TECHNICAL BULLETIN
DAIRY

QLF QUALITY LIQUID FEEDS

FEEDING QLF AND NUTRITEK IMPROVED START-UP AND MILK COMPONENT YIELD IN TRANSITION COWS

Introduction:

QLF molasses-based liquid supplements and Diamond V Nutritional Health Product NutriTek have been shown to boost dry matter intake and milk yield in transition cows. In addition, NutriTek contains bioactive compounds, including antioxidants and polyphenols, which may enhance immunity of transition cows. In summer 2016, a field trial was conducted at a large herd in Michigan and evaluated if QLF and NutriTek can impact cow performance.

Experimental Protocols:

SwissLane Dairy located at Alto, MI with a herd size of 2450 cows, has both conventional and robot operations. This farm participated in a research trial between May and October 2016. A QLF liquid supplement was formulated to supply 19 g of NutriTek when fed at a 4-pound feeding rate on an as fed basis. The QLF supplement contained 6% crude protein and 27% sugar as-fed. On Swisslane Dairy, close-up dry cow and fresh cow rations in the conventional herd were formulated to contain 4 lbs. as fed of QLF+NutriTek. Early lactation cows in the robot herd received QLF and/or NutriTek through the robot feeding pan at milking, for days 1 to 40 of lactation. Cows were randomly assigned to 1 of the 3 treatments at calving: Control (robot pellets only), QLF (QLF supplement only) or NutriTek (QLF+NutriTek supplement). Individual cows were milked by robots about 3 times per day, so QLF and/or QLF+NutriTek was targeted to be delivered by pumps to feeding pans at 1.4 lbs. as-fed per milking visit. Liquid supplements were dropped on top of the pellets in the feeding pans at the robot milking stations. (see images below).

Dry matter intake, milk yield, rumination time, and cow health were monitored throughout the trial. On the Swisslane Dairy Robot Herd, fresh cow milk yield, milk components, and rumination time were monitored by the Lely Robot System. Statistical analysis was performed using SAS 9.4 by an independent scientist. Robot herd data were analyzed as a randomized block design. Statistical model included the main effect of treatment and time (day) and their interactions and pen as blocking factors. On the conventional herd, milk yield and dry matter intake pre-QLF (4 months, March – June, 2016) vs. QLF period (3 months, July-Sept, 2016) were compared and analyzed using SAS 9.4

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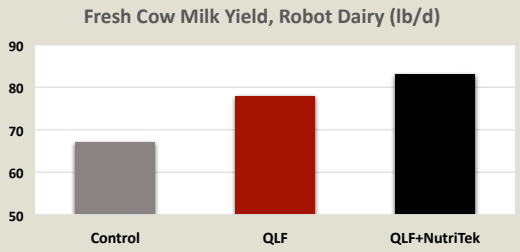
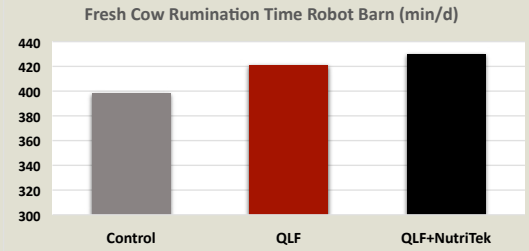


QLF only versus Control = +11.6 lbs.

QLF + NutriTek versus control = +15.75 lbs.

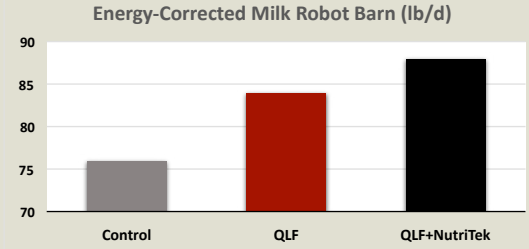
NutriTek difference = +4.15 lbs.

Control, QLF, and QLF+NutriTek cows were treated at the same time from 7/6/16 to 10/6/16 . Cows were between day 1 and 40 of lactation. SE=17.P=0.41.



Rumination time increased 25 min per day with QLF and 33 min per day with QLF+NutriTek

At SwissLane Dairy Robot Herd, Control, QLF and NutriTek were treated at the same time from 7/6/16 to 10/6/16. Cows were between day 1 and 40 of lactation. SE = 17. P= 0.41

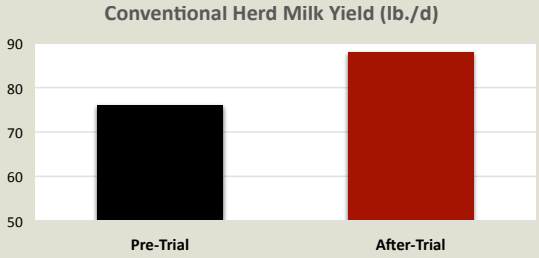


QLF versus Control = +8.4 lbs ECM

QLF + NutriTek=+12.3 lbs ECM

NutriTek difference=+3.9 lbs ECM

Control, QLF, and QLF+NutriTek cows were treated at the same time from 7/6/16 to 10/6/16. Cows were between day 1 and 40 of lactation.



Post Trial vs. Pre Trial =+11.9 lbs

QLF+NutriTek was fed from 7/6/16 to 10/6/16. The milk yields from 3/1/16 to 7/6/16 (without QLF and NutriTek) were used as comparisons. Cows were between day 1 and 40 of lactation. SE=0.8 P<0.0001

Results: SwissLane Dairy Robot Herd

In the robot herd, 30 fresh cows per treatment (from d 1 to 40) completed the study. All of the cows received QLF+NutriTek through TMR during the 21-day close-up period before calving. Compared with Control, feeding QLF during early lactation increased milk yield by 11.6 lbs., and QLF+NutriTek increased milk yield by 15.75 lbs. Energy-corrected milk was increased by 8.4 lbs. with QLF, and 12.3 lbs. by QLF+Nutritek. Rumination time, an indicator of rumen and cow health, increased 25 min per day with QLF and 33 min per day with QLF+NutriTek. Pounds of milk fat and milk protein were increased when QLF or QLF+ NutriTek were fed.

Results: SwissLane Conventional Herd

In the conventional herd, milk yield was 11.9 lbs. higher ($p<0.0001$) during the QLF+NutriTek period. Dry matter intake was 5.2 lbs. higher ($p<0.001$) during the QLF period compared with pre-QLF period. One possible explanation for these results is that QLF and NutriTek increased dry matter intake of the fresh cows, which resulted in increased milk yield (1 – 40 days of lactation). The positive difference was further strengthened by the fact that the QLF+NutriTek period was during July, August, and September when cows experienced heat stress in Michigan.

Conclusions Feeding QLF supplements with NutriTek to transition dairy cows improved milk yield, milk component yield and rumination time in early lactation cows. Dry matter intake was increased in close-up cows when QLF was fed. These results support the use of QLF liquid supplements and NutriTek during the transition period as a way to boost dry matter intake and start-up milk.

MILK COMPONENT VALUES FOR SWISSLANE ROBOT DAIRY

	Control	QLF	QLF + NutriTek	Difference
Milk Fat, %	4.14	3.90	3.84	
Milk Protein, %	3.54	3.14	3.15	
Milk Fat Yield, lb./day	2.78	3.07	3.18	+0.4 pounds
Milk Protein Yield, lb./day	2.37	2.47	2.61	+0.24 pounds
ECM Milk per Visit to Robot Milking Station lbs.	26.57	27.31	29.93	+3.36 pounds