

Feeding the High-Producing Dairy Cow:

Importance of Rumen Function for Peak Milk Production

Over the past 10 years, genetic improvement has pushed yield per cow up 2,600 pounds per lactation, a 12% increase. As genetic improvement continues to drive more milk production capacity, the importance of maintaining good rumen function during the peak milk period has become a major nutritional focus when feeding the high producing cow.

Higher Peak Milk Means More Total Milk During the Lactation

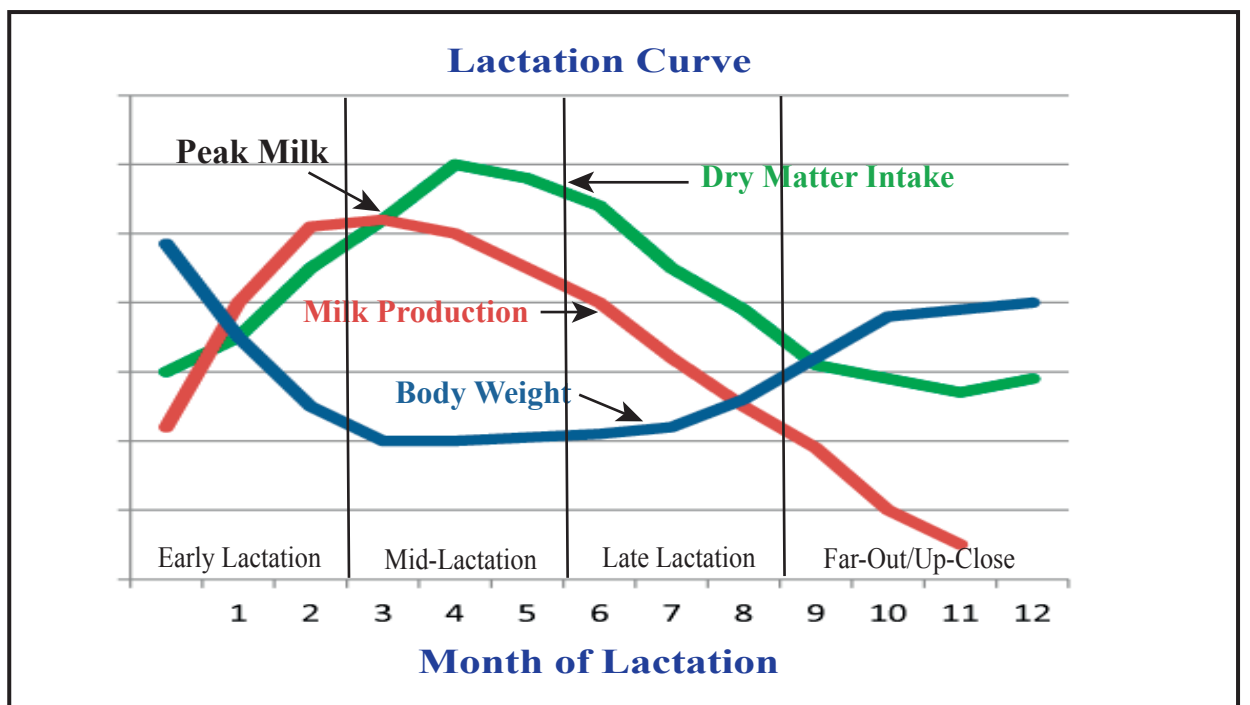
Peak milk yield is a good indicator of total milk production and reaching a higher peak is a strong economic incentive since every additional pound at peak can add up to 200 or more additional pounds for the entire lactation. Ideally, peak milk is reached by 8-14 weeks after calving and the milk production continues at a high level driven by a high nutrient intake to meet nutritional needs.

Besides being correlated with total lactation, peak milk is also a good indicator of how effective the transition cow management and feeding program has been implemented. The transition phase through about 100 days in milk is often the time of most risk from metabolic disorders, nutritional issues and other health concerns which can limit the cow in her ability to achieve the desired peak and maintain sustained output. Improved nutritional focus and improved feeding are being implemented to help high producing cows optimize rumen function to better handle the stress and risks associated with high milk peaks and higher production records.

Pacer Technology, Murtaugh Idaho, has introduced Excell®, an all-natural lactobacillus fermentation product, to support rumen function, performance and health in the high producing cow. RumaCell®, lactation and In vitro studies document the effect on microbial populations, microbial protein synthesis and volatile fatty acid production for energy efficiency and high milk production.

Feeding the Rumen Micro-flora

Since the rumen micro-flora digest most of the animal's feed components, the cow's ration should provide the nutrients and additives needed to support the large microbial population. Maintaining optimal microbial fermentation supports feed digestion and feed intake which is good for rumen function. High microbial populations will more efficiently digest the fermentable carbohydrates and produce the microbial protein and volatile fatty acids that supply the majority of the protein (amino acids) and energy needs of the cow. Good rumen function and appetite also help to maintain adequate rumen pH and reduce acidosis issues through improved cud chewing and saliva buffering.



Transition from Dry Cow to High Producing Cow

The dry period sets the stage for the cow's next lactation. The transition phase, (three weeks before and after calving) is the most important 6 weeks of the period for the animal's transition from a resting cow to a high producing cow with minimal health, production, and reproductive issues.

Feeding Excell® during this transition phase will help support dry matter intake and the increasing nutrient demands of high milk production following calving. By optimizing rumen function, more nutrients are available for milk production, maintaining body condition and normal breeding cycles.

During the close-up and just fresh periods, maintaining nutrient intake is essential. Research has shown that dry matter intake can drop as much as 15% to 35% in the three weeks before calving. The nutrient intake reduction must be addressed by concentrating the ration to meet the nutrient needs of the developing fetus, preparing the cow for early lactation and optimizing an often-compromised immune function. Achieving higher feed intake prior to calving will allow the cow to reach a higher feed intake after calving to help off-set the energy demands from the rapidly rising milk production. This period is also important for the transition of the rumen to the milking ration. The rumen papillae, the finger like projections that adsorb the ruminal volatile fatty acids need to elongate from their shorter length during the far-off dry period to a longer length in the transition period to develop maximum surface area and adsorptive capacity.

Sub-clinical Mastitis in Fresh Cows

Research conducted by Advanced Diagnostics has shown that sub-clinical mastitis during the first 7-14 days in milk can lead to lower milk production, poor reproduction (more days open) and reduced milk quality (higher somatic cell counts) and is a leading cause of culling. Optimizing immune function will help the cow to fight challenges and infections on her own and reduce antibiotic use. The cow's immune system will recover faster when rumen function and nutrient intake is optimized and provides the nutrients and substrates needed by the immune system cells.

Take Home Messages

- A good dry-cow and transition program will improve over-all cow performance, health and reproduction.
- Successful transition to lactation can generate 4 to 5 pounds more peak milk and 800 to 1,000 pounds more milk in total lactation.
- Maintaining good rumen function will help optimize feed consumption and nutrient intake needed to support high milk production, improve energy balance and help maintain cow health.
- Optimize immune function for the reduction of subclinical mastitis levels in fresh cows to reduce culling rate, increase milk production, quality and reduce days open.
- **Add Excell® an all-natural lactobacillus fermentation product from Pacer Technology, Murtaugh Idaho, to support rumen function, performance and health in the high producing cow.**

For information on Excell® all-natural lactobacillus fermentation products, contact Pacer Technology at:

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