



QLF DCAD JUMPSTART

THE NEXT STEP IN PREFRESH NUTRITION

ENHANCING DRY COW RATIONS WITH QLF DCAD JUMPSTART

Diet Acidifier: JumpStart provides chloride and sulfur anions to dry cow diets. Anionic “acidification” of dry cow diets can enhance calcium metabolism and energy utilization in the transition period.

TMR Consistency: is improved, due to the palatability provided by the cane molasses base of DCAD JumpStart.

Nutrient Consistency: The fluid, sticky nature of JumpStart delivers and distributes it’s nutrients & additives evenly throughout the dry cow ration.

Reduced Sorting: Use of a molasses-based liquid supplement in dry cow TMR reduces sorting, lessens waste, and improves intakes of long particles. Minimizing sorting is key to consistent intake of all dietary nutrients, including energy, and helps improve the efficiency of moderate-energy dry cow diets.

Reduced Shrink: JumpStart is stored in a closed handling system, minimizing shrink and protecting product quality.

Convenience: Addition of JumpStart to the TMR is convenient and easy – just flip a switch! Liquid supplement added to the TMR is precisely measured for accurate daily nutrient and additive delivery.

COMPONENTS	BENEFITS
Digestible, Liquid DM	Palatable, rumen available nutrients & enhanced ration conditioning
Sugar	Improved rumen microbial growth & enhance forage digestibility
Protein (NPN)	Soluble protein to provide N to rumen microbes
Glycerin	Provides rumen-available carbohydrate
Calcium, Magnesium	Essential macrominerals for metabolic functions
Chloride, Sulfur	Anion to improve calcium metabolism in the transition period
KemTrace Liq. Chromium Propionate®	Improved glucose utilization, DMI, Milk Yield, BCS
Liquid MetaSmart®	Improved DMI, liver function, milk & components

•Formulated for year-round handling on the farm •It is recommended to store and handle this product within a “QLF 365 Handling System” to maximize handling efficiency •Due to its unique chemistry and composition, daily recirculation of 20-30 minutes is recommended to help maintain color uniformity •Inventory turnover of ≤60 days is recommended •Purchase in 6 – 24 ton quantity •Due to its novel composition, specialized ingredients and equipment are required for manufacture of this product •Also, a delivery window of 5 days is needed to accommodate special logistic considerations for this product •No “cold weather handling adds” may be included in DCAD Jumpstart due to the product’s unique chemistry •Please contact your QLF Representative for information on availability of the QLF DCAD JumpStart

800-236-2345



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IOWA FIELD TRIAL WITH QLF DCAD JUMPSTART

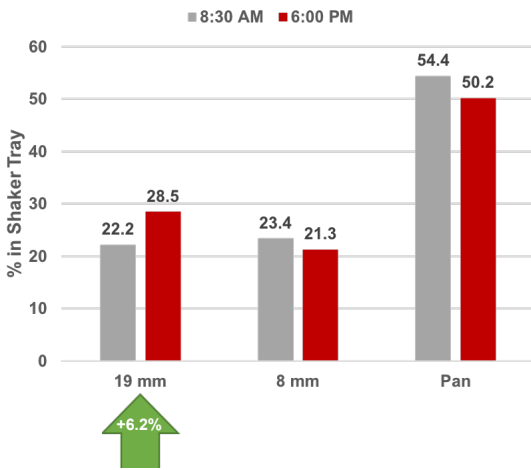
SUMMARY

A 1200 head dairy herd was started on QLF JumpStart DCAD that had been on a different DCAD product. The ration was balanced with corn silage, grass hay, straw, a protein mix and 3.6 lbs of Jumpstart to achieve a DCAD (mEq/100 g) of -10. Urine pHs were read with an Apera AI311 PH60 Meter twice a week for 3 months from the prefresh cows (going into 2+ lactation, >6 days in prefresh group). Blood NEFAs were analyzed from animals between -21 and -2 days before actual calving date. In postfresh group, ketones and NEFAs (7-14 DIM), and total blood Ca (0-3 DIM) were analyzed. Ketones were analyzed on site with Precision Xtra monitor while NEFAs and Ca were analyzed by Marshfield Labs.

