

RUMENSIN® SUPPLEMENTATION IN LACTATING DAIRY COWS ALLOWS FOR ENERGY EQUIVALENCY BENEFITS

Rumensin is approved for improving milk production efficiency* (MPE) in lactating dairy cows. Rumensin reduces the concentrations of acetate- and butyrate-producing bacteria, thereby increasing concentrations of propionate-producing bacteria. Producing propionate is a more efficient use of feedstuffs because there is a reduction in the amount of energy wasted as carbon dioxide and methane. Therefore the cow can more efficiently metabolize carbohydrates and get more energy from the ration.

Rumensin nine-trial registration summary¹

818 Holstein cows, 4 treatments:

- Control (0 g/ton Rumensin)
- 7 g/ton Rumensin[†]
- 15 g/ton Rumensin
- 22 g/ton Rumensin

Rumensin-supplemented cows produced similar amounts of solids-corrected milk (SCM) while consuming less feed and maintaining similar body condition and body weights.

Calculation of energy density in the ration

Diets for all treatments had the same calculated energy content (isocaloric), with the only dietary differences among treatments being Rumensin levels. By altering bacterial populations, Rumensin provided dose-related additional energy to the diet. The predicted energy density of the diet was determined by the following equation:

$$\text{Energy Density} = \frac{\text{SCM Energy} + \text{NE}_M \pm \text{Energy for BW Change}}{\text{Dry Matter Intake (DMI)}}$$

ESTIMATED INCREASE IN RATION ENERGY DENSITY WITH RUMENSIN

Rumensin g/ton	Predicted energy density (Mcal/lb)	Percentage of change over control
0	0.689	—
7 [†]	0.695	0.9
15	0.707	2.6
22	0.717	4.1

Key messages

- The extra energy a cow gets from a diet with Rumensin is equivalent to the energy in 1.0 to 2.0 pounds of corn, depending on Rumensin dose, and these numbers make it easier to visualize the energy a cow gets from a diet with Rumensin
- Adding Rumensin to the diet will increase MPE* by 2 to 4 percent
- Additional energy generated from Rumensin is beneficial at all stages of lactation
- On average, Rumensin provides a 5:1 return on investment

Using corn as a currency, what is additional energy from Rumensin worth?

Based on the predicted energy densities for the control and Rumensin-supplemented diets and assuming a 60-pound dry matter intake (DMI), the additional energy Rumensin provides can be equated to the energy of adding increasing amounts of corn as predicted by the following equation:

$$\text{Corn Equivalent Pounds} = \frac{\text{(Increased Mcal/lb from Rumensin * DMI lb/day)}}{0.885 \text{ NE}_L \text{ Mcal/lb of corn} / 88\% \text{ DM to as-fed}}$$

CORN-EQUIVALENCY BASIS OF RUMENSIN SUPPLEMENTATION

Rumensin g/ton	Predicted energy density (Mcal/lb)	Corn equivalent needed to obtain added energy (lb/day as fed) (assumes 60 lb DMI)
0	0.689	—
7 [†]	0.695	0.5
15	0.707	1.4
22	0.717	2.2

Assuming cows eat 60 pounds DMI, the extra energy a cow gets from a diet with Rumensin is similar to the energy a cow would get in 1.0 to 2.0 pounds of corn.

*Production of marketable solids-corrected milk per unit of feed intake.
[†]Not an approved dose.

The first FDA-approved feed ingredient for MPE*

- Rumensin delivers more milk per pound of feed for just pennies per head per day²
- Rumensin increases MPE* throughout lactation³
- Rumensin meets the U.S. Food and Drug Administration's stringent standards for effectiveness and animal, environmental and human food safety
- On average, Rumensin provides a 5:1 return on investment

Feeding Directions

Dairy cows: For increased milk production efficiency (production of marketable solids-corrected milk per unit of feed intake): Total Mixed Rations ("complete feed"):

Feed continuously to dry and lactating dairy cows a total mixed ration ("complete feed") containing 11 to 22 g/ton monensin on a 100% DM basis.

Component Feeding Systems

(including top dress): Feed continuously to dry and lactating cows a Type C medicated feed containing 11 to 400 g/ton monensin. The Type C medicated feed must be fed in a minimum of 1.0 lb of feed/cow/day to provide 185 to 660 mg/hd/day monensin to lactating cows or 115 to 410 mg/hd/day monensin to dry cows. This provides cows with similar amounts of monensin they would receive by consuming total mixed rations containing 11 to 22 g/ton monensin on a 100% DM basis.

For additional product information or to report a suspected adverse event associated with the use of this product, call 1-800-428-4441.

Summary

The added energy from a diet with Rumensin, based on predicted energy density, would be approximately 0.9 Mcal added to the ration assuming a cow is eating 60 pounds DMI. In nutrition there are few options to provide a cow with extra energy without changing the nutrient or chemical composition of the ration.

Application of replacing corn with Rumensin in dairy cow diets is limited. Expression of added energy a cow gets from a diet containing Rumensin on a corn equivalency basis is hypothetical, and we have no research to support replacing corn with Rumensin.

The limitations of replacing corn with Rumensin include but are not limited to:

- Empty space in the ration left by corn would have to be replaced with another ration ingredient, possibly a bulky forage
- Drastically changing the physical form of the diet could limit DMI, especially in diets that are already high in forage or in cows in early lactation

Therefore, the recommendation is to use Rumensin in any ration, allowing the cow to get more energy, and use the extra energy as she needs, primarily for MPE.*

The additional energy a cow gets from a ration with Rumensin is beneficial at all stages of lactation.

Conclusions

- "Corn equivalency" is a hypothetical estimate of the energy equivalence of Rumensin
 - It is another way for the nutritionist to think about what Rumensin provides
- Corn equivalency is not meant to be used to make ration recommendations, e.g. replacing corn with Rumensin
 - There is no research supporting removing corn from the diet and replacing it with Rumensin to achieve the same results
- Energy equivalency is a key consideration to keep in mind, regardless of current feed prices
 - Rumensin's mode of action is constant
 - The additional energy a cow gets from a ration with Rumensin is beneficial at all stages of lactation

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

CAUTION: Consumption by unapproved species or feeding undiluted may be toxic or fatal. Do not feed to veal calves.

*Production of marketable solids-corrected milk per unit of feed intake.

¹NADA 095-735, Elanco Animal Health.

²Symanowski JT, Green HB, Wagner JR, et al. Milk production and efficiency of cows fed monensin. J Dairy Sci. 1999;82(Suppl 1):171.

³Elanco Animal Health. Data on file.

