Dry Period - An Important Phase for a Dairy Cow

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The dry period of a dairy cow should be considered an important phase of her lactation cycle. In the first three weeks following drying off, cows are at a high risk of developing mastitis; they are undergoing physiological changes and are more exposed to bacteria from the environment because the keratin plug is not fully developed for all quarters during this time. Adequate nutrition and appropriate disease prevention of the cow at this time will ensure optimal health, milk production, and reproductive performance during the lactation following calving. Therefore, the feeding and management of dry cows is very important from an economic aspect.

Drying off: When drying off a cow, the goal is to abruptly end milk secretion and to seal the teat canal as quickly as possible. Cows should not be milked intermittently towards the end of lactation because this prevents the teat canal from sealing and creates continued stimulus for milk production, increasing a cow's risk for developing mastitis. After the cow's final milking, the veterinarian-recommended dry cow therapy should be administered. Teat sealant may also be administered to prevent bacteria from entering the teat cistern and causing new infections. Finally, the entire surface of the teats should be covered using an effective teat dip.

Dry cow therapy: The cow is very vulnerable to new infections during the first three weeks after drying off, so all quarters should be treated with a dry cow mastitis treatment. During this time, risk of infection is higher because physiological changes occur in the mammary gland, bacteria do not get flushed out of the streak canal during the milking process, there is no protection from teat-dip, and milk leakage occurs. Dry cow therapy can clear up an estimated 70 to 98% of already existing infections and helps prevent new infections, making it one of the most economically beneficial methods for mastitis prevention. The prevention of subclinical mastitis is especially important at this time because it can precede clinical cases and, depending on its causative pathogens, can infect other animals. A long-acting intra-mammary antibiotic should be administered to every quarter after the cow's final milking.

Nutrition of dry cows: Nutrition during the dry period is important for maintaining proper body condition score of 3.0 to 3.25. Separate diets should be made for far-off and close-up dry cows. Diets of far-off cows should contain less energy and adequate amounts of fiber. Diets of close-up cows should contain more metabolizable protein and energy than diets of far-off dry cows, but should still contain controlled amounts of both energy and fiber to ensure adequate feed intake after calving. Depletion of protein reserves during the dry period can negatively affect the cow's health, milk production, and reproductive performance during the following lactation. Diets of close-up cows can also contain forages that are lower in potassium, such as corn silage, and grain products to help prevent milk fever after

calving. If a herd is not big enough or it is not possible to manage close-up and far-off dry cows separately, dry cows can be managed as one group with a shorter dry period and a negative DCAD diet.

Length of dry period: Dry periods typically last 60 days and involve both a far-off and a close-up period. The close-up period begins three weeks before expected calving. Research has found that if no dry period is provided for a cow, she will produce 25 to 30% less milk the next lactation. However, some producers have recently begun shifting to using shorter dry periods of 40 to 42 days. These shorter dry periods involve only one group and are paired with a negative dietary cation-anion difference (DCAD) nutrition program. Some argued benefits of using this program include having cows producing milk for 18 to 20 more days and less labor and stress involved since cows only have to be kept in one group rather than two. Research has found that there is no difference in milk yield following a 30-day dry period versus a 60-day dry period for multiparous cows. However, 30-day dry periods in primiparous (first-calf) cows have been found to result in reduced milk yield.

Minimizing heat stress: Heat stress should also be prevented by providing proper cooling through the use of shade, fans, and sprinklers. Heat stress reduces the amount of mammary tissue that can be developed, so a cow that is heat-stressed during her dry period will have a reduced capacity for producing milk in her following lactation. Studies have shown dry cows that are cooled during summer months can produce 10 to 12 lb. more milk per day during lactation than cows that do not receive additional heat abatement.

Minimizing social, environmental, and metabolic stress for close-up cows: Stress can affect feed intake, immune function, and overall health and productivity of cows around the time of calving. Social stress can be minimized by having as few pen moves or regroupings of cows as possible so that the social hierarchy of the cows is not disturbed. Adding multiple cows to a group at once is preferable to adding cows individually. Social and metabolic stress can be reduced by providing 36 inches of feed bunk space per cow to ensure adequate dry matter intake and reduce competition for feed. A minimum of 1 freestall or 100 to 125 square feet per cow should be provided to ensure adequate lying time. Drying off cows abruptly, administering veterinarian-recommended dry cow therapy, and using a teat sealant will help protect cows from pathogens during the dry period and prevent mastitis in the following lactation. Meeting nutrition requirements of cows, depending on what phase of the dry period they are in and the length of the dry period, will help prevent transition cow disorders and ensure maximum milk production in the following lactation. Providing adequate heat abatement will prevent the negative effects of heat stress and minimizing regrouping and pen moves will minimize social stress of dry cows. Following these steps will help dry cows have better health, milk production, and reproductive performance in their next lactation.