

SPECTRUM®

Fusion

Superior Fatty Acid Digestibility

Recently, among the different dietary FA, considerable attention has been given to palmitic acid (C16:0) because of its potential to increase milk fat concentration and yield. This strategy is also advantageous given recent federal milk marketing order milk fat prices. Several different C16:0 supplements are available in the market for increasing milk fat. These supplements are not identical and will vary in C16:0 enrichment, degree of esterification, and lately combination with other FA.

So, how can we make an informed decision on how to choose a supplement?

Are all palmitic acid-enriched FA supplements fed to dairy cows the same?

Digestibility

Among the palmitic acid-enriched FA supplements on the market, those containing around 85% of C16:0 as free fatty acids are the most commonly used. Additionally, recent research has suggested that a supplement containing a combination of palmitic and oleic acids (80% C16:0 and 10% cis-9 C18:1) is superior compared to other supplements. **SPECTRUM Fusion® is a product in the market designed to deliver an 80:10 blend of palmitic free fatty acids and oleic acid bound to a calcium salt.**

Therefore, is the FA digestibility of a supplement like **SPECTRUM Fusion** different than that of a regular C16:0-enriched supplement?

To answer this question, we combined the FA digestibility of individual cow data (n = 340 observations) from 6 studies. These studies consisted of 2 studies that used an 80:10 supplement or 4 studies involving regular C16:0-enriched supplement. Our results showed that feeding a regular C16:0-enriched supplement decreases total diet FA digestibility by ~ 4 units (Figure 1). In contrast, an 80:10 supplement did not affect total diet FA digestibility compared to that of control diets. These results are likely due to a greater amount of oleic acid reaching the intestine, which acts as an emulsifier and improves digestibility. **Additionally, oleic acid bound to a calcium salt, like in SPECTRUM Fusion, will increase the proportion of oleic acid reaching the intestine versus the free oleic acid contained in a regular C16:0 supplement.**



▲ Uniform particle size ensures that **Spectrum Fusion**® delivers results in every bite

SPECTRUM Fusion® from Perdue AgriBusiness® Animal Nutrition is the first supplement designed to deliver a blend of fatty acids for maximum response on fatty acid digestibility and the yield of energy-corrected milk through a science-based balance of fatty acids.

Diet Formulation Implication

Looking to FA absorption is not different from what has evolved over time with protein and amino acids. The same way we value the amino acid profile of metabolizable protein over simple crude protein, we should consider absorbed FA given our recent findings on the FA profile effects on digestibility and metabolic functions.

Therefore, assuming the digestibility differences between a regular C16:0 supplement and an 80:10 supplement, feeding 1 lb of both supplements would result in a 50 g/d increase in absorbed FA for an 80:10 supplement, compared with a regular C16:0 supplement.

How can we apply this concept in the FA program?

- 1) You can feed a supplement like **SPECTRUM Fusion** at the same feeding rate used by a regular C16:0 supplement. This will result in greater supply of absorbed FA which may result in increases in animal performance.
- 2) You can adjust your feeding rate using **SPECTRUM Fusion** to 93% of the feeding rate of a regular C16:0 supplement. This will deliver similar supplies of absorbed FA and potentially save money on your FA program with similar animal performance.

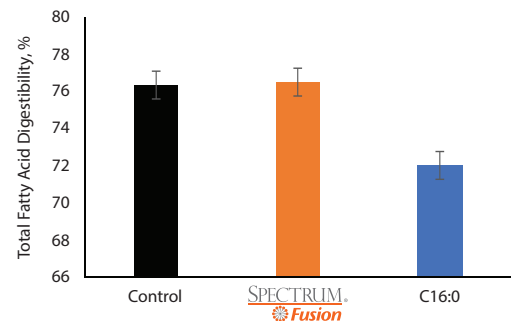


Figure 1. Total fatty acid digestibility response of dairy cows receiving a control diet (no supplemental fat) or fat supplements either as an 80:10 blend, like **SPECTRUM Fusion**, or a regular palmitic acid (C16:0). Data set included total of 6 studies with 340 individual cow observations. References available upon request.

www.perdueagribusiness.com
goagpartners@perdue.com
1.800.525.1992

