



Novichol[®]

Rumen By-Pass Choline

The availability of some nutrients is a known challenge in ruminant nutrition. Many nutrients are already degraded before reaching the small intestine. To meet the cow nutrients requirements and to maximize its production potential, some nutrients deficiencies should be corrected. One of the most efficient way of correcting these deficiencies is through the addition of small amounts of these nutrients in a rumen-protected form.

Innovad[®] special coating technique is based on advanced technology involving synchronized spray cooling of a composite matrix of primarily selected long chain fatty acids. This technique assures that the maximum amount of protected nutrients is able to by-pass rumen fermentation and remains available at the small intestine. The coating protects nutrients from oxidation, pH, light and makes the product free flowing and non-hygroscopic.

Choline

After a cow calves there is a rapid change in a cow's metabolic demands. There is a two-fold increase in her energy requirements and this causes a negative energy balance (NEB). The lipid mobilization from adipose tissue starts and as a result, blood nonesterified fatty acid (NEFA) concentrations typically increase 5- to 10-fold. NEFA concentration and blood flow to the liver are the two biggest factors affecting how much NEFA is taken up by the liver. The liver can't cope with the increased load of fatty acid to the liver.

Ruminants have a low capacity to export fat from the liver as VLDL as compared to nonruminants. This and the inability to markedly increase fatty acid oxidation is why transition dairy cattle develop fatty liver when experiencing elevated blood NEFA.

It is now apparent that choline deficiency is the limiting factor for VLDL export from the liver. The rate of VLDL export is highly related to the rate of phosphatidylcholine synthesis. Choline is a precursor for phospholipids, an essential component of lipoproteins.

PRODUCT INFORMATION

09/2014

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When animals are deficient in choline they are prone to fatty livers. Choline could also spare methionine (10g of choline would provide the equivalent methyl groups found in 44g of methionine).

Benefit Novichol

- improved liver function
- reduced incidences of fatty livers
- milk fat content
- has a sparing effect on Methionine
- reduced incidences of clinical ketosis and mastitis
- increased dry matter intake



Feeding instructions

- **Dairy cows:** 20-80 gram per head per day
- **Beef:** 5-20 gram per head per day

Novichol® is a 25% concentrated choline chloride product in a rumen protected form.

Each 1000 g of Novichol® brings 130 g of by-pass Choline chloride.
Each 1000 g of Novichol® brings 90 g of intestinal digested Choline.

- **Novichol® Melt point :** 144°F/62°C and softening point 140°F/60°C.

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