# HOW TO GET THE MOST OUT OF RUMENSIN®

Elanco

Rumensin®

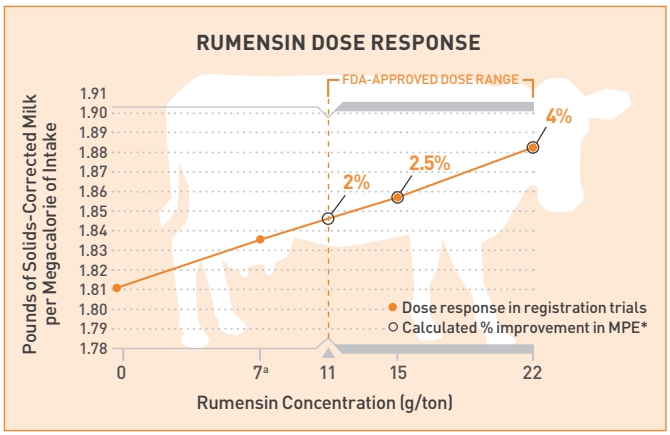

Elanco

**Rumensin® means greater milk production efficiency (MPE)* — up to 4% more energy per pound of feed, for a return on investment of at least 5:1. The higher levels of Rumensin you use, the greater results you will receive. Understanding and following the recommended dose of Rumensin will allow you and the dairy cows you manage to maximize the potential of your feed.**

# OPTIMIZING YOUR DOSE TO HELP REACH HER FULL POTENTIAL

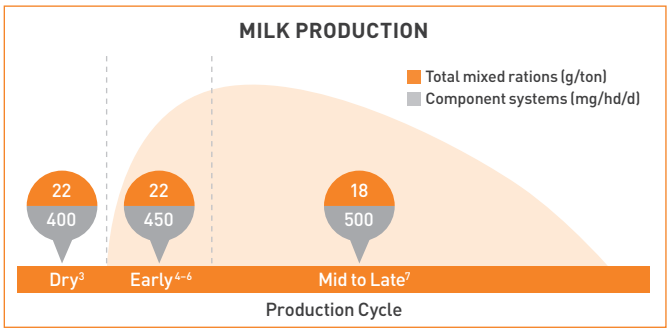
- Rumensin provides a linear dose response — as your dose increases, MPE* increases by 2% to 4% (Figure 1)[1]
- MPE*† improvements are linear in a dose range of 11 to 22 g/ton (Figure 2)[1]
- Registration studies† performed from 1994 to 1997 reported a decrease in milk fat percentage with an increase in Rumensin dose, but nutrition and management practices have since improved. Current science demonstrates that milk fat levels can be managed when feeding Rumensin at all labeled doses‡[2]
- Multiple studies support these dose recommendations of Rumensin during the lactation cycle (Figure 2)[3–7]

**Figure 1.**




[a]Not an approved dose.

**Figure 2.**




*Production of marketable solids-corrected milk per unit of feed intake.
†The Rumensin label states that you may notice reduced milk fat percentage in dairy cows fed monensin. This reduction increases with higher doses of monensin fed.
‡There was no effect on milk fat yield in these studies.

# STUDIES SUPPORTING THE RECOMMENDED DOSAGE OF RUMENSIN®

## STUDY 1: The effects of Rumensin in different dry cow diets[3]

### Objectives

Determine the effects of supplementing 22 g/ton Rumensin during the prepartum period in a single-group (1-group) versus a traditional 2-group dry cow diet on MPE and lactation performance (Figure 3).

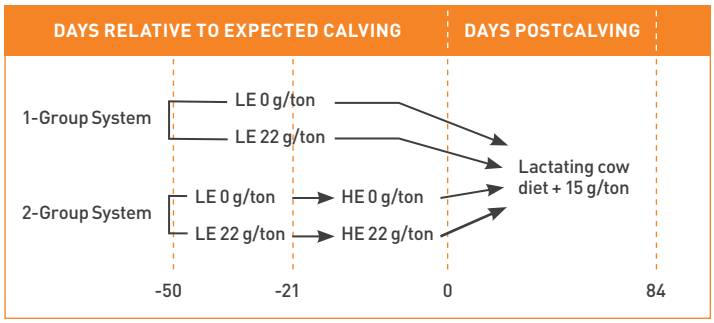
### Key Observations

This study was the first to investigate the effect of prepartum Rumensin on postpartum performance.

