



Rumensin approved for lactating dairy cow rations

T. R. Overton and L. E. Chase
Department of Animal Science
Cornell University

Take home messages

- Elanco announced on November 3, 2004 that Rumensin (monensin sodium) has been approved by the Food and Drug Administration for use in rations for lactating dairy cows in the U.S.
- The claim approved by FDA is the use of Rumensin to increase milk production efficiency (calculated as marketable solids-corrected milk divided by total NE_L intake (adjusted for body-weight change). On a practical basis, this is most easily expressed as milk production divided by dry matter intake.
- The submission to FDA contained data from nine trial sites in North America involving 818 Holsteins (290 primiparous and 528 multiparous cows) in which Rumensin was fed at 0, 7, 15, or 22 g/ton of complete diet (DM basis) from 21 days before expected calving through a full lactation and into a subsequent lactation.
- The increase in milk production efficiency is supported by slightly increased production of solids-corrected milk with slightly reduced DMI as the feeding rate of Rumensin increases.
 - DMI decrease is more likely to occur in cows during middle and later lactation than during early lactation
- The approved dose range is 11 to 22 g/ton of total diet (DM basis). This translates into approximately 12 to 24 ppm (mg/kg) of total diet (DM basis) fed both during the dry period and lactation. Relationships between dry matter intake level and concentrations are in Table 1 below. We recommend a rate of 22 g/ton (24 ppm) for closeup or one-group dry cow diets, approximately 15 g/ton (16 ppm) for fresh cow diets, and 11 g/ton (12 ppm) for high cow diets and beyond in order to achieve total Rumensin intakes in the range of 270 to 320 milligrams (mg) per day in the total mixed ration.
- Collectively, the data indicate variable responses of milk fat content and yield to Rumensin supplementation.
 - Effects on milk fat appear to be minimal during early lactation
 - During mid- and later lactation, more risk of decreased milk fat content (due to slower rates of rumen biohydrogenation and passage of more intermediates such as trans-10, cis-12 conjugated linoleic acid (CLA) that are known to directly inhibit milk fat synthesis
 - Effects on milk fat are less likely at lower doses (11 g/ton) of Rumensin than at higher doses
 - Given the small increase in milk yield expected by supplementation with Rumensin, any decrease in milk fat content (~ 0.1 percentage units or more) has dramatic effects on the economics of Rumensin use
 - Effects on milk fat should be known within 7 to 10 days of the start of Rumensin supplementation.



Table 1. Effects of dry matter intake and dosage rate on amount of Rumensin delivered in the total mixed ration

Dry matter intake	Dosage rate		
	11 g/ton (12 ppm)	15 g/ton (16 ppm)	22 g/ton (24 ppm)
20 lbs	109 mg/day	145 mg/day	218 mg/day
30 lbs	163 mg/day	218 mg/day	326 mg/day
40 lbs	218 mg/day	290 mg/day	435 mg/day
50 lbs	272 mg/day	363 mg/day	544 mg/day
60 lbs	326 mg/day	435 mg/day	653 mg/day