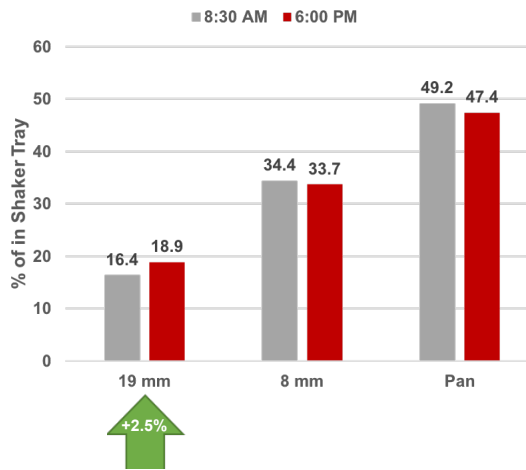
PREFRESH GROUP

Using a Penn State Shaker Box, sorting was measured before and after the addition of JumpStart. The top screen showed >6% difference over 9.5 hours before JumpStart, and 2.5% after JumpStart was fed, which indicated that sorting was reduced. Urine pHs remained constant during the trial period indicating that Urine pH was maintained within recommended range for cows receiving acidified prefresh diets after DCAD JumpStart was introduced.

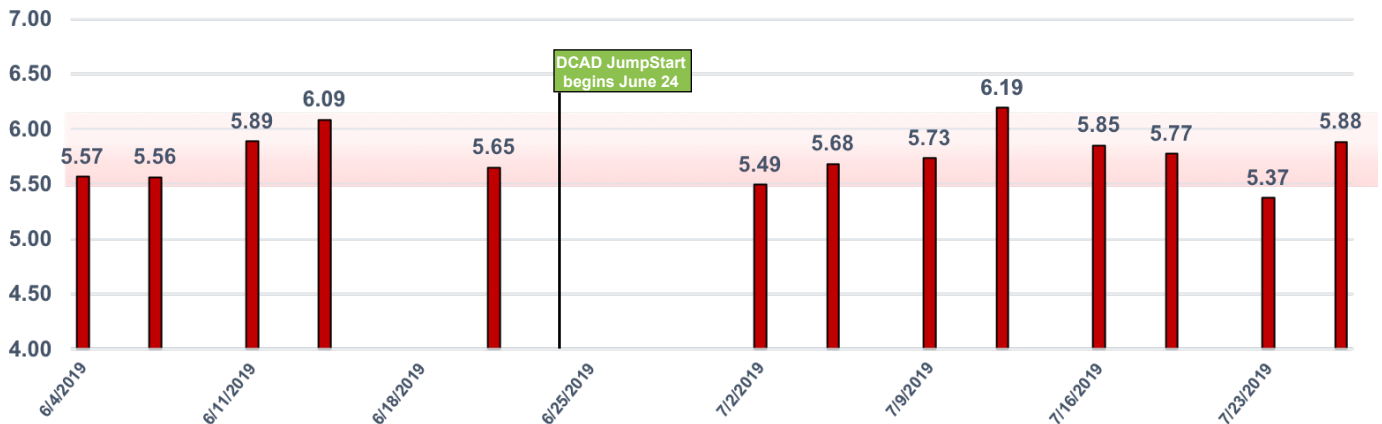
Before JumpStart; June 11, 2019



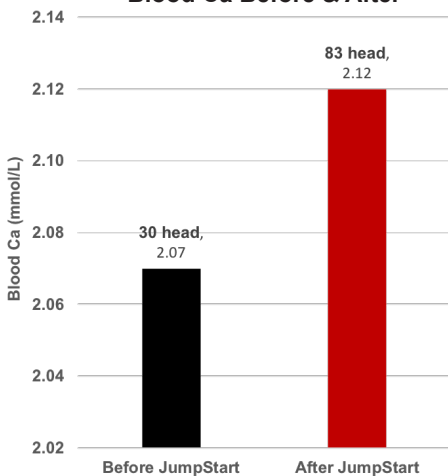
After JumpStart; July 5, 2019



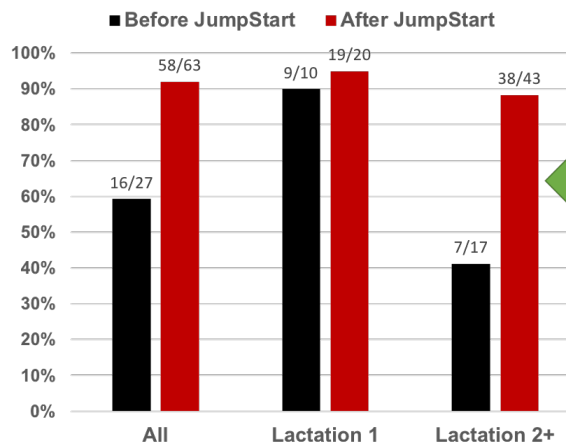
Prefresh Urine pH



Blood Ca Before & After



% Normal Postfresh NEFA (<.600 mEq/L)

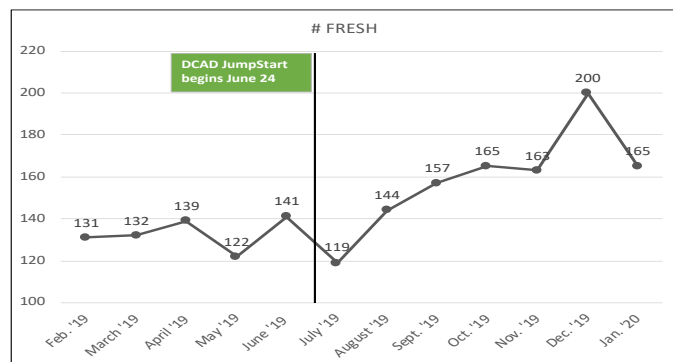


