How Can You Get More Pounds of Milkfat From Your Dairy Herd?

Cooperative Extension Service

By Donna M. Amaral-Phillips

Feeding and management practices impact not only milk yield, but also butterfat content of milk, and thus your milk check. Decreases in milk fat can occur within a short time frame, but once the factor(s) influencing the drop are corrected, it may take 2 weeks or more before milk fat percentage and yields are corrected. Implementing sound feeding and management practices that reduce stress and help maintain a healthy rumen microbial population are the cornerstones to optimizing milk fat synthesis as well as milk yield.

Factors Outside Your Control

Some factors, which influence butterfat content of milk, are not controllable, but management can decrease their effect on butterfat percentage.

Breed and genetic selection for milkfat: Over the years, Holsteins and other breeds have been bred such that the average butterfat percentage and yield have increased. Butterfat percentage is highly heritable and breeding cows to higher component sires positively influences butterfat content, but it takes a few years to change. The average butterfat percentage for US herds tested through DRMS in Raleigh currently average 3.9% in 6780 Holstein herds. Today many Holstein herds average 4.0% or greater butterfat, and butterfat percentages of 3.6 to 3.8% may be considered low.

Higher producing cows: Higher producing cows may have a lower milkfat percentage, but they contribute more total pounds of fat to the bulk tank because of higher total yield.

Stage of lactation: Early lactation cows within 60 to 90 days in milk generally have the lowest milkfat percentage. However, these cows are at their peak production and thus total yield of fat reflects their higher total milk production.

Time of year: Butterfat content is generally the lowest in the summer. Some of this response relates to day length. However, the higher environmental temperatures and humidity result in heat stress on cows. Heat-stressed cows eat less and produce less milk along with a reduced butterfat content, thus further reducing total fat yields. Proper spacing, routine maintenance, and correct usage of fans and sprinklers can help reduce these effects.

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MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Lexington, KY 40506

Management Practices Impact Butterfat

Luckily, sound management practices can help improve or optimize butterfat yields.

Manage heat stress: Keeping cows cool can have a positive impact on butterfat yields. Fans should come on when temperatures are above 65°F which can easily occur in the fall and late winter months.

Prevent overcrowding: Overcrowding increases competition for access to the feedbunk and use of freestalls. Overcrowding at the feedbunk results in larger meals and less even feed intake throughout the day. Both factors negatively influence the rumen environment that can decrease milkfat yield.

Cows consistently need 12 to 14 hours of rest daily: Lactating cows should not be away from their pen for more than 1 hour at a time to be milked and should spend a minimal amount of time in headlocks for general management practices, such as heat detection or health and reproductive checks. Comfortable stalls or area for cows to lie down and ruminate is important. Rumination or cud chewing helps buffer the rumen contents and has a positive effect on milkfat synthesis.

Feeding Protocols Impact Butterfat

Besides the ingredients used in rations, the management of the feeding program can affect the "health" of the rumen.

Practices in TMR-fed herds: The key is to have a TMR mix that is uniform and prevents or minimizes sorting by the cows fed the diet. The mix should not be over or under mixed. Long forages should be processed so that when fed out, the hay or baleage is evenly distributed throughout the feedbunk and is consistently no more than the width of a cow's muzzle. To achieve this objective, TMR knives need to be sharp and not worn, feeds added in the correct order to the center of the mixer, and scales calibrated. Accurate and consistent amounts of each feed need to be added to each batch and to batches fed at different feedings or days. The mixer needs to be working correctly with the kicker plate or plow in the correct position for proper mixing. To prevent feed from heating, wet feeds/forages should be removed from storage and added to the mixer at feeding time. Cows should be fed at least twice daily especially during the warmer parts of the year. The goal is to minimize sorting and ensure the cow has enough chew factor in the diet to allow proper rumination and saliva production to help maintain rumen pH.

Component Fed Herds: Feeding large amounts of grain, greater than 6 lbs per 4-hour window, can decrease rumen pH and decrease milkfat percent and thus fat yield. Feeding hay one hour prior to the grain will help maintain fat test.

Readily accessible feed: Feed should be pushed up every 30 minutes for the first 2 hours after putting feed out. Pushing up feed additional times daily is needed to help cows readily reach feed. Do not let the feedbunk get empty before the next feeding. Amounts of feed fed need to be adjusted at each feeding to reflect the number of cows and intake patterns of cows. Cows generally eat less during the summer with more eaten at night than during the day.

Minimize sorting by cows: The key is to get cows to consume the diet in the proportions balanced by your nutritionist.

Diet Management and Composition Affects Butterfat

Nutritionists try to balance rations such that rumen bacteria make products the cow uses to make milk components and not those that hinder milkfat synthesis. Nutritionists continue to learn more about the best approach which results in optimum production and fat yields. . Remember you are paid for milk fat YIELD not milk fat percentage.

Amount of Starch: Adequate, but not excessive amounts, of starch should be fed. Also, remember that the digestibility of starch changes as corn silage or high moisture corn or earlage undergoes fermentation and storage. The digestibility of the starch in these feeds increases with length of storage. Corn silage harvested and then fed one-month post harvest is not the same as that fed 6 months later.

Kernel processors should be such that kernels were broken up adequately (no more than 2-3 corn kernels half or whole in a 32 oz. cup) with the cob broken into 8 pieces. After harvest, one can get a kernel processing score from a forage testing lab to determine the extent of kernel processing and thus availability of starch for the microbes in a cow's rumen. Kernel processing scores (also called corn silage processing score by some labs) should be greater than 70%.

Adequate but not excessive amounts of fiber: Adequate amounts of fiber are needed to support rumination or cud chewing. When cows ruminate, they secrete saliva that buffers the rumen. This helps maintain a favorable pH and "healthy rumen".

Diet Composition: Higher corn silage diets or those incorporating grazed young immature forage are at higher risk for lower butterfat percentages. The total amounts and types of unsaturated fatty acids found in these feeds and grains can increase the risk for a lower butterfat content.

Fat content of diet: When butterfat content is low, a proposed solution might be to just add more fat to the diet, but be aware of the consequences of adding too much fat. When feeding fats remember, that too much fat can cause the microorganisms and forage particles to become coated in fat. In addition, the types of fats fed can have a negative impact in the rumen and result in a depression in milkfat synthesis in the udder. Bottom line, not all fats are equal and adding more fat may make the situation worse depending on the original diet.