

Shift in Feed Prices Cause Shrinking Profits

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The ever-changing markets always makes livestock farming a challenge. And yet, there is limited control of price received for the milk, meat, etc., so most of the control lies with efficiency of production and managing the cost of production. However, where possible, the price received for the food product should be maximized. Often, this comes by way of following the markets for highs caused by season, demand, etc. or in the case of milk, carefully following the price for milk fat and milk protein to change feeding and management to maximum the yield of the highest priced component. All these aspects are typical market trends to monitor, but the magnitude of swings have varied in recent years, including during the recent pandemic. Then cap this with supply chain issues for farm materials, labor shortages, trade issues, and more have resulted in some challenges that are shrinking profits for livestock farmers. Many of the aspects addressed in this article are focused on dairy farms, but some of the aspects relate to most all livestock farms.

Reflection on the Situation

At the onset of the pandemic, livestock farmers were quite concerned about availability and price of feeds, but it was quickly realized that agriculture is an essential business. With this aspect and harvest of the major feed grains already have taken place, feed was in ample supply at reasonable price (Figure 1, March 2020). During the fall of 2020, prices for corn and soybeans began to shift upward in response to lower stocks, both domestically and internationally, and the increased international demand. As we have moved further from the domestic harvest, this upward shift in corn and soybean prices has continued to occur, whereby it is projected to peak in July 2021 with corn at \$6.91/bu and soybeans at \$15.62/bu. After this point, the prices are expected to decline, but the realization is that the prices will remain above the year prior and historical prices. This will cause a squeeze on profits for livestock farmers. It must also be realized that the magnitude of this swing will greatly be impacted by the 2021 growing conditions for corn and soybeans and the resulting yields. Of course, the growing conditions in other parts of the world, e.g. soybeans for Brazil, and the value of the US dollar will impact international supply and demand. In addition, the continuing drifts in trade negotiations with the new administration could have considerable impact as it will affect international demand. The hay prices have not changed to the same magnitude as feed grains, but as the price for feed grains increase, the price for most all feed ingredients creep alongside. The 2021 hay prices will be greatly impacted by harvest conditions and yields. At present, many areas struggled in getting the first cutting harvest due to extremely wet conditions, but the wet conditions are not consistent across the US, even within the Midwest. In addition, some of the major hay growing areas in the west are suffering from drought conditions.