Regardless of whether cows were in the 1-group or 2-group dry cow system, supplementation of 22 g/ton Rumensin during the dry period:

- Increased yields of solids-corrected milk (SCM), milk fat, milk lactose and total milk solids (Figure 4)
- Did not affect SCM/dry matter intake (DMI)
- Increased concentrations of ruminal propionate and decreased concentrations of acetate around parturition, which supports Rumensin's mode of action

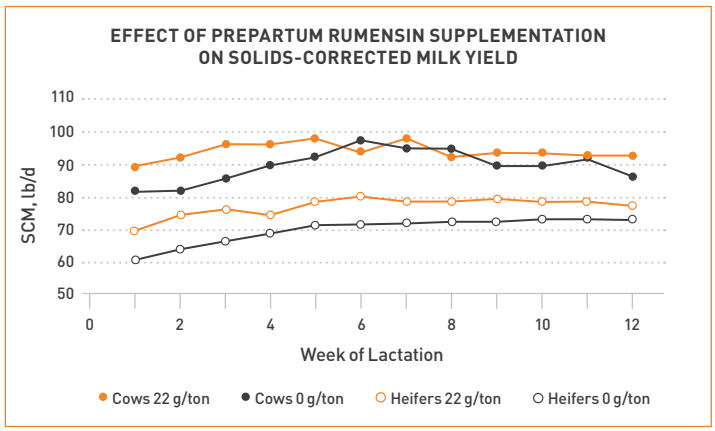
**Figure 3.**




LE = low energy, HE = high energy.

Cows dried off 50 days prior to expected calving, moved to dry cow freestall barn; heifers moved to same barn at least 50 days before expected calving date; all animals housed together with individual Calan feed gates. After calving, all animals housed in tie-stalls through 84 days in milk (DIM). Individual DIM determined daily both pre- and postpartum; BCS and BW determined weekly. Individual milk weights collected three times per day; samples collected weekly for milk composition.

**Figure 4.**




SEM = 3.1 lbs/d for cows, 4.2 lbs/d for heifers. Effect of prepartum Rumensin ($P = 0.018$), parity ($P < 0.01$), week ($P < 0.01$), Rumensin x parity x week ($P = 0.39$).

# STUDY 2: Effects of increasing dose of Rumensin® in early lactation dairy cow diets[4]

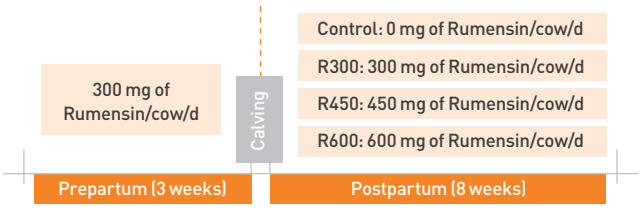
## Objectives

Demonstrate that increasing the dose of Rumensin in the diet of early lactating cows (Table 1) is associated with an increased rate of recovery of DMI and milk yield.

## Key Observations

- DMI increased linearly with increasing doses of Rumensin (Table 2)
- Milk yield and milk fat yield (pounds per day) were greatest at 450 mg of Rumensin per cow per day
- Milk fat percentage tended to decrease linearly with increasing Rumensin amounts
- Milk protein percentage was not affected by treatment, but milk protein yield was greatest at the 450 mg dose
- 3.5% fat-corrected milk production efficiency was not affected by treatment

**Table 1.**




- 53 Holstein cows, blocked by body weight and milk yield from previous lactation
- Cows fed same basal diet with Rumensin treatments topdressed 2x daily
- Individual milk production and DMI measured daily, with milk composition collected weekly

**Table 2.**

| | TREATMENTS | | | | | CONTRAST,* *P* = | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CONTROL | R300 | R450 | R600 | SEM | RUMENSIN | LINEAR | QUAD | CUBIC |
| Milk, lb/d | 91.4 | 95.8 | 108.5 | 95.0 | 4.27 | 0.12 | 0.22 | 0.05 | 0.09 |
| DMI, lb/d | 41.8 | 44.9 | 48.2 | 46.2 | 1.74 | 0.03 | 0.04 | 0.16 | 0.52 |
| 3.5% FCM,† lb/d | 94.3 | 93.3 | 108.4 | 91.0 | 4.40 | 0.62 | 0.80 | 0.08 | 0.02 |
| Efficiency‡ | 2.11 | 1.97 | 2.06 | 1.90 | 0.09 | 0.19 | 0.20 | 0.91 | 0.25 |
| Fat, % | 3.78 | 3.45 | 3.52 | 3.36 | 0.14 | 0.05 | 0.06 | 0.57 | 0.33 |
| Fat, lb/d | 3.36 | 3.20 | 3.79 | 3.08 | 0.17 | 0.84 | 0.72 | 0.12 | 0.01 |
| Protein, % | 2.78 | 2.84 | 2.82 | 2.78 | 0.05 | 0.33 | 0.93 | 0.30 | 0.75 |
| Protein, lb/d | 2.51 | 2.67 | 3.03 | 2.59 | 0.11 | 0.06 | 0.26 | 0.01 | 0.06 |

