

Proper Nutrition and Management of Transition Dairy Cows

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The transition period is extremely important in determining future health, milk production, and reproductive success of the dairy cow. This period is from three weeks before calving to three weeks after calving as the cow transitions from the dry period to the milking herd. It is easy to set dry cows aside and deem them unimportant in their resting phase until they become the “money makers” during lactation; however, maintaining proper rations and management practices before calving are critical to how well the cow performs in the first 60 days of lactation. A cow’s next lactation begins at dry off and not at calving. Cows in each phase have different requirements and following these simple guidelines can greatly improve profitability.

Far-Off Dry Cows

Although far-off dry cows are not included in the transition phase, it is important to set the stage right for these cows before they make that transition back into the milking herd. The key is to maintain a balanced diet with adequate, but not excessive energy. Here are a few recommendations to successfully manage your far-off dry cows.

- Diets are recommended to contain about 0.60 to 0.63 Mcal NE/lb of dry matter.
- To provide minimal but adequate energy, feed wheat straw or high neutral detergent fiber grass hay along with the proper amount of corn silage and grain.
- To prevent impaired immune function, add appropriate amounts of trace minerals and vitamins, such as selenium (0.3 ppm in total diet) and vitamin E (1,000 IU/day for dry cows and 500 IU/day for lactating cows) to the grain mix.
- Provide at least 12 % crude protein in the diet.
- The body condition scores (BCS) throughout the dry period should be from a 3.0 to 3.25 on a scale of 1 to 5.
- Offer plenty of heat abatement to minimize heat stress. Shade trees work well as long as areas are rotated to prevent bacteria from multiplying in the damp or dry soil below trees.
- Prevent dry cows from congregating in areas of the field for too long and creating mud holes where bacteria can multiply.

Close-Up Dry Cows

Within three weeks of calving, a cow’s immune system becomes depressed. Also, at this time maintaining dry matter intake is very important. Nutrient requirements of the fetus continue to increase three weeks prepartum, yet dry matter intake decreases by 10 to 30 percent. Maintaining feed intake prior to calving can impact feed intake after calving when energy demands are high and the amount of feed consumed directly correlates to milk production. Over-conditioned cows; however, can lead to issues. Dairy cows that are over-conditioned (BCS greater than 3.5) in the last three weeks of gestation have a much greater depression in feed intake in the period immediately pre-calving when compared to cows with lower BCS scores. Here are a few recommendations in order to successfully manage your close-up dry cows.

- Feeding a low potassium diet with appropriate amounts of anionic salts can reduce the chances of developing clinical and subclinical milk fever. Check urine pH to predict the calcium status of cows at calving and monitor the effectiveness of an anionic ration.
- Provide enough forage to fill the rumen and encourage cud chewing (5-6 pounds of long stem hay or straw per cow).

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- Keep the cows eating before calving.
- To minimize competition, provide feed bunk space of at least 36 inches/cow with post and rail feed bunks and 30 inches with headlocks.
- To reduce stress, stocking rate should be near 80% in free stall barns and stalls should have the dimensions to accommodate close up dry cows. For compost bedded pack barns, 120 square feet is recommended per cow.
- The body condition score should still be from a 3.0 to 3.25 on a scale of 1 to 5.
- Minimize heat stress by using fans and sprinklers. Fans should run continuously while sprinklers are repeatedly turned on for 2 minutes and off for 10 minutes.
- Transfer cows into the close-up pen in groups once weekly.
- The inclusion of feed additives like rumensin, yeast, or protected choline is good to provide nutrients for the mammary gland and prevent metabolic disorders.
- Since the cows have a depressed immune system at this time and will soon be calving, it is important to keep a clean and dry environment to prevent illness

Fresh Cows

After calving is a critical time period for dairy cows. The cows are in a negative energy balance because they are using the majority of their energy to produce milk and cannot consume enough feed to provide the energy that they need. It is essential to provide as much energy to the cows as possible with adequate but not excessive effective fiber. Also, make sure that they are consuming the feed, not sorting, and they are chewing their cud. Management practices which aim to optimize dry matter intake, increase the energy density of the diets without sacrificing rumen function. The diet of most dairy cows changes sharply at calving from being mainly forage-based to more concentrate-rich diets. This is to provide optimal energy to the cow during their time of need and prevent the cow from having metabolic or reproductive issues. Studies have shown that cows with the lowest energy balance before and within the first 15 days after calving have delayed ovulations.

- Monitor cows frequently to make sure they're eating and for metabolic issues
- Do not house fresh cows with sick cows
- Maintain a clean environment in order to prevent mastitis
- Provide heat abatement to minimize heat stress
- Continue to minimize competition at the feed bunk by providing a minimum of 30 inches/cow
- The stocking rate should be near 80% in free stalls
- Corn silage based diets should be supplemented with dry ground corn versus more fermentable starch sources such as barley, wheat or high moisture earlage or corn.
- Provide constant amount of fresh feed with appropriate feed additives to provide nutrients, push up feed to encourage increased feed intake, and clean the feed bunk once a day.

Take Home Message

Properly managing transition cows can greatly improve their all around performance in subsequent lactations. Special care for cows making the transition into the milking herd can translate into 4 to 5 pounds more milk at peak production. Paying close attention to far-off dry cows as well can set the stage for successful calving and lactation in the future. Close-up dry cows must be encouraged to maintain feed intake to provide adequate nutrients and prepare them for calving. Fresh cows must be housed in a dry, clean environment and consume as much energy as possible in order to lessen the degree of negative energy balance that they're in. Balancing nutrients at all stages and keeping the cows in the proper body condition can not only improve performance but minimize chances of metabolic disorders. Following these management rules can improve peak milk production to equal 1,000 to 2,000 pounds more milk over the entire lactation, or \$180 to \$520 more milk revenue per lactation.