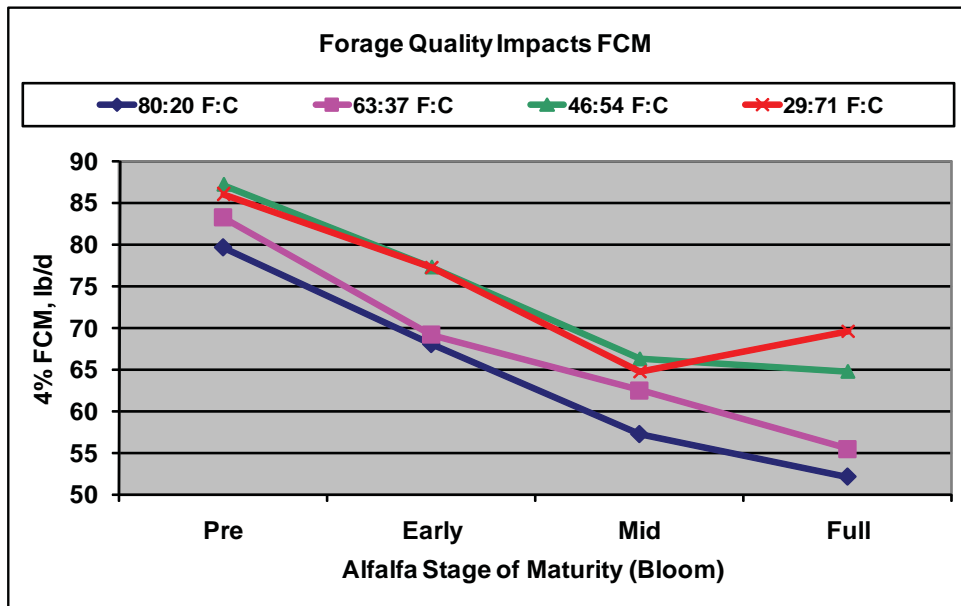


Make the most of forage crops with the benefits of QLF!

Lisa Davis, M.S.- QLF Dairy Product Manager

Forage Quality is important!

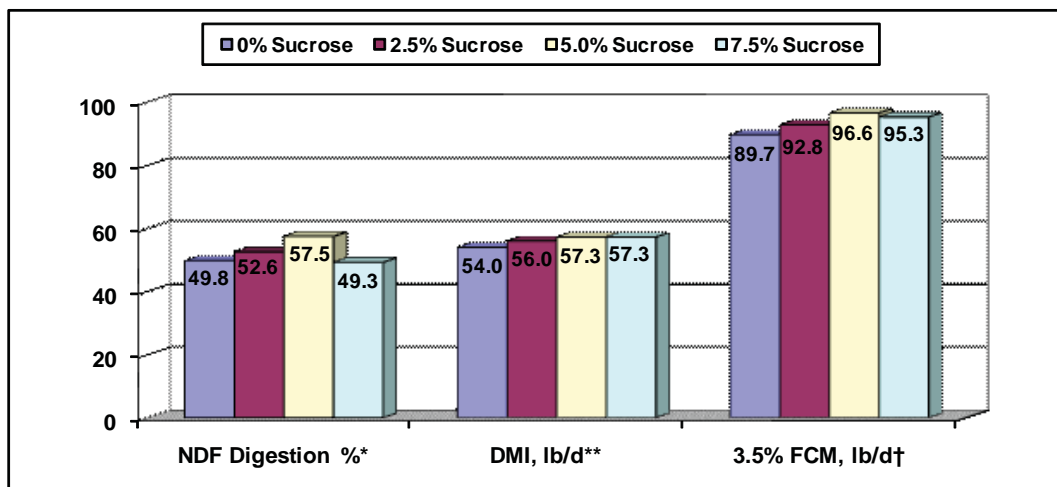
Forage quality varies with growing season, harvest, and storage conditions. Forages harvested at younger maturity have higher levels of soluble cell components, and lower cellulose and lignin levels, so they will be more digestible, improve rumen efficiency, and provide more fuel for milk production! As the graph to the left shows, across a range of forage inclusion rates, higher quality forages improve milk production! In this research study, alfalfa hay was harvested at four maturities and fed as the sole source of forage and fed at various forage:concentrate (F:C) levels. At various concentrate levels, improving forage quality improved milk production! Also note that increasing diet concentrate level does not fully compensate for low forage quality.



