

Advance[®]

RuMin 8[®]

MSC Specialty Nutrition

RuMin 8[®]

What is It?

- Soluble sugars
 - Provide rapidly available energy for the rumen microbial population.
- Organic (carboxylic) acids
 - Increase uptake and utilization of lactate
 - Help maintain rumen pH.
- Mineral salts
 - Enhance rumen fluid dilution rate.

What are the Benefits of RuMin 8?

- Improved dietary protein and energy utilization
 - More efficient use of feed by the cow
 - Reduced nitrogen excretion into environment
 - Increased milk production
- Reduced subclinical acidosis
 - Increased dry matter intake
 - Improved animal health

How Does RuMin 8 Work?

- Provides nutritional substrates to promote growth of the rumen microbes
 - Increased rumen fermentation efficiency
- Aids in synchronizing protein and energy digestion rates for optimal rumen fermentation
- Alters metabolism of key rumen bacteria
 - Decreased lactic acid production
 - Increased conversion rate of lactic acid to volatile fatty acids

Diets with a positive response

- Diets low in highly fermentable carbohydrates
 - Dry, mature corn silage and corn grain (kernels passing thru undigested)
- Diets high in soluble protein, non-protein nitrogen, rumen available N
 - Supplemental urea and alfalfa silage
- Herds with elevated milk urea nitrogen values
- Response observed within 3 weeks

Relative rates of rumen degradation of common NFC and protein sources

	<u>Energy Sources</u>	<u>Protein Sources</u>
Faster	Sugar	Urea (High Sol. Protein)
	Wheat flour	Hay silage
	Bakery product	Wheat midds
	High-moisture corn	Corn gluten feed
	Steam-flaked corn	Canola meal
	Ground barley	Soybean meal
	Ground corn	Heat-treated soybean
	Ground sorghum	Distillers grains
Slower		Corn gluten meal

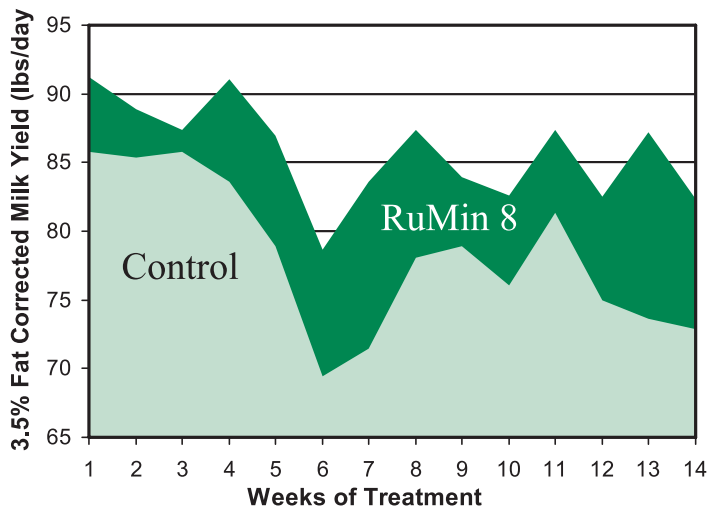
de Ondarza, 1999

Maximizing Rumen Efficiency

- Match digestion rates of energy and protein sources
 - Many diets are deficient in highly fermentable energy sources
- Improve rumen environment
 - Reduce lactic acid production
 - Increase conversion rate of lactic acid into VFAs

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Effect of RuMin 8 on Fat-Corrected Milk



RuMin 8 increased 3.5% FCM an average of 7.5 lb/d.

Basal Diet: 19% CP, 0.79 Mcal/lb NE_l, 30% NDF, 40% NFC, Alfalfa-based ration

Cornell University site; Vicini et al., 2003

Results - Rumen Values

Fermentation Product	RuMin 8 (lb/d)		
	0	0.34	0.5
pH	5.92	5.96	5.96
Acetate, mM	53.6 ^a	62.5 ^b	64.5 ^b
Propionate, mM	13.2 ^a	17.5 ^b	18.1 ^b
Butyrate, mM	20.4 ^a	19.1 ^{a,b}	18.1 ^b
Total VFA, mM	89.5 ^a	101.1 ^b	102.5 ^b
H ₂ , mM	0.2 ^a	0.1 ^b	0.1 ^b
Lactate, mg/L	31.9	29.0	27.5

With RuMin 8, numerical increase in pH and decrease in lactate concentration.

24-h in vitro fermentation of soluble starch by mixed ruminal microorganisms.

Martin et al., 2000

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Economics

	- RuMin 8	+ RuMin 8
Cost of RuMin 8 (½ lb)		0.20
Cost of corn (½ lb)	0.06	

Additional \$0.14/ cow/d in feed cost.

At \$20/cwt, a cow has to make just 0.7 lb of milk to break even.

Most herds respond with an average increase in milk of 3 to 5 lb/cow/d.

Additional Milk	ROI
3 lb	4:1
4 lb	6:1
5 lb	7:1

Summary – Benefits of RuMin 8[™]

- Provides nutrients to:
 - Increase efficiency of dietary protein and energy utilization
 - Increase milk production
 - Reduce subclinical rumen acidosis
- Response observed within 3 weeks
- Most herds respond with a 3 to 5 lb/cow/d increase in milk production.
- Easy to use and highly palatable