*Rumensin = control vs. Rumensin treatment.
†Fat-corrected milk.
‡FCM/MDI.

# STUDY 3: Dietary starch level and supplementation with Rumensin® during early lactation[5,6]

## Objectives

Determine if increasing starch content (21.5% or 26.0%) and/or feeding Rumensin during early lactation would increase energy supply and enhance milk production (Figure 5).

## Key Observations

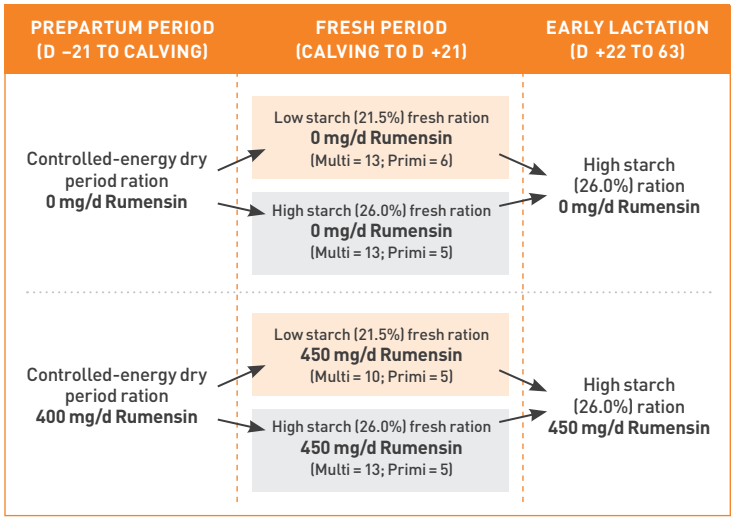
Feeding greater starch (26.0% vs. 21.5%) resulted in:

- More rapid increase in milk production
- More rapid increase in DMI as % of body weight

Feeding Rumensin resulted in (effects were independent of starch amount in diet):

- Increase in milk production (Figure 6)
- More rapid increase in DMI (Figure 7)
- Increased propensity of liver to convert propionate to glucose (Figure 8)

**Figure 5.**




Rumensin delivered as a topdress to assure intake.

**Figure 6.**

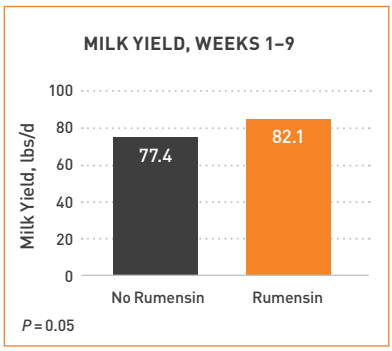



**Figure 7.**

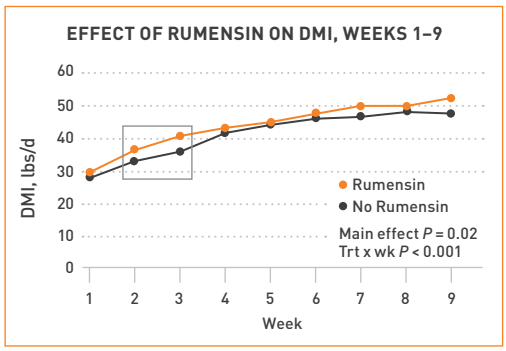
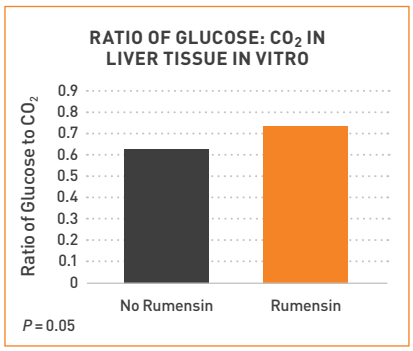



