



Management of dry cows

Introduction

Proper dry cow nutrition and management is important because decisions made during this period have a big impact on milk production and health during the next lactation.

The objectives of proper dry cow management are:

- Properly nourish the developing calf.
- Maintain optimum body condition.
- Prepare the mammary gland for the next lactation.
- Prepare the digestive tract for the next lactation.
- Minimize digestive, metabolic, and infectious diseases.

Purpose of a dry period

The purpose of a dry period is to allow the cow's udder an opportunity to regenerate secretory tissue and to allow the digestive system to recover from the stress of high levels of feed intake.

Length of the dry period

The optimum length of the dry period may vary from one cow to another. General recommendations are that a 45 to 60 day dry period is associated with highest lactation yield. Dry periods less than 45 days and greater than 60 days results in less production in the next lactation. Short dry periods do not allow for adequate udder involution, and long dry periods tend to result in over-conditioned dry cows. The end result in both cases is less milk in the next lactation.

Drying off the cow

The recommended method of drying off is to stop milking the cow abruptly. Cows should not be milked partially for several days or milked every other day as a means to dry off. This practice will actually prolong the drying off process and may increase the incidence of mastitis. The pressure of the milk in the udder actually assists in the drying off process.

With high producing cows, it may be necessary to reduce feed intake for several days prior to drying off. Reducing feed intake by 50 to 70% will drastically reduce the supply of nutrients available to the udder, causing milk synthesis to decrease.

Mastitis control and treatment

Cows are especially susceptible to new intra-mammary infections during the first week following drying off and during the week just prior to calving.

In addition to helping prevent new infections, dry cow treatment offers the best opportunity of curing subclinical mastitis. Dry cow therapy is very effective against the contagious organisms *Streptococcus agalactia* and *Staphylococcus aureus*. However, providing a clean, dry environment for the cows is the best protection against environmental pathogens during the dry period.

Proper conditioning

During the dry period, cows should be maintained in good body condition. The condition of the cow as she nears the dry period is the best index of how to manage her as she makes the transition from the lactating to the non-lactating group. At dry off, cows should have a body condition score of about 3.5.

Cows allowed to fatten in excess during the dry period are more subject to displaced abomasum, udder edema, ketosis, and other general health problems than dry cows maintained in adequate body condition. Alternatively, cows entering the dry period in excess condition should not be put on a diet.

Nutrition of the dry cow

The four primary goals for feeding the dry cow from dry off to three weeks prior to calving include:

- Maintain optimum dietary fiber content
- Limit energy intake

- Avoid overfeeding protein
- Meet mineral and vitamin requirements

Dry matter intake of cows within two weeks of calving decline to about 1.5 to 1.8% of body weight from 3.0% during lactation. Due to this decrease in dry matter intake, cows within two to three weeks of calving should be placed on a more nutrient-dense diet in order to meet their nutrient needs.

Forage intake should be a minimum of 1.0% of body weight or 50% of the dietary DM intake. Ideal roughage sources for the dry period include coarse hays, grass, or grass-legume mixtures. Whether legume or mixed, primarily legume forages should be limited to not more than 30 to 50% of forage dry matter intake. Heavy feeding of these forages can result in excessive protein, calcium, and potassium intake, which make the cow more susceptible to udder edema, milk fever, ketosis, and possibly certain types of reproductive problems caused by protein and mineral imbalances.

High quality forages are best reserved for early lactation cows with high energy requirements.

Maximizing dry matter intake during this period will promote maximum dry matter intake in early lactation and improve milk production.

There is a need to assure proper intake of minerals and vitamins. Vitamins A, D, and E are all important for proper dry cow nutrition. Retained placentas have been associated with both Vitamin A and E deficiencies. Vitamin E deficiency is also related to reduced resistance to infection and increased incidence of mastitis. The need for additional Vitamin A is dependent largely upon the type and quality of forage fed. If green sun-cured hay is fed or if green pasture is available, there is probably no need for a Vitamin A supplement.

The primary goal when feeding minerals during the dry period is to avoid excessive calcium and keep the calcium to phosphorus ratio between 2.0:1 to 1.5:1. The control of calcium and phosphorus is important for the prevention of milk fever. Additionally, potassium levels greater than 1.5% of the ration dry matter may interfere with magnesium absorption and calcium mobilization, also resulting in milk fever, as well as retained placenta, and downer cow problems at calving. The trace minerals are also important in preventing many of the metabolic disorders and infectious diseases encountered during the dry period.

Feeding prior to calving

Even if no grain is fed during the majority of the dry period, there is some benefit to feeding 3 to 6 kg of grain three weeks before calving to adjust the rumen bacteria to the digestion of grain. This enables the digestive system of the cow to adjust to higher energy consumption more rapidly after calving and will improve dry matter intake.

Additionally, the ration should be modified to incorporate feeds contained in the lactating ration. This again will facilitate adaptation of the rumen and reduce the incidence of off-feed problems and associated disorders in early lactation.

Metabolic disorders

The major metabolic disorders that affect dry cows are usually the result of nutrition and feed management problems. These disorders include milk fever, ketosis, fatty livers, retained placenta, displaced abomasum, and udder edema. Many metabolic and digestive disorders that occur at calving are interrelated. Milk fever, for instance, is associated with higher incidences of dystocia, metritis, displaced abomasum, retained placenta, and low conception rates.

Remember that the dry period is the end of one lactation, and the beginning of the next. Careful attention to proper feeding and management are critical to obtaining maximum dry matter intake, good health, increased reproductive efficiency, and optimum milk production in the following lactation.

An initial version of this factsheet was developed through the Agricultural Innovation Program for Pakistan. It was made possible by the support of the American people through the United States Agency for International Development (USAID). The contents are the sole responsibility of ILRI and do not necessarily reflect the views of USAID or the United States Government.

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