#ScienceHearted

Optimize the rumen and milking string performance.

The rumen is one of the most important compartments of the dairy cow's digestive tract, as it can dictate what nutrients are going to reach the cow's intestine for absorption. If the rumen is working optimally, it will maximize the conversion and delivery of forages and feeds into usable energy and nutrients needed for peak milk production.

QUALITY, CONSISTENT BUFFERING

Today's highly fermentable ration formulations can result in an acidic rumen environment. Most often cows are unable to produce enough of their own natural buffer—saliva— to prevent acid buildup in the rumen. Acid buildup in the rumen results in poor fermentation efficiency and leads to more serious and economically important concerns, such as reduced milk fat production, laminitis and reduced feed efficiency.

Buffering the rumen is a way to prevent large fluctuations in rumen pH and to maintain pH at acceptable levels.

ARM & HAMMER™ Rumen Buffers can help:

- Stabilize the rumen environment
- Improve feed efficiency
- Enhance dry matter intake
- Increase milk and component production
- Improve Income Over Feed Cost (IOFC)

When fed at the recommended rate, ARM & HAMMER Rumen Buffers provide the buffering needed to maintain rumen pH above 6.0 and out of the danger zone for chronic acidosis.

RUMEN BUFFERS BOOST RATION DCAD.

Once the rumen is stabilized, rumen buffers increase ration sodium levels to boost ration Dietary Cation-Anion Difference (DCAD).

- When higher levels of sodium and potassium are provided in lactating diets, dry matter intake and milk and component production can be optimized.
- ARM & HAMMER Rumen Buffers provide the sodium your cows need to help boost ration DCAD to optimal levels[1] of +35 to +45 meq/100g ration dry matter.

Other carbonate salts, such as calcium or magnesium carbonates, do not supply the sodium needed to increase DCAD. They are insoluble in the rumen, making them ineffective direct buffers as they do not release the carbonate needed to neutralize the acids.

THE ARM & HAMMER ADVANTAGE.

ARM & HAMMER™ offers two consistent, research-proven rumen buffers. Use of these products can result in increased milk and component production and improved dry matter intake, ultimately leading to greater feed efficiency.

ARM & HAMMER Feed Grade Sodium Bicarbonate

Feed Grade Sodium Bicarbonate has long been the industry standard in rumen buffers. The buffering capabilities of sodium bicarbonate help stabilize rumen pH, increasing feed intake and improving rumen performance for enhanced productivity.

SQ-810 Sodium Sesquicarbonate

SQ-810™, naturally mined sodium sesquicarbonate, provides all the buffering capabilities of sodium bicarbonate.

FEED GRADE SODIUM BICARBONATE IMPROVES HERD PERFORMANCE[2]

Parameter	No. of Studies	Control	Sodium Bicarbonate	Difference	% Increase
3.5% FCM (lbs.)	15	63.13	66.39	3.26	5.16
Milk (lbs.)	15	63.49	65.9	2.41	3.80
Milk Fat (%)	15	3.48	3.57	0.09	2.59
DMI (lbs.)*	15	39.59	41.10	1.51	3.81
Feed Efficiency (FCM/DMI)	15	1.59	1.62	0.03	1.89

*13 of the 15 studies reported DMI.

SQ-810 IMPROVES HERD PERFORMANCE[3]

Parameter	No. of Studies	Control	SQ-810	Difference	% Increase
3.5% FCM (lbs.)	9	65.40	67.90	2.50	3.8
Milk (lbs.)	9	67.90	68.90	1.00	1.5
Milk Fat (%)	9	3.30	3.44	0.14	4.2
DMI (lbs.)	9	46.90	48.20	1.30	2.8
Feed Efficiency (FCM/DMI)	9	1.39	1.41	0.02	1.4

PROFIT POTENTIAL WITH ARM & HAMMER RUMEN BUFFERS

Rumen buffers help optimize efficiency and production levels, positively influencing IOFC. The example below shows feeding ARM & HAMMER Feed Grade Sodium Bicarbonate can result in an additional $0.26 IOFC per cow per day.

IOFC FOR USE OF ARM & HAMMER SODIUM BICARBONATE[2]

Sodium Bicarbonate fed, lbs./cow/day	0.43 lbs.
FCM response to Sodium Bicarbonate lbs./cow/day	3.26 lbs.
Cost of Sodium Bicarbonate, $/cow/day	($0.07)
Extra Ration Cost for Increased Milk, $/cow/day*	($0.19)
Value of Increased Milk, $/cow/day**	+$0.52
Total Cost (Sodium Bicarbonate + extra feed)	($0.26)
Net IOFC from Investment in Sodium Bicarbonate	+$0.26
Break-even production required lbs./cow/day***	0.44 lbs.

* Assumed ration cost of $5.90/cwt milk.
** Assumed milk price of $16/cwt.
*** 0.44 lbs. of milk at $16/cwt covers the $0.07 cost of Sodium Bicarbonate.

FEEDING RECOMMENDATIONS

Utilize one of the following guidelines for formulating rations with ARM & HAMMER Rumen Buffers:

- Feed 0.8 oz. of buffer for every 10 lbs. of milk produced per cow.
- Multiply the amount of grain fed in the diet by 1.5% to calculate the amount of buffer to be fed.
- Feed buffer at a rate of 0.75% of the total mixed ration on a dry matter basis (15 lbs. per ton).

To learn more about supplying the right rumen buffer to your herd contact your nutritionist, veterinarian or ARM & HAMMER representative or visit AHfoodchain.com.

1 Arm & Hammer Animal Nutrition. DCAD Nutrition for Dairy Cattle Research Summary. PC 2063-1003, 2010.
2 Arm & Hammer Animal Nutrition. Decision Analysis Program for Feed Inputs by Dr. David Galligan, University of Pennsylvania School of Veterinary Medicine, © 2000 Church & Dwight Co., Inc. Version 2.
3 Seven published research studies and two research reports: Data on file.