POSTFRESH GROUP

Blood Ca showed an improvement from 2.07 to 2.12 after JumpStart was started in the herd. Postfresh NEFA improved as well with the number of cows in the normal group (lactation 2+) increasing from 41 to 88%. The metabolic indicators indicate improvements in calcium and energy metabolism.

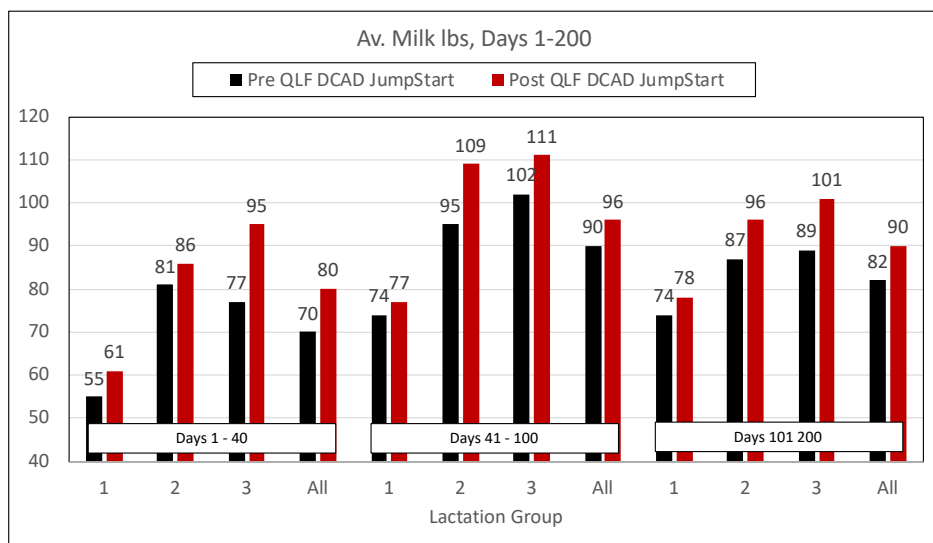
SUMMARY

Milk production and health data were evaluated for the Iowa Field Trial herd, to compare pre-and post- DCAD JumpStart performance. The “Pre”-period was February 2019 to July 2019 (6 months). The “Post”- period was also 6 months, from August 2019 to January 2020. Expansion began in the herd during fall 2019 – note the increased calvings beginning in October 2019. This expansion resulted in an overcrowded pre-fresh pen.



