TECHNICAL BULLETIN
DAIRY

QLF QUALITY LIQUID FEEDS

IMPROVING DIGESTION OF LOW-QUALITY FORAGES IMPROVES PRODUCTIVITY

Maximizing forage quality improves digestible protein and carbohydrate supply to the rumen bugs, which improves dry matter intake and milk production. In some years however, growing, harvest and storage conditions result in a substantial supply of forage with less-than-ideal quality.

Low Quality Forages: Research

University research has tested the effects of improving low-quality forage digestion. Researchers ammoniated wheat straw to improve its NDF digestibility, and compared feeding the normal straw "LD – Low Digestibility" and ammoniated "HD – High Digestibility" wheat straw in diets that were 28% or 32% NDF. In the 32% NDF diets, corn silage and cracked corn were reduced to accommodate the additional DM from wheat straw, as shown by the reduced diet starch level.

	28% NDF		32% NDF		P-Value	
	LD	HD	LD	HD	NDF	Dig.
Wheat Straw, % of DM	8.5	8.5	16.2	16.2		
Starch, % of DM	29.9	30.1	25.9	26.5		
Diet 48 h NDF Digestibility	47.1	52.6	45.8	53.8		
Dry Matter Intake, lb/d	50.3	51.6	47.8	49.2	0.03	0.24
4% FCM, lb/d	79.2	82.5	72.8	76.3	0.001	0.01

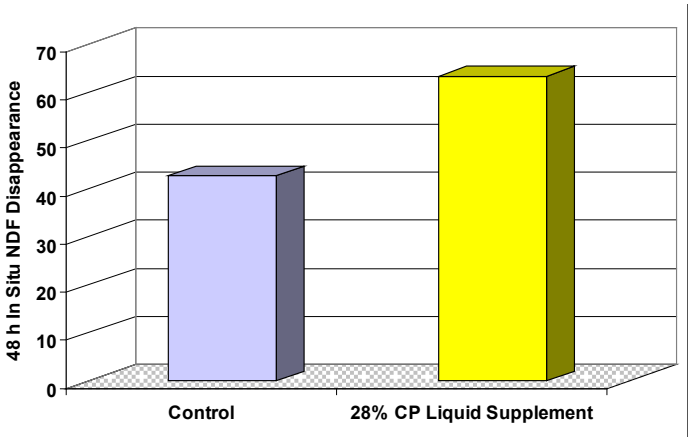
Source: Kendall et al. 2009. JDS 92:313-323.

As shown above, improving straw digestibility improved dry matter intake and milk production. However, increasing dietary NDF level through increased straw feeding lowered DMI and milk production. Remember that increasing diet NDF doesn't have to result in reduced productivity!

- Using haylage to increase diet NDF level from 30% to 35% maintained milk efficiency (FCM/DMI) and reduced length of time at sub-optimal rumen pH (Yang and Beauchemin, 2007).
- Increasing diet NDF level from 33% to 36% using soyhulls, reducing diet starch from 27% to 21%, and feeding 2.7 lb/day QLF Dairy TMR 20 improved energy corrected milk production from 83 to 87 lb/day (Firkins et al., 2008)!

The Solution

Research has shown that soluble sugars and degradable protein from liquid supplements improves low-quality forage digestion. As shown in the graph below, range cows receiving a 28% CP liquid supplement had 49% greater in situ forage NDF digestion, compared to non-supplemented cows.



Bowman et al. 1995. Proc. WSAS. 46:391-394

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Feeding 2-3 lb/day of a QLF TMR product that contains 20-30% protein and 30-35% sugar applies this research to dairy cattle receiving low quality forages in the diet. Developing a strategy to enhance digestion of lower-quality forages helps maintain cow productivity when crop availability and economics limit the amount of high quality forage used in the diet. In addition to improving forage utilization, QLF products improve diet palatability to encourage consumption of dietary forages and minimize ration sorting.