

Methionine-Sparing Effect

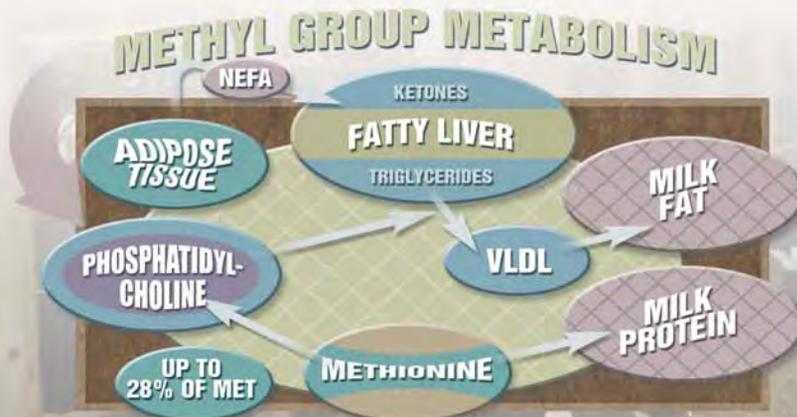
Phosphatidyl-choline is the secret weapon in Soy Best.

The mobilization of triglycerides from a cow's liver for the purpose of producing milk fat requires phosphatidyl-choline. (See figure below.) Insufficient dietary phosphatidyl-choline impedes this mobilization and causes a build-up of fat and ketone bodies in the liver. That, in turn, leads to reduced feed intake, reduced milk yield and difficulty breeding back.

When the supply of phosphatidyl-choline is inadequate to meet demand, the cow can use methionine to synthesize more phosphatidyl-choline (both are methyl donors). Research has shown that as much as 28% of metabolizable methionine can be shunted to synthesis of phosphatidyl-choline when phosphatidyl-choline is deficient.⁸ This can reduce milk protein production (methionine is an essential amino acid for milk production).

The lecithin (phosphatidyl-choline) in Soy Best has important benefits for the dairy cow.

- It has a rumen-protected characteristic.^{1,2,4,5,7} It enhances protein and amino acid bypass.
- It improves digestion of triglyceride fats and fatty acids in the small intestine.^{2,4,5}
- It facilitates mobilization of fat from the liver for production of milk fat.³
- It spares methionine for production of milk protein.^{6,8}
- It can help reverse fatty liver.⁷



1 Abel-Caines, et al., 1998. J. Dairy Sci., 81:462

2 Shain et al., 1993. J. Anim. Sci., 71:1266

3 Overton, 2001. Advances in Dairy Technology, Vol. 13, page 169

4 Jenkins and Fotouchi, 1990. J. Anim. Sci., 68:46

5 Grummer, 1991. J. Dairy Sci., 74:3244

6 Hutjens, Feed Additives in Dairy Nutrition and Management

7 Grummer, 1993. J. Dairy Sci., 76:3882

8 Miller, International Dairy Topics, Vol. 2, No. 6

What's Phosphatidyl-Choline Worth?

Commercial methionine supplements can retail for 12¢/12 grams/cow/day. Assuming the supplement is 65% methionine and 90% of that is rumen-bypass, the cost of metabolizable methionine is 1.7¢/gram.

Soy Best contains 0.61% phosphatidyl-choline which is 30% rumen-bypass.

Therefore, 2 pounds of Soy Best supplies 1.7 grams of bypass phosphatidyl-choline.

Phosphatidyl-choline is an orthophosphoric ester of choline with glycerol and two fatty acids (C16 – C20). The choline content of phosphatidyl-choline is typically 13%.

Therefore, 2 pounds of Soy Best supplies 0.22g of intestinally absorbable choline.

1 choline spares 4.4 metabolizable methionines.⁶

Therefore, 2 pounds of Soy Best can spare 1 gram of metabolizable methionine.

Relative to the methionine supplement mentioned above, the 1 gram of metabolizable methionine spared by the phosphatidyl-choline in Soy Best is worth 1.7¢, or \$17 of added value per ton of Soy Best. This is over and above the value that Soy Best brings to dairy rations as a palatable source of intestinally digestible bypass protein.

More bypass protein. More milk.

Naturally



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