G.¹ and Tayade R. S.¹)

¹M.V.Sc. Scholar, Department of LPM, PGIVAS, Akola, Maharashtra-444706

²Assistant Professor, Department of LPM, BCVSRC, Mahendragarh, Haryana

*Corresponding Author's email: drni3phate@gmail.com

The dry period in dairy animals is a key phase, typically lasting around 60 days, during which milking is paused to allow the cow's udder to recover. This break is essential for maintaining udder health and ensuring high milk yields in the next lactation. Properly managing this period helps prevent infections such as mastitis and promotes udder healing. Drying-off methods include abrupt cessation, intermittent, and incomplete milking, each with pros and cons. Careful attention to timing, nutrition, and health monitoring is crucial for maximizing the cow's future productivity, preventing infection, and overall well-being.

Introduction

India holds a prominent position globally in livestock population and is the top producer of milk, with an annual output of 230.58 million tonnes (DAHD, 2023). A significant portion of the country's milk supply comes from rural areas, where traditional milking methods are still practiced. With the expansion of markets in rural regions, milk production has gained momentum. Many people are transitioning from traditional livestock farming methods to commercial dairy farming. In such innovative ventures, individuals must acquire essential knowledge about dairy farming and standard livestock management practices. For efficient milk production, it is necessary to have animals with good genetics and high production potential. Proper management of these animals plays a vital role in maximizing their productivity.

The process of drying off involves halting the milking of a pregnant dairy cow as she nears the time to give birth to her next calf. This rest period, which usually lasts around 60 days, allows the cow's body to recover and get ready for the next lactation cycle when she will resume milk production. Essentially, it provides the cow's udder with a break to heal and prepare for future milk production. Effective management during this stage, including making necessary nutritional changes and preventing mastitis, is crucial for ensuring the cow's health and sustaining her productivity.

The dry period, which is the interval between the cessation of lactation and the next calving, is a critical phase in a cow's production cycle, with significant effects on health, physiology, animal welfare, and the sustainability of dairy farming. This phase starts when milking is stopped at the end of lactation, allowing the cow's body and udder to prepare for optimal milk production in the next lactation. During this time, cows restore their body condition and regenerate mammary epithelial cells. The mammary gland undergoes active involution, where it transitions back to a nonlactating state through a series of changes in gland structure, cell junction integrity, and secretion composition. This dry-off period allows the cow to adapt to a nonlactating state while also preparing for the upcoming birth and lactation cycle.

Why is the Dry Period Important?

- **Resting the Udder / Allowing Udder Recovery (Mammary Gland):** Similar to how machinery requires maintenance for optimal performance, a cow's udder needs time to recuperate between lactation cycles. During the dry period, the mammary gland undergoes healing and regeneration, which is critical for ensuring the cow can produce high-quality milk in the next lactation.
- **Enhancing Milk Production:** Cows that receive an adequate dry period tend to yield more milk in the following lactation. Failing to provide sufficient rest or shortening the dry period can reduce milk output, which negatively impacts farm productivity.
- **Prevention of Infections:** Milking increases the risk of udder infections like mastitis. The dry period allows time to address any existing infections and prevent new ones. Farmers often use treatments such as antibiotics or teat sealants during this phase to protect the cow from infections.

Methods of drying off the cow

The three common methods for drying off a cow are abrupt cessation of milking, intermittent milking, and incomplete milking.

- a) **Abrupt cessation method:** In this approach, milking is abruptly stopped without any gradual reduction. For instance, if the cow is being milked twice daily, milking is halted entirely in one step. To reduce the risk of the udder becoming too full or developing an infection, farmers often use antibiotics or teat sealants to block bacteria from entering the udder.

Advantages: It is straightforward, quick, and effective method when carried out correctly.

Disadvantages: The cow may experience discomfort as her udder fills rapidly, and there is an increased risk of milk leakage, which can lead to infections.

- b) **Intermittent milking method:** This gradual method involves reducing milking frequency to help the cow slowly decrease her milk production before entering the dry period. Initially, if the cow is milked twice daily, the frequency is reduced to once a day for several days. Then, milking is further reduced to once every other day for a few more days before stopping entirely. This approach allows the cow's body to adapt gradually, promoting both comfort and health as she prepares for her next lactation.

Advantages: It helps the cow transition more smoothly, reducing discomfort and lowering the risk of udder infections.

Disadvantages: This method is more time-intensive and requires careful planning. It may not be ideal for cows with high milk production levels.

- c) **Incomplete milking method:** Incomplete milking is a technique used to gradually reduce a dairy cow's milk production by not fully emptying her udder during milking sessions. This method aims to slowly taper off milk production rather than stopping all at once. Instead of emptying the udder, only a portion of the milk is removed during each milking. Over several days, more milk is left in the udder, signalling the cow's body to reduce milk production due to decreased demand.

Advantages: The gradual decrease in milk production helps minimize udder pressure, reducing the cow's discomfort.

Disadvantages: This method requires close management, as leaving milk in the udder increases the risk of mastitis, especially if bacteria enter during this period.

Points to be considered during drying off in dairy animals

The dry period for cows should be appropriately timed and should not leave them to manage on their own.

- **Timing:** Coordinate the drying-off period with the cow's lactation cycle and expected calving date.
- **Duration:** Target a 50-60 days dry period for first-calf heifers and a 30-40 days period for cows in subsequent lactations can enhance lifetime performance and can be achieved without negatively impacting overall yield, provided that suitable measures are implemented. It is advisable to avoid dry periods shorter than 35 days or longer than 70 days (Singh, 2020).
- **Drying-Off Method:** Select the appropriate method based on the cow's milk production level and health status. A commonly used method to dry off low-producing cows (yielding less than 6 kg of milk) is abrupt cessation. For higher-producing cows, a more gradual approach is often recommended, such as reducing milking frequency by shifting to incomplete milking or milking on alternate days for 1-2 weeks before complete cessation.
- **Health Monitoring:** Monitor for signs of mastitis or other infections, particularly in herds with a history of such issues.
- **Nutrition:** During both the close-up and far-off dry cow programs, balanced rations should be provided to reduce the risk of metabolic disorders. Additionally, dry matter intake should be encouraged two weeks before calving and during the first month postpartum to optimize milk production in these high-stress cows. Provide access to clean and fresh water at all times.
- **Stress Reduction:** Create a calm environment and maintain consistent routines to minimize stress.
- **Teat Care:** Practice good hygiene to reduce the risk of infections in the teats.

References

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