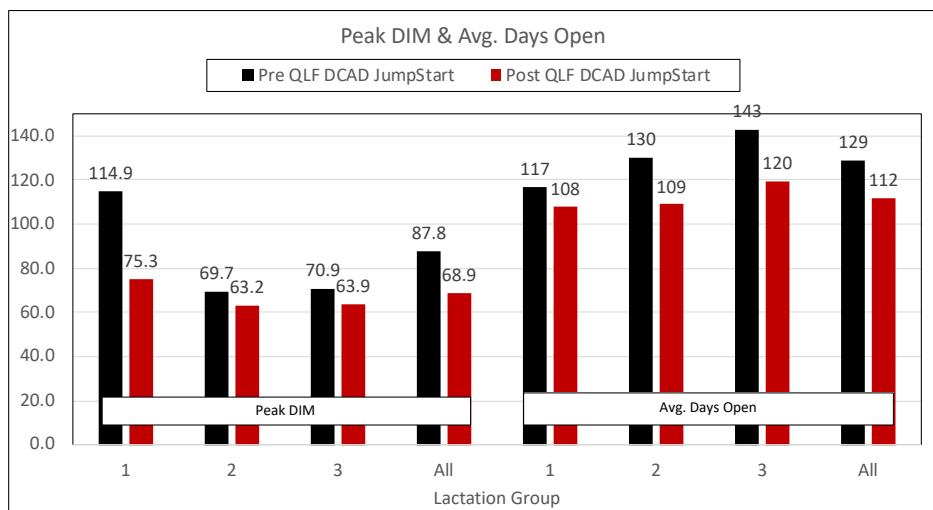
IMPROVED MILK POST-DCAD JUMPSTART

DairyComp 305 data was evaluated for the herd, to compare milk production from the Pre- and Post-DCAD Jumpstart periods. Data was categorized by lactation group (Lactation # 1, 2, 3+, or All), and Days in Milk (days 1-40, 41-100, and 101-200). All lactation groups had improved milk production post-DCAD JumpStart inclusion. Improvements in milk production for lactation groups 2 and 3+ were larger than group 1. This is to be expected, as first-calf heifers must partition energy toward growth needs in addition to milk production. Across Days 1-200, improvements in lbs of milk were +4, +9, and +13, for Lactation Groups 1, 2, and 3+ respectively.



