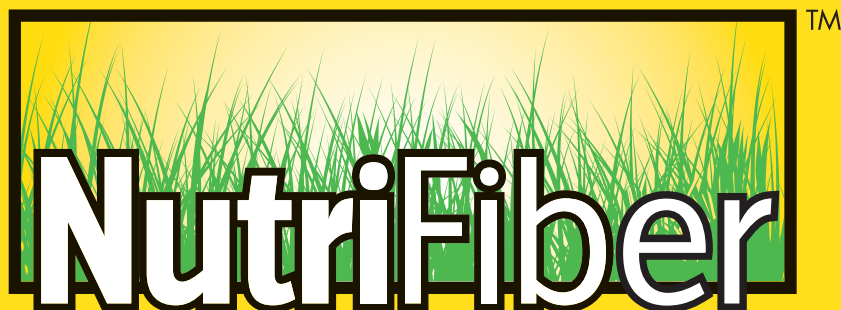


The Highly Digestible, Effective Fiber for Dairy Rations

 **NutriFiber**TM



 **BARENBRUG**[®]

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Highly Digestible, Effective Fiber for Today's Dairy

NutriFiber™ forages increase butterfat level, improve herd health and maintain milk production.

Today's high-producing dairy cows require both Non-Fiber Carbohydrate (NFC) and Neutral Detergent Fiber (NDF). Properly balancing NFC and NDF is critical for animal health and profitable production. Table 1 below presents ration guidelines.

Table 1: Fiber guidelines for high producing cows

	NFC	NDF	peNDF*	TTNDFD
	% of DM	% of DM	% of NDF	% of NDF
Ration Guidelines	≤40	28 to 30	75	≥43

Commonly formulated rations, however, frequently contain too much NFC and too little highly digestible physically effective fiber. Unlike commonly utilized feedstuffs (table 2), NutriFiber is ideally composed to properly balance high energy rations for today's high-producing dairy cows.

Ruminants fed a diet high in water-soluble carbohydrates (sugars and starches) from grain and other pre-processed feeds, can suffer in a number of ways. A lack of highly digestible, physically effective NDF (peNDF) plus an excess of rapidly fermenting grains and sugars can cause chronic lactic acidosis in dairy cows and other ruminants. Issues such as hoof problems, milk fat depression, high cull rates, transient diarrhea, unexplained death loss, clostridial infections or liver abscesses can be caused by Subacute Ruminant Acidosis (SARA).

Forages low in Neutral Detergent Fiber Digestibility (NDFD), such as mature alfalfa and grasses, corn stalks or even wheat straw, will provide fiber but can limit feed intake due to slow passage rate. The NDFD of commodities like corn gluten feed and beet pulp are high, but their total NDF content is relatively low and their NFC content is high (see Table 2), making it difficult to achieve the ration target shown in Table 1. Soy hulls do contain a relatively high amount of NDF that is highly digestible and have a low content of NFC, but they are low in the physically effective NDF (peNDF) that cows need for cud chewing and proper rumen function.

Table 2: Feeds used to add fiber lower NFC

	NDF	TTNDFD	NFC
	% of DM	(% of NDF)	% of DM
Wheat Straw	73	24	12
Corn Gluten Feed	35	51	31
Beet Pulp	46	70	36
Soy Hulls	60	75	18
NutriFiber Forages	40 - 50	45 - 60	18 - 25

Unfairly penalized

Plant fiber is a complex material that varies greatly in its digestibility. NDF is a forage test that measures the total amount of fiber in a feed. It has been understood for a long time that NDF is a measure of the "bulky," slow-to-digest feed component. The higher the NDF value, the less an animal could consume and the lower the forage quality. Some forages, such as cool season grasses, have higher NDF content than alfalfa, and have been considered lower quality as a result. This, it turns out, is an over-simplification.

The truth is that NDF values cannot be compared between forage species. Not all NDF is created equal. Optimizing forage utilization by dairy cattle requires knowledge of the NDFD and the rate at which it digests.



Value Of High Quality Forage Grasses in Reducing Acidosis

"Acidosis is the most important nutritional problem that feedlots face daily and is a major challenge for dairies as well."¹ [it is] "Caused by a rapid production and absorption of acids from the rumen when cattle consume too much starch (primarily grain) or sugar in a short period of time, acidosis causes cattle to be stressed. As long as cattle are finished on grain, cows are grazed on cornstalk fields (grain consumption) or high energy (grain) diets are fed to dairy cows, acidosis will be an important problem."²

"... grains are subject to microbial fermentation in the rumino-reticulum part of the stomach complex. ... The microbial fermentation of starches contained in grains can proceed too rapidly causing the rumen to become acidotic. The severity of the acidosis may range from mild to life threatening."¹

REFERENCES:

1. Acute and Subacute Ruminant Acidosis, Dr. Clell V. Bagley, D.V.M., USU Extension Veterinarian.
2. Acidosis, Rick Stock, Extension Feedlot Specialist and Robert Britton, Ruminant Biochemist, University of Nebraska.

A New Tool to Compare Forages

Relative Feed Value (RFV) has been widely used to rank forages for pricing, harvesting and allocation of forages to different groups of animals. It was largely influenced by Acid Detergent Fiber (ADF) and NDF values. Relative Forage Quality (RFQ) was developed as an improvement on RFV. The RFQ value incorporates digestible fiber, making it a better indicator of how an animal would perform on a given forage. But a basic limitation of RFQ is that NDF values from alfalfa, corn silage and grasses cannot be directly compared.

The Total Tract Neutral Detergent Fiber Digestibility (TTNDFD) procedure, developed at and licensed through the University of Wisconsin, provides estimates of quality that agree with in vivo literature across feeds.

This new forage quality assay can also be used in developing new varieties as a selection criteria in breeding programs. The NutriFiber trademark is your assurance that your forages have the highest genetic potential of producing the highest TTNDFD ration forage components for your high-producing cows.

Table 4: NutriFiber Compared to Typical Forage Analysis

	NFC % of DM	NDF % of DM	peNDF* % of NDF	TTNDFD % of NDF
Alfalfa	25	40	67 - 80	47
Corn Silage	45	40	67 - 80	40
Grass Forage	18	45	98	47
NutriFiber	18	45	98	55

"Greater differences exist among grass varieties than among corn hybrids and soybean varieties."

- Dr. Dan Undersander, Univ. WI

Table 3: Fiber digestibility varies in forages

NutriFiber Grasses are higher in fiber digestibility than other grasses with similar NDF Content*

Table 3	NDF range	TTNDFD
	%	% of NDF
Green Spirit[^]	46 - 56	59.5
Other grasses[~]	46 - 56	48.3

* Forage samples submitted to Rock River Labs, Watertown, WI in 2012
[^] Values from 9 samples
[~] Values from 448 samples



These Great Products Contain NutriFiber Technology

Green Spirit[®] – Highest Quality Cool Season Grass

- Short season forage crop
- Increase corn silage yields in rotation
- Ideal for inter-seeding into thinning alfalfa
- Can be planted as straight stands

E² – Hybrid Alfalfa + Soft Leaf Fescues

- Higher yield than straight stands of alfalfa
- Improved stand life
- Higher digestible fiber yield than straight alfalfa
- Components matched for maturity

Milkway – Meadow & Soft-Leaf Fescues

- Wide range of adaptation
- Highest quality perennial forage
- Traffic tolerant, ideal for multiple manure applications
- Improve butterfat and milk yield

STF-43[™] – Soft-Leaf Fescue

- Widely adapted perennial
- 10-15% better digestibility than typical tall fescues
- Long lived
- Ideal for nutrient management needs on large dairies



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