**Figure 8.**

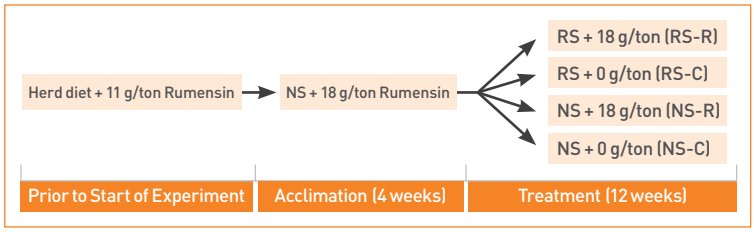


# STUDY 4: Effects of Rumensin® in mid- to late-lactation cow diets with differing starch amounts[7]

## Objectives

Evaluate the effect of including Rumensin (R; 18 g/ton) or control (C) in a normal (NS; 27%) or reduced (RS; 20%) starch diet on MPE* during mid- to late lactation (90 +/- days in milk (DIM)) (Figure 9).

**Figure 9.**




## Key Observations

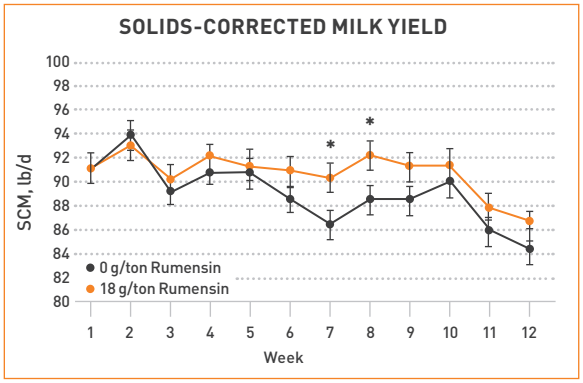
Few starch by Rumensin interactions existed.

Across starch treatments, dietary inclusion of 18 g/ton Rumensin resulted in:

- Increased SCM yield (Figure 10)
- Reduced DMI
- Improved MPE (as measured by SCM yield/DMI) (Figure 11)

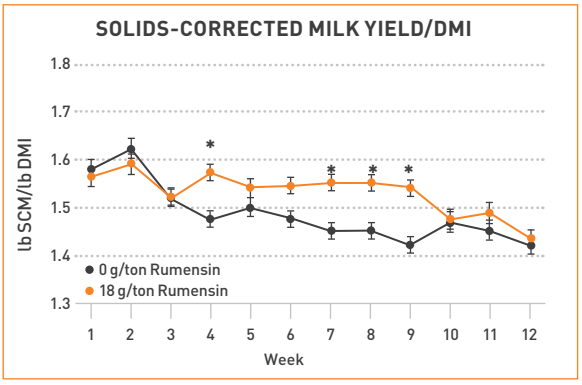
**This study demonstrated that Rumensin was effective in NS or RS diets.**

**Figure 10.**




Rumensin x week, $P = 0.02$, SEM = 1.2 lb.
Means within the same week were significantly different at $P \leq 0.05$ (*)