Kawas et al., 1989. Univ. of WI Research Report.

QLF Liquid supplements aid utilization of dairy quality forages!

Dairy quality silages and hays aid ration palatability and stimulate rumen function to help maximize dry matter intake and milk production. Molasses-based liquid supplements can improve utilization of these high quality forages, which facilitates formulation of diets with higher forage levels. These diets are “healthier” for the rumen (and the cow!). In addition, increased diet forage level helps reduce ration costs by emphasizing use of home-raised feedstuffs. Sugars and degradable protein from molasses-based liquid supplements stimulate growth of ruminal fiber-digesting bacteria, which aids forage utilization. Consequently, as shown in the graph below, dry matter intake and milk production are improved!

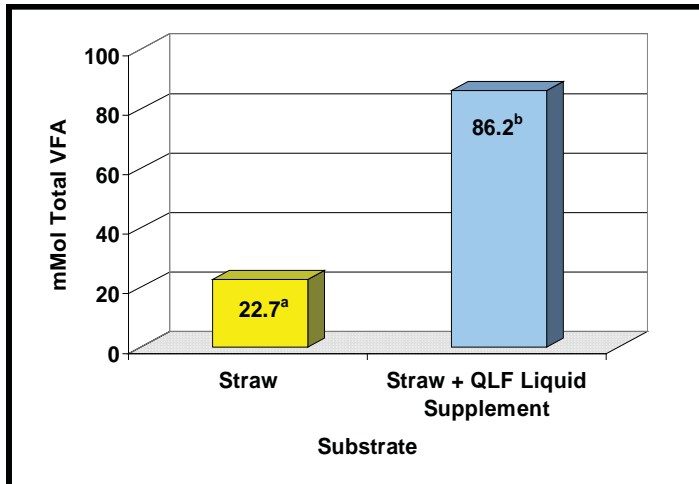


Note: Sucrose is the main sugar in cane molasses. Sucrose was included at levels from 0 – 7.5% of diet DM in a 60% forage diet. Dietary forages were 65% alfalfa haylage and 35% corn silage, and were of good dairy quality.

*Quadratic Effect $P = 0.04$ **Linear Effect $P = 0.02$ †Linear Effect $P = 0.13$
 Broderick & et al. 2008. JDS:91:4801-4810.

QLF Liquid supplements improve digestion of low quality forages, too!

Growing, harvest, and storage conditions, (as well as economics!) often necessitate inclusion of forages with less-than-optimal quality in the diet. Lower amounts of rumen-available carbohydrate and protein in these forages reduce the nutrients available for growing rumen microbes, which increases rumen fill and reduces dry matter intake, forage digestion, and VFA production in the rumen. Consequently, fewer nutrients are available to fuel milk production. Sugars and degradable protein in liquid supplements provide quickly available energy and nitrogen to rumen microbes, to jump-start their growth. As a result, microbial protein and VFA production increase, raising forage digestion and dry matter intake!



In Vitro DVRAMM data (Courtesy of Diamond V Mills).
^{a,b}Total VFA mMol with different superscripts is significantly different at $P < 0.05$.

As the graph to the left shows, incubating low-quality forage with a QLF liquid supplement (22% CP, 27% total sugar) stimulates microbial growth, improving VFA production four-fold!

A few words about dry corn silage: In some years, growing and harvest conditions result in ensiling a corn silage crop that is drier than desired (>38% DM). Dry silages reduce packing density, facilitating nutrient loss by aerobic fermentation. In addition, corn plants ensiled at >38% DM have increased maturity and harder kernels, which reduces fiber digestion and starch availability to the rumen. Consequently, rumen microbial growth and VFA production are lessened, reducing the nutrients available for milk production. Processing will help facilitate dry corn silage utilization, but does not fully overcome effects of plant maturity on fiber digestion starch availability(Allen&Linn, 2000). QLF molasses-based liquid supplements provide quickly available energy and nitrogen to stimulate rumen bacterial growth, which complements the slower starch and fiber digestion of the dry corn silage.



Summary

Besides improving forage digestion, QLF liquid supplements also aid forage utilization by

- increasing ration palatability
- improving daily intake consistency,
- reducing ration sorting and waste.

Consequently, TMR efficiency is increased!