EARLIER PEAKS, FEWER DAYS OPEN

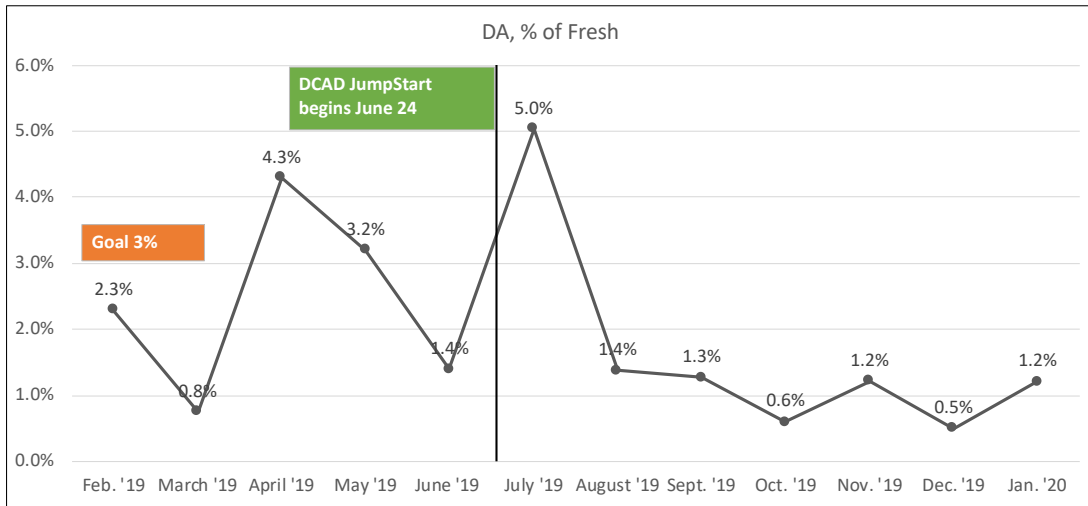
Post- DCAD JumpStart, Peak DIM was reduced for all groups. Although 1st calf heifers had the smallest increase in milk production (shown in the previous graph), they had a large reduction in days to peak. Earlier peaks are a good indicator post-calving intake and energy status in early lactation cows. Reducing days to peak extends high levels of milk and enhances overall lactation productivity. Metabolic status was improved post-DCAD JumpStart, as shown by the increase in blood calcium and % Normal Postfresh NEFA for this herd. Improved metabolic status provides more energy for maintenance, milk, and reproductive needs, resulting in more milk and fewer days open – exactly what was shown in this herd. Timely breed-backs help maintain a normal lactation efficiency and improve the cows’ long-term profitability.



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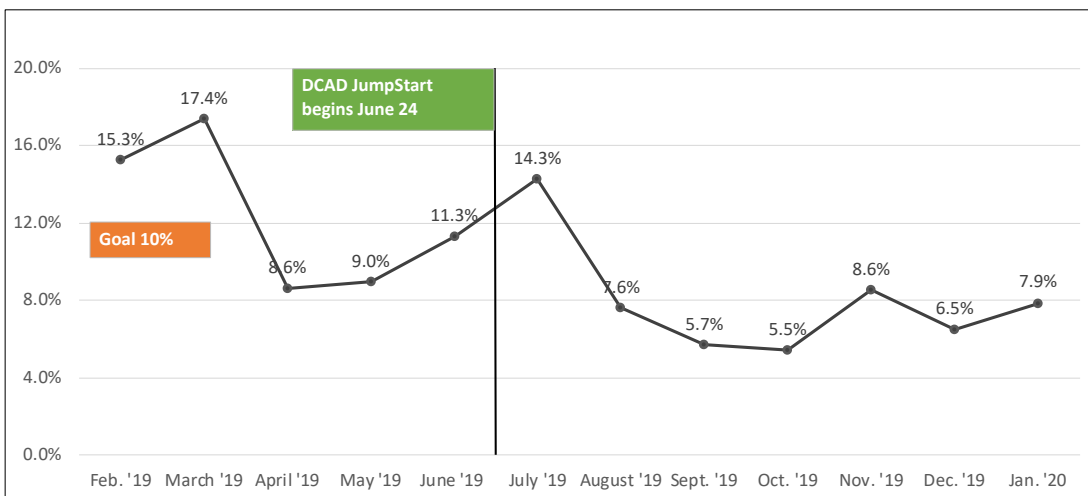
REDUCED DA'S OVER TIME

Post-DCAD JumpStart, cows had fewer DA's. The incidence of DA's was highly variable prior to DCAD JumpStart inclusion. Although the herd had an increased number of calvings post-DCAD JumpStart due to expansion, occurrence of DA's was markedly reduced after July 2019. Maximizing DMI to maintain energy status and rumen fill during the pre- and post-fresh period is essential to minimizing occurrence of DA's. During the pre-fresh period, inclusion of the DCAD JumpStart liquid supplement reduced ration sorting against long particles, as shown by the Penn State Shaker Box data in this report. Long particle consumption is key to maintaining normal cud chewing and rumen fill. Also, improving post-calving calcium metabolism helps stimulate DMI. After DCAD JumpStart inclusion, cows had increased blood calcium levels, as shown in this report. Improving pre-fresh rumen efficiency and post-fresh calcium status helps maximize DMI after calving to reduce post-calving health concerns such as DA's.



