Day-to-Day Chores Impact Pounds of Milkfat and thus Milk Income

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Daily feeding and management practices impact the amount and concentration of butterfat sold. Slight missteps in management, predominately related to the implementation of these programs, can result in reductions in not only total milk yield, but also butterfat concentration of milk being sold. Both of these outcomes decrease milk income received, as milk price is partially calculated from butterfat yield, not butterfat percentage per se.

Concentration of butterfat in milk shipped does influence pay price. For farms on a strict quota-type milk payment system, maximizing the percentage of butterfat may be the only way to increase milk income. But, at the end of the day, milk yield has a great influence on butterfat yield and, thus gross income in a milk check. Using uniform skim price of $14.82 and butterfat price of $2.69, a cow producing 75 lbs of milk at 4.25% butterfat generates the same daily gross milk income as a cow producing 77 lbs of milk at 4.0% butterfat. Stated simply, an additional 2.0 lbs of milk is equal in gross milk income to the cow whose milk contains 0.25% more butterfat. If the milk market allows, capitalizing on both yield and butterfat percentage results in the greatest milk income per cow.

Many factors influence butterfat content. Some factors are beyond ones control as they relate to the biology of the cow herself, such as stage of lactation, or the time of the year. Nonetheless, many management practices are still controllable through one's daily management of the feeding and overall management program. A checklist follows to review in order for one to maximize milk income as it relates to butterfat yield throughout the year.

1. Expect normal seasonal and stage of lactation changes - Butterfat percentages are the highest in January and the lowest in the summer. Early lactation cows have the lowest butterfat content with increases seen later in lactation. Also, breed and genetics of a cow influences butterfat content.

2. Provide ample time for cows to rest - Cows prioritize time for rest over feeding time, if they must make a choice. Thus, an ample number of comfortable stalls are needed so that cows spend adequate amounts of time feeding, resting, and chewing their cud. To achieve this objective, stocking rates ideally would be at or under 110%, but definitely not at or above 125% for later lactation groups. Fresh cows should be stocked such that each cow has access to her own stall at all times (≤ 100% stocking density). Cows should spend no more than 2 to 3 hours daily in the holding pen waiting to be milked. Stalls should be groomed at each milking to remove manure and bedding in the stall leveled. Bedding should be added as needed to mattresses, sand-filled stalls, and compost bedded packs to maintain a comfortable, dry surface for cows to lie down and rise from. Fans and sprinklers need to be used to reduce heat stress. Remember

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that temperatures can get above the preferred cow comfort zone (40 to 70ºF) even during the winter and early spring months.

3. Cud chewing important for butterfat and overall rumen health - When cows ruminate or chew their cud, they secrete saliva which helps buffer the digesta found in the rumen, providing a more desirable environment for bacteria that produce some of the precursors of milk fat. Rumen bacteria that digest forage fiber like a higher pH (around pH of 6) than those that predominately digest starch and sugars. In a summary of 130 research projects, scientists found that cows ruminated or chewed their cuds for an average of 444 minutes per day (7.4 hours/day) during 13.8 separate bouts lasting 32.7 minutes each (Souza and others, 2021 JDS). The amount of fiber and particle length of forages in the diet impacts rumination times. Thus, balancing diets for adequate amounts of fiber (specifically NDF or neutral detergent fiber) is very important. The NDF content of diets needs to reflect forages currently being fed, not just those of previously fed and used to balance rations. Thus, forages need to be tested throughout the feeding year, not just once per year. When harvested and fed, adequate particle size of forages needs to be maintained to promote rumination. For TMR's, feeds should not be mixed longer than necessary, knives replaced as needed, ensure that mixers are operating properly, and that proper, consistent amounts of each feedstuff as shown in the balanced ration are added to the center of mixer (over auger). For component-fed herds, hay should be fed 1-hour prior to grain and no more than 6 lbs of grain is fed over a 4-hr period thus spacing out the consumption of grain over the day. Even though rumination time is related to milkfat content and yield, other factors also have a major impact.

4. Ration composition impact milkfat yields - Properly balanced and fed rations can support both optimum milk fat synthesis, overall milk yield, and, therefore, milkfat yield. Rations need to be balanced for more than just NDF or fiber content to support milkfat synthesis. The amounts of starch, sugars, fat and the type of fats (fatty acid composition) all impact milkfat synthesis and need to be considered. Once rations are balanced, they must be fed in the proportions on a dry matter basis as indicated by the ration printout. Not accounting for changes in dry matter (moisture) content change the nutrients the rumen bacteria and the mammary gland have to make milk. As such, dry matter content of feedstuffs and changing nutrient content needs to be evaluated and rations adjusted, if needed, throughout the feeding season.

5. Delivery of feed to the bunk impacts milkfat - Cows are very good at sorting through their feed. Even cows fed individual feedstuffs in a tiestall barn selectively eat some feeds first. As feedbunk managers, our job is to minimize the chances this occurs. For TMR's, adding water can help smaller grain particles "stick" to chopped forages helping decrease selective consumption of grain and other finally chopped particles. Feeders should ensure that hay and baleage is chopped to the "width" of the cow's muzzle and then distributed evenly throughout the feedbunk. Make sure that feed is delivered to the entire feedbunk so all cows have access to fresh feed throughout the day.

6. Health and reproductive status impacts yield and therefore milkfat yields - Generally, cows with extended days open have an extended period of lower milk yields with higher concentration of milkfat seen in the later stages of lactation. Lower milk yield though results in lower milkfat yield and less total income for these cows than if they had conceived in a more timely manner. Cows experiencing health issues, such as mastitis, lameness, or metritis, give less milk and, therefore, may have lower milkfat yields.