**Figure 11.**



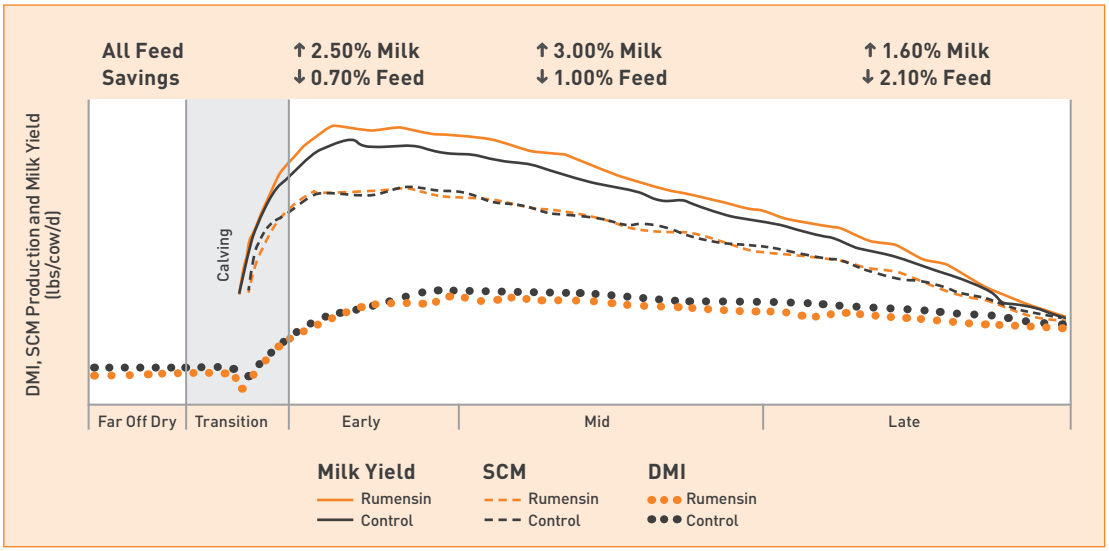

Rumensin x week, $P < 0.01$, SEM = 0.02
Means within the same week were significantly different at $P \leq 0.05$ (*)

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

# WORK WITH YOUR NUTRITIONIST TO OPTIMIZE RUMENSIN® TO GET THE MOST OUT OF YOUR FEED

- As your dose increases within the labeled dose range, so does your MPE* — by as much as 2% to 4%[1] across the lactation period (Figure 12) — which could mean at least a 5:1 return on your investment[2]
- Rumensin has been approved by the FDA for use in dairy cows since 2004
- Rumensin helps prevent coccidiosis in calves and heifers
- Dairy heifers get more energy from Rumensin-supplemented feed, freeing up nutrients for growth and development
- All dairy animals can benefit from Rumensin — it is a proven, cost-effective tool to help improve the performance of cows, replacement heifers and calves every day of the year

**Figure 12.**




**For more information on the optimal use of Rumensin, contact your Elanco representative.**

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


# Directions for use

**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.

**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.

**Growing beef steers and heifers on pasture (stocker, feeder, and slaughter) or in a dry lot, and replacement beef and dairy heifers**

**For increased rate of weight gain:** Feed 50 to 200 mg/hd/day in at least 1.0 lb of Type C Medicated Feed. Or, after the 5th day, feed 400 mg/hd/day every other day in 2.0 lbs of Type C Medicated Feed. The Type C Medicated Feed must contain 15 to 400 g/ton of monensin (90% DM basis). Do not self feed.

**For the prevention and control of coccidiosis due to *Eimeria bovis* and *Eimeria zuernii*:** Feed at a rate to provide 0.14 to 0.42 mg/lb of body weight/day, depending upon severity of challenge, up to a maximum of 200 mg/hd/day. The Type C Medicated Feed must contain 15 to 400 g/ton of monensin (90% DM basis).

**Type C free-choice medicated feeds:** All Type C free-choice medicated feeds containing Rumensin must be manufactured according to an FDA-approved formula/specification. When using a formula/specification published in the Code of Federal Regulations (CFR), a Medicated Feed Mill license is not required. Use of Rumensin in a proprietary formula/specification not published in the CFR requires prior FDA approval and a Medicated Feed Mill License.

**Calves (excluding veal calves)**

**For the prevention and control of coccidiosis due to *Eimeria bovis* and *Eimeria zuernii*:** Feed at a rate of 0.14 to 1.00 mg/lb of body weight/day, depending upon severity of challenge, up to a maximum of 200 mg of monensin/hd/day. The monensin concentration in Type C medicated feed must be between 10 and 200 g/ton.

[1]Elanco Animal Health. Data on file.
[2]Elanco Animal Health. Data on file.
[3]Vasquez JA, McCarthy MM, Richards BF, et al. Effects of prepartum diets varying in dietary energy density and monensin on early-lactation performance in dairy cows. J Dairy Sci. 2021;104(3):2881-95. Available at: https://doi.org/10.3168/jds.2020-19414. Accessed: November 2021.
[4]Schroeder GF, Strang BD, Shah MA, et al. Effects of increasing level of monensin on dairy cows in early lactation. J Dairy Sci. 2009;Vol. 92 E-Suppl. 1 Abstract #T279.
[5]McCarthy MM, Yasui T, Ryan CM, et al. Performance of early lactation dairy cows as affected by dietary starch and monensin supplementation. J Dairy Sci. 2015;98(5):3335-50.
[6]McCarthy MM, Yasui T, Ryan CM, et al. Metabolism of early lactation dairy cows as affected by dietary starch and monensin supplementation. J Dairy Sci. 2015;98(5):3351-65.
[7]Akins MS, Perfield KL, Green HB, et al. Effect of monensin in lactating dairy cow diets at 2 starch concentrations. J Dairy Sci. 2014;97(2):917-29.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