



Fattening the milk check

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Milk fat is synthesised from fatty acids that come from the peripheral circulation (60%) or are synthesised de novo in the mammary gland (40%). Fatty acids with 4-14 carbons and part of those with 16 carbons derive from de novo synthesis in the mammary gland with the main source of carbons being acetate and in less proportion beta-hydroxy-butyrate.

The rest of the fatty acids of 16 carbons and all of those with 18 carbons and longer chains derive from circulating fatty acids, arising from the absorption of dietary lipids or fat mobilisation from body reserves.

One reasonable approach to enhance profitability in dairy farms is the strategic production of milk components without negatively affecting cow performance, health or reproduction.

Fig. 1. shows the price paid for butterfat in the Midwestern United States during the last 12 months according to the Federal Milk Marketing Order published by the Agricultural Marketing Service of the US Department of Agriculture.

Average milk fat price in that period was \$5.26 per kg, with the maximum premium paid in July (\$5.86/kg) and the minimum in October (\$4.62/kg). Putting that into perspective, increasing a tenth on the butterfat concentration of a

45kg-herd would improve daily income between €20.8 and €26.4 per cow at any given time during those 12 months. For example, raising milk fat from 3.7 to 4.0% would improve yearly income by \$228,000-289,000 in a 1,000 cow-herd producing 45kg of milk.

Fat is the milk component most easily modified by the diet with possible changes of up to three percentage units. Nutrition and feeding management represent the environmental factor with the greatest impact on milk fat and it is a tool that can be used to alter its fatty acid composition.

Several ingredients and additives available on the market have shown scientifically their efficacy for boosting milk fat production:

- Feed ingredients with high content on sugars and soluble fibre such as molasses, liquid whey, beet pulps, almond hulls, bakery meal, etc.
- Feed additives such as potassium carbonate, sodium bicarbonate, methionine hydroxy analogue, etc.
- By-pass fat with high concentration of palmitic acid.

In conclusion, milk fat prices affect considerably profitability, and production of milk fat offers a potential to enhance income in dairies.

Fig 1. Milk fat price in the American Midwest (AMS-USDA).

