

# Preventing Milk Fat Depression in Dairy Cows

By: Alexis Thompson and Donna Amaral-Phillips, Ph.D.

Milk fat is a globular component of milk and can be changed with genetics, management, and nutrition program. Milk from Holstein cows averages around 3.6% milk fat. Milk fat depression is indicated by a decrease in milk fat by 0.2% or more. When there is a milk fat depression, the amount of milk fat produced decreases which results in a lower milk check. Management factors, such as feed delivery and heat stress, impact milk fat percentage and total fat yield.

- **Dietary Fat.** Fats provides 2.5 times the energy compared to carbohydrates when digested. It may be tempting to replace grains or high carb sources in the diet with more fat during times of high grain prices to decrease feed costs. Too much dietary fat impairs rumen fermentation, reduces feed intake, and leads to milk fat depression. Liquid fats, such as oils, and dietary feedstuffs high in fat, coat forages found in the feed. Rumen microbes are unable to access these fibers. If fats are added to the diet, solid fats and those labeled as rumen-inert, such as calcium salts of fatty acids, hydrogenated fatty acid products, and hydrogenated tallow products, lower the disturbance of the rumen but excessive amounts still should not be added to diets for dairy cows.
- **Starch.** Rapid fermentation of starches causes a drop in ruminal pH. Lower ruminal pH is correlated with a lower milk fat percentage because synthesis of milk fat in the mammary gland is disrupted. Cows will choose to eat the starch portion before the fibrous portion of their feed. Feed needs to be properly formulated and mixed to prevent sorting.
- **Fiber/ forages.** Adequate fiber in the diet prevents milk fat depression. Forages result in rumination or cud chewing which allow the cow to buffer the contents of her rumen with saliva. If the cow is fed forage that is too fine, then she will not receive the maximum benefit from having forage in her diet. The mixer should have time to chop the hay, but overmixing the feed can also cause problems. Overmixing pulverizes forages and reduces rumination. A good rule of thumb is the particles from long-stem forages that come out of the mixer should be the width of a cow's muzzle.
- **Management.** Management decisions, such as heat stress and overcrowding, exacerbate milk fat depression. Feed digestion and metabolism produce a large amount of heat. Cows that are experiencing heat stress will decrease the amount of feed they consume and ruminate less. Heat abatement practices, such as fans and sprinklers, encourage cows to eat which maintains their milk production and milk fat percentage. Overcrowding is another cause of milk fat depression. In overcrowded conditions, there is less access to the feedbunk which causes the cows to slug feed which can cause a rapid drop in their rumen pH.