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Why Forage Quality Matters

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Why Forage Quality Matters



By Dr. John Olthoff, Ph.D. PAS, Professor of Agriculture, Dordt College

Forage quality is an area that has generated a great deal of interest, from what it means and how we measure it, to its impact on the cow and milk production. Much of this information is readily available in publications and from your nutritionist. In times of poor milk prices, dairy producers should not try to save money by cutting back on forage quality. Optimum rumen function with high levels of digestible forage drives milk production, milk fat, dry matter intake, feed efficiency, and cow health and welfare.

Forage length, in combination with forage quality, will determine rumen digestibility and function. Normal rumen function is possible with a forage length of .1 inches on a full forage diet, but optimum milk fat requires a forage length of .25 inches.

As concentrates in the ration increase, the length of the fiber becomes more important for rumen function. Particle size begins to determine gut fill and dry matter intake. As the length of the fiber increases, greater fiber digestibility to maintain the flow of digested nutrients to the liver and mammary gland is necessary. Increased fiber digestibility will result in greater dry matter intake, which directly relates to milk production. It should also improve feed efficiency of fat-corrected milk.

Fiber digestion in the rumen favors the production of acetic acid and butyric acid. Those are the ketogenic fatty acids

in the liver that form the short and mid-length fatty acids: the De Novo fatty acids.

The level of De Novo fatty acids has a greater impact on milk fat levels than the level of the long chain, pre-formed fatty acids that come directly from the feed ingredients.

Concentrates tend to favor production of propionic acid, which is gluconeogenic in the liver. This favors mammary gland energetics and lactose production. Thus, there needs to be a balance. How much you are paid for milk will affect the correct balance for each producer. Work with your nutritionist to determine the balance of milk solids and volume that would best benefit your bottom line.

Consider fiber digestibility in all forage decisions. BMR and low lignin varieties of corn and alfalfa should be a consideration in seed choice for silage or hay production. The agronomic improvements in those varieties make them viable options. Have purchased forages analyzed for fiber digestibility. Ensure proper processing for corn, whether you use silage or shredlage. Both methods will improve fiber digestibility, provided the equipment is set and functioning properly. Silage must be properly packed and sealed with an

oxygen barrier. Not only will this improve feed quality, it will also reduce feed shrink.

Feed shrink is not directly related to forage digestibility, but it has a large impact on feed costs. Size forage storage to match feed utilization. This will minimize the loss of feed value due to spoilage, which also decreases shrink. Monitor TMR mixing, feed distribution, evidence of sorting, and manure scores on a regular basis.

Each of these factors has a role in determining or monitoring forage quality and its effect on the cow and milk production. Maintaining rumen health and function with forage quality will improve dry matter intake. This also affects overall cow health, especially during the post-fresh period.

All of these factors will also improve the welfare of the cow. Emphasizing forage in the diet will show the public that dairy producers are interested in the welfare of the cow. High feed quality can be provided all year, instead of the limited times when forage quality in the field is at optimum levels. ▲