REDUCED METRITIS OVER TIME

After July 2019, metritis occurrence declined to below the goal of 10%. Very large amounts of calcium are used by the immune system around the time of calving. As shown in this report, cows had higher levels of blood calcium after DCAD JumpStart inclusion. Improving blood calcium levels post-calving helps provide more calcium to meet the cow's needs for maintenance, milk, metabolic, and immune functions.



TAKE AWAY POINTS

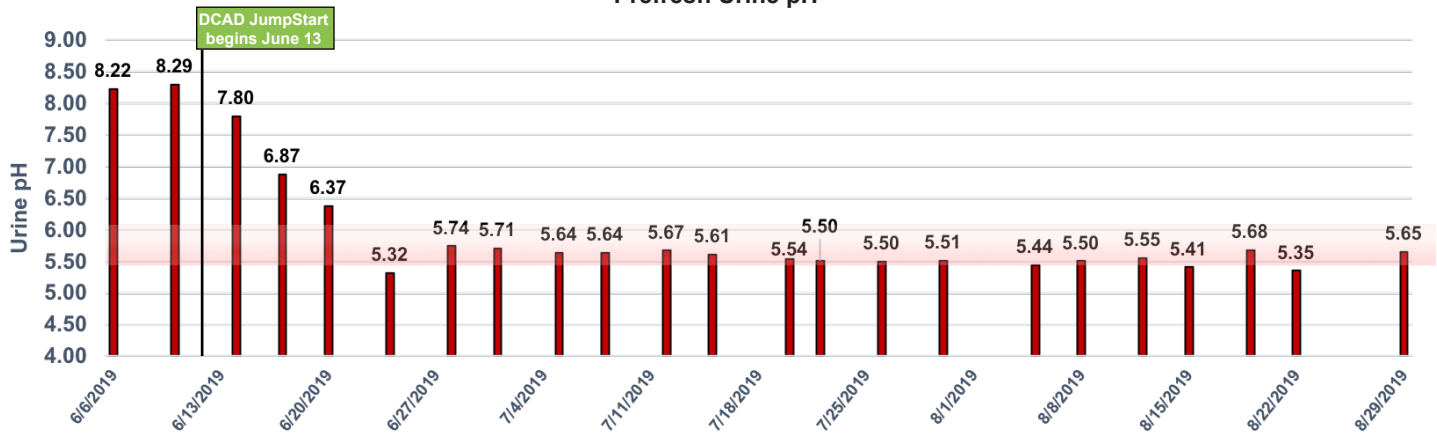
- Urine pH very consistent transitioning from previous product
- Blood Ca higher, postfresh NEFA improved
- Straw, corn silage diet showed less sorting
- Improvements in early-lactation milk production
- Fewer DA's & Less Metritis over time
- Improved calcium and metabolic status enhances cow productivity!

WISCONSIN FIELD TRIAL WITH QLF DCAD JUMPSTART

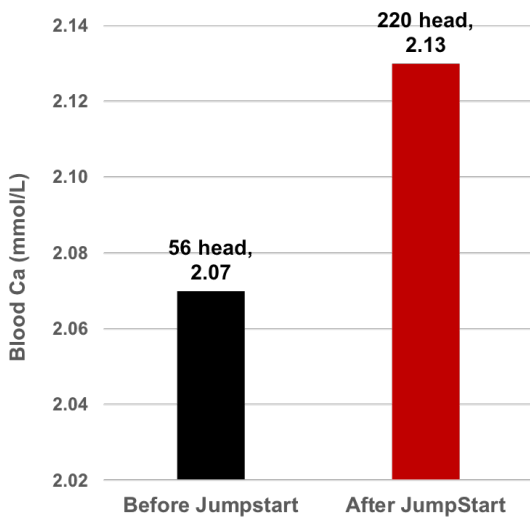
SUMMARY

A 2000 head dairy herd was started on QLF DCAD JumpStart that had not previously been on a DCAD product. The ration was balanced with corn silage, haylage, straw, a protein mix, and 4.5 lbs of JumpStart to achieve a DCAD (mEq/100 g) of -14.4. Urine pHs were read with an Apera AI311 PH60 Meter twice a week for 3 months from 20 prefresh cows (going into 2+ lactation, >6 days in prefresh group). Blood NEFAs were analyzed from animals between -21 and -2 days before actual calving date. In the postfresh group, ketones and NEFAs (7-14 DIM), and total blood Ca (0-3 DIM) were analyzed. Ketones were analyzed on site with a Precision Xtra monitor while NEFAs and Ca were analyzed by Marshfield Labs.

