



Dairy Technical Bulletin

Top Reasons Why QLF Liquid Supplements Improves Rumen Fermentation and Milk Components

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Reason 1: Rations with high starch fermentability directly reduce rumen pH, and reduce forage NDF digestibility. This will lead to a decrease in the production of ruminal acetate and butyrate, and promote the generation of undesirable fatty acid byproducts in the rumen. In contrast, sugar fermentation usually does not decrease rumen pH. Higher sugar diets promote the production of ruminal butyrate, which is a key contributor to milk fat synthesis. The microbes that digest fiber thrive at a higher rumen pH, therefore, a higher rumen pH allows for a better digestion of forages. Better forage digestion will lead to greater ruminal acetate production, another key contributor to milk fat. Therefore, feeding QLF liquid supplements will improve milk fat and protein yields.

Reason 2: Molasses-based QLF products are highly effective in reducing sorting. Sorting causes variations in TMR consumption, rumen pH, manure consistency, and milk components. Many cows develop acidosis and lameness because of sorting. Our field research showed that feeding QLF liquid supplements to lactating cows increased daily rumination time by 30 min. Better rumen function leads to better forage digestion. Feeding 4 to 5 pounds of QLF liquid supplements will reduce sorting and promote more consistent rumen fermentation patterns and higher milk components.

Reason 3: A recent meta-analysis of 25 research trials found that dietary sugar supplementation increased milk fat and protein yields (de Ondarza, Emanuele and Sniffen, 2017, *The Professional Animal Scientist* Vol. 33#6, pp 700-707). The optimal response was observed when total dietary sugar was between 6.75 to 8% of dry matter intake. Specifically, cows producing more than 74 pounds of milk had a 0.18-pound increase in milk fat, 0.2-pound increase in milk protein, and a 4.7-pound increase in 3.5% fat-corrected milk.

Reason 4: Too much dietary unsaturated fat, coupled with a high level of dietary starch and inadequate effective fiber, can interfere with rumen fermentation and cause milk fat depression. QLF liquid sugar supplements can be used to partially replace fat and starch in the diet without impairing rumen function.

Reason 5: A recent research project from Cornell University found De Novo fatty acid production has a strong positive correlation with the production of milk fat and protein. De Novo fatty acids are the fatty acids synthesized within the mammary gland from substrates like butyrate and acetate, which are produced by rumen fermentation. By feeding QLF liquid supplements, cows will have increased ruminal butyrate and acetate production due to the ruminal fermentation of sugars. Feeding QLF supplements will also allow for feeding higher forage diets, which promote better rumen health and create a proper ruminal environment for De Novo fatty acid synthesis.



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