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Popular Article

Importance of Dry Period in Cattle and Its Different Strategies and Beliefs

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Introduction

Dry period is the time period between the cessation of milking in a pregnant animal and calving. Dry period in any dairy cattle is very much important for the rejuvenation of mammary epithelial cells for more production of milk in the next lactation. When coming to the drying off milking cow care should be taken not to occur any infections like mastitis. The importance, different strategies for drying off and various beliefs that the farming community had on the dry period of dairy cattle is discussed here.

Importance of dry period

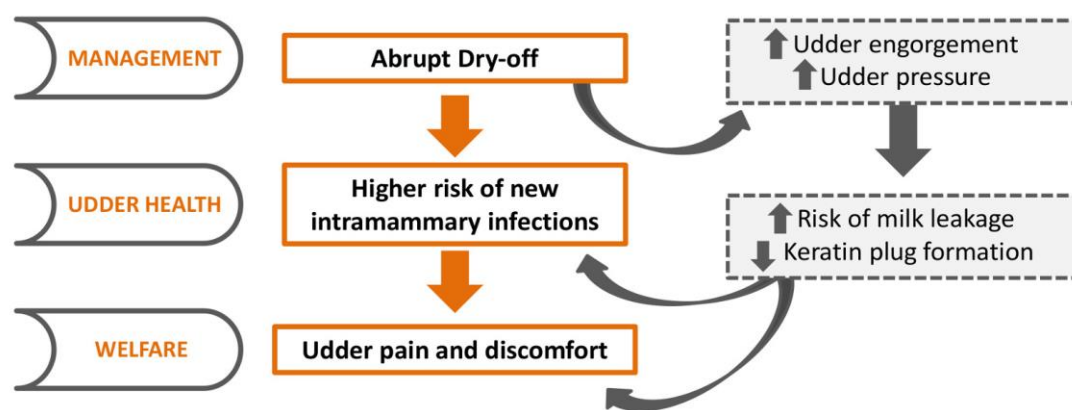
The recommended dry period is about 45-60 days. This dry period makes the milk alveoli of udder to involute, repair and rejuvenate to give high milk yield in the next lactation. If a cow didn't provided with sufficient dry period it may decrease the milk yield upto certain level in the next lactation. This affects the economy of the dairy farm.

Various physiological changes during drying off

During normal lactation period, main function of the mammary gland is to synthesis and secrete the milk. During dry period, mammary gland undergoes various changes like active involution, steady state involution and colostrum formation. During the period of active involution, there is an increased rate of formation of lactoferrin and the concentration may goes upto 20 to 30mg/ml in 30 days of dry period. This lactoferrin provides resistance to the invading microorganisms.

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Effect of nutrition

When the provided dry period is not sufficient it may cause various metabolic diseases like ketosis, fatty liver syndrome and displaced abomasum because of nutritional deficiency. During early lactation due to reduced rumen size lactating cows cannot consume enough feed to meet out their nutritional requirement, so the animal uses the existing body reserves to meet out the requirement for milking and maintenance. In order to prevent the occurrence of any metabolic disease, the energy stores of the animal should be increased before calving, then do milking.

A positive energy balance has been associated with more proliferation of mammary epithelial cells. If the provided dry period is more than 70 days, the animal become fatten and may have too low lactation persistency ie) the persistency of high milk yield will last for few days. Dry cows require smaller amount of nutrients than the milking cows. Some researcher reported that a very short or no dry period improved fertility of dairy animals.

A dry cow should be provided with less quantity of high energy concentrates and roughages. If any cow is provided with only roughages, rumen size is too small when compared to non-pregnant state and so energy obtained from that feed is also very less. So that animal may go for malnutrition resulting in various metabolic diseases as mentioned earlier.

In feeding a dry cow it is divided into two phases- first phase (far-off period) is feeding high-fibre and low energy diet to dry off milk and the second phase (close-up period) includes feeding of concentrates with high energy value and less quantity of high fibre diet. As dry matter intake reduces towards the time of calving, this energy reserve will help the animal to maintain its production in early lactation.

Different strategies for drying off

Any high yielding dairy cow should not be dried off abruptly, it should be very gradual. First of all, some two weeks prior to drying off, stop the concentrate and slightly reduce the quantity of drinking water. If an animal is milking twice a day first milking should be reduced to



once a day (intermittent milking), then completely stop milking. Intermittent milking should be avoided as it prevents the sealing of teat canal. The removal of teat plug increases the chance of mastitis. Increased buildup of pressure in udder due to not milking facilitates atrophy of mammary epithelial cells, and this in future helps the rejuvenation of epithelial cells.

In the meantime, major milk constituents like casein, milk fat and lactose synthesis begin to decline within 3-4 days of drying. Somatic cells concentration increases by seven days of drying. Once the calving time approaches milk secreting epithelial cells become active and begin its secretory function. In the meantime, there is increasing concentration of antibody classes IgG1, IgG2, IgA and IgM.

Dry cow therapy- Intra-mammary infusion of antibiotics as recommended by the veterinarian can help in preventing mastitis. First wipe the tip of the teat, then insert the intra-mammary infusion canula into teat. Take care not to touch the tip of the canula before inserting into the teat as this extends the infection into the tip. After infusion of antibiotic milking should not done, as this allows the antibiotic to enter into food cycle and cause the threat of antimicrobial resistance.

Teat dips can also be used to disinfect the teat dip while drying off. Tip of the teat is wiped with 70% ethanol wipes, then teat is allowed to dip in disinfectant. Use separate wipes and teat dip for each teat to prevent spread of infection. Commonly used teat dips contain either of the following compounds like quaternary ammonium compounds, iodine and chlorine compounds. Nowadays commercially available teat dips are also available and that can also be used. A teat dip is effective when it is used immediately after milking, before the closure of teat sphincter.

Teat sealant can be used. A dry cow therapy not only help to prevent the occurrence of new infection, but also helps to effectively clear existing mastitis.

Management practices

In a dairy farm, keep drying cows separately to facilitate ease of feeding and monitoring. During drying off period the secretion of milk in udder increases the pressure inside each quarter, so the distance between teat cistern and outside environment is too less. This also facilitates the spread of infection into the udder causing clinical mastitis.

Similarly, during drying off phase as milking is not done bacterial load in the teat canal increases thereby causing mastitis. While milking the flow of milk flushes the teat canal, thus it helps in reducing bacterial load. During this period frequent monitoring of animals for the clinical symptoms of mastitis like inflammation of udder, pain on palpation is needed.

During the period of drying, care should be taken to prevent the occurrence of mastitis by



good management practices like providing teat dip, clean shelter and access to good feed with nutrients like vitamins and minerals.

Belief of farmers about dry cow feeding

When a non-milking cow fed with high energy concentrates, it results in the fattening of not only the dam but also the fetus. This will lead to feto-maternal disproportion thereby causing difficulty in parturition ie) dystocia. Drying a high yielding cow will results in mastitis.

Conclusion

A sufficient dry period is essential for repair and rejuvenation of mammary epithelial cells. Proper management practices to be followed to avoid infections. Appropriate feeding strategies is to be followed to avoid any metabolic diseases like milk fever, ketosis and fatty cow syndrome.

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