Prefresh Urine pH



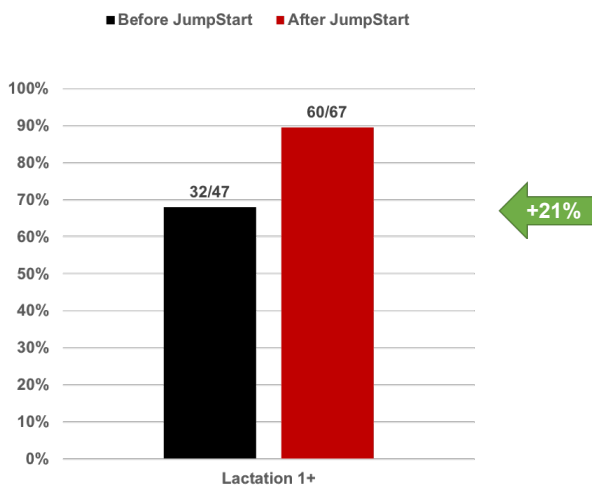
Blood Ca Before & After



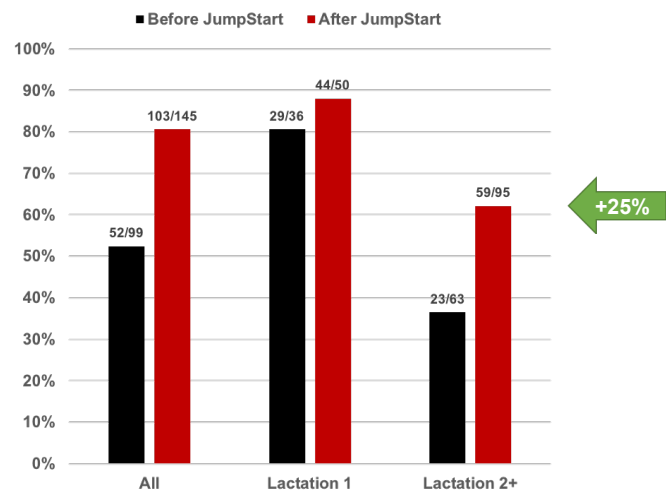
RESULTS

Animals in the prefresh group responded to JumpStart with lower urine pHs and maintained a urine pH between 5.5 and 6.0 during the trial period. Blood NEFA in the prefresh group were improved with the percent in the normal group increasing from 68 to 90%. Blood Ca in postfresh group improved with the average blood Ca increasing from 2.07 to 2.13 mmol/L. The number of animals in the normal group for blood ketones (≤ 1.1 mM) increased in both primi and multiparous animals with a 25% improvement in multiparous cows. QLF DCAD JumpStart was shown to be efficacious in lowering urine pH. This indicates a metabolic shift toward more optimal calcium regulation as shown by blood calcium data. Improved prefresh NEFA and postfresh ketones indicate improved liver and energy metabolism.

% of Cows in Normal Group for NEFA (≤ 300 mEq/L)



% of Cows in Normal Group for BHBA (≤ 1.1 mM)



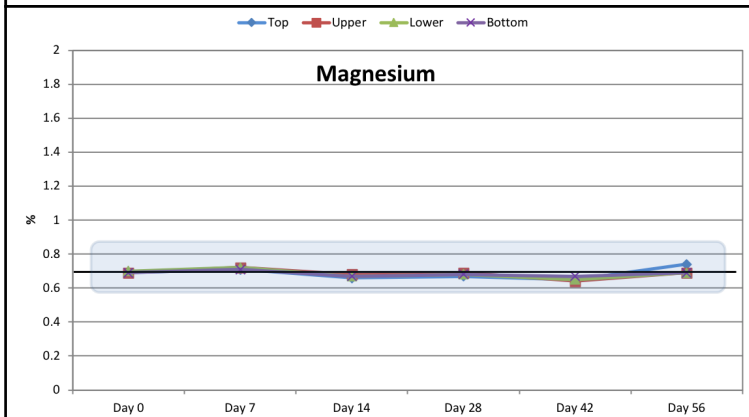
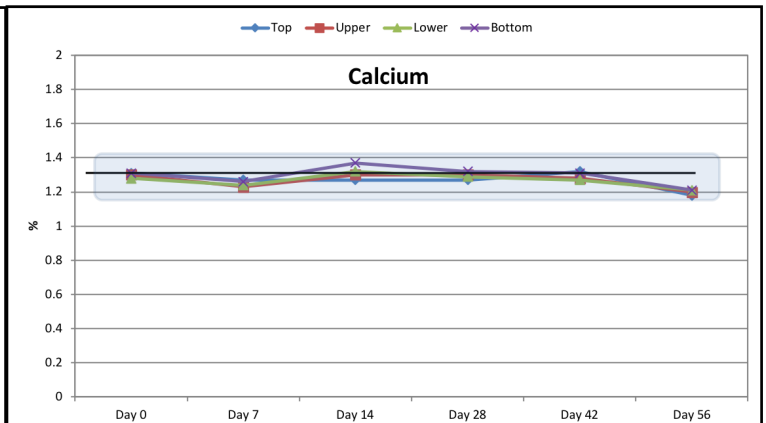
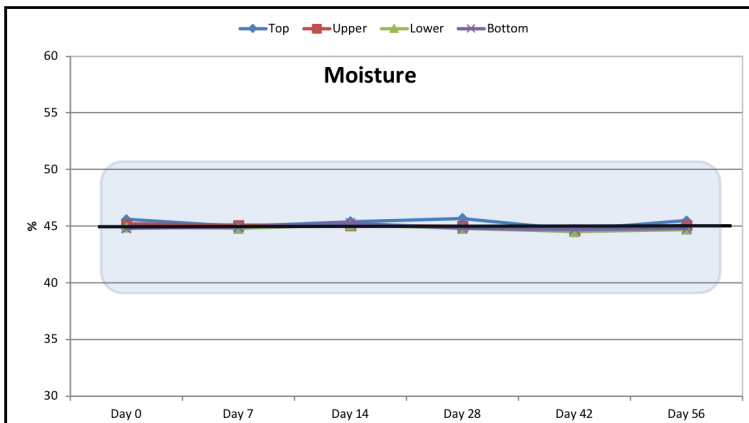
PRODUCT STABILITY EVALUATION

A test was conducted to evaluate the nutrient positional stability over time for QLF DCAD JumpStart. This evaluation emulated the manufacture, handling, and inventory turnover of customer-purchased feed as closely as possible.

- 6 tons were manufactured at QLF's Menomonie, WI location (50 dry cows*4 lb/d*60 days)
- Product was hauled 200 miles to storage tank location.
- Product was stored in a 1500 gallon poly tank with auxiliary sampling ports.
- Product was not recirculated during the inventory period.
- Nutrients were analyzed with wet chemistry methods at SDK Laboratories (Hutchinson, KS).
- In the graphs below, product nutrient specifications are shown in the horizontal black line.



AAFCO normal analytical variations are shown in the shaded gray boxes.



- Molasses-based anionic liquid supplements are a complex matrix to analyze. They may show minor nutrient fluctuations due to inherent variation in laboratory nutrient analyses.
- Across sampling dates & tank ports, nutrients were very similar to product specifications.
- Over time, nutrient analyses remained simple to initial Day 0 analyses.
- Nutrients within DCAD JumpStart are positionally stable throughout the recommended inventory period