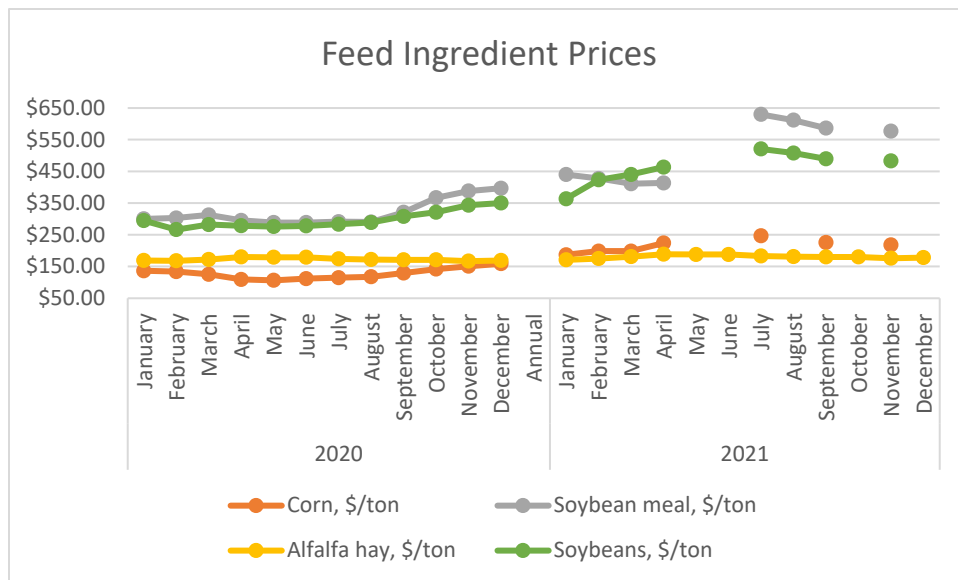


Figure 1. Feed ingredient prices during 2020 and 2021. Corn (56 lb/bu; 35.7 bu/ton) and soybean (60 lb/bu; 33.3 bu/ton) prices after April 2021 are futures prices and soybean meal prices after April 2021 were estimated from soybean prices. Hay prices after April 2021 were estimated based on 2020 trends.

The rise in feed costs on dairy farms beginning in September 2020 (Figure 2) certainly reflect the increased prices for feed ingredients shown in Figure 1. All three methods used in Figure 2 to estimate feed costs reflect the same trends, but divergence becomes more evident as costs increase. The Dairy Margin Overage (DMC) program formula is based on corn and soybean meal prices for US centralized markets and the hay prices across the top 5-dairy producing states. The hay prices used for the calculations in this article were the weighted average farm prices calculated by USDA. The OSU estimated feed costs uses the price of corn and soybean meal, assuming price for forage follow these two commodities, and the costs estimated using the OSU budgets considered the changes in prices for corn, solvent-extracted soybean meal, mechanically-extracted soybean meal, distillers grains, whole cottonseed, and alfalfa hay. Thus, some reasons for the difference include US versus Midwest market prices, assumptions about the amount of alfalfa hay in the diet and its price patterns, the actual feed ingredients used in the estimates, and the DMC feed cost estimate is the only one that includes replacement heifers; whereas, all of the feed cost estimates include lactating and dry cows. Nonetheless, feed costs are expected to increase until mid-summer and then gradually begin to decline thereafter, yet they will remain above historical levels through the end of the year. As

mentioned previously, the magnitude of these trends will be impacted by crop yields, trade, etc.

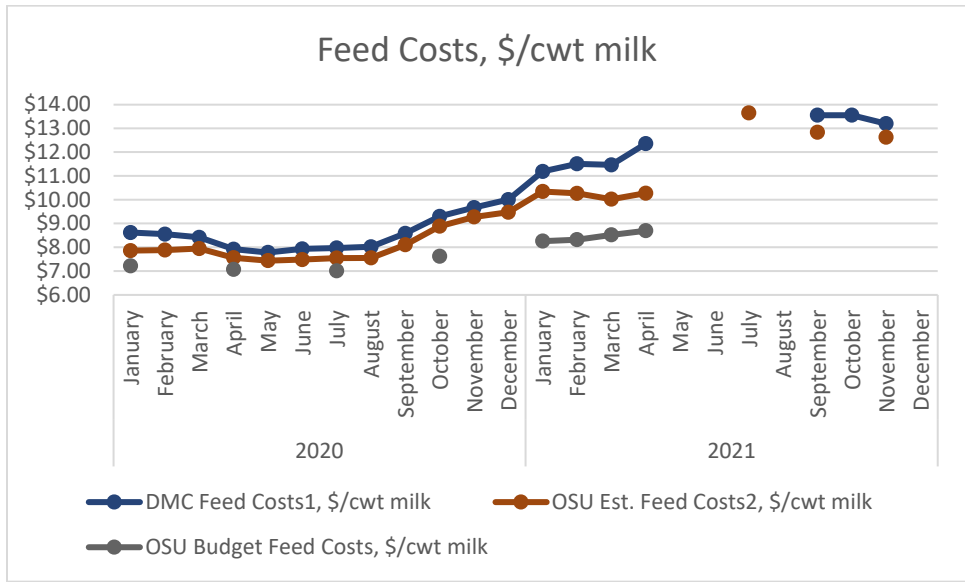


Figure 2. Projected feed costs (\$/cwt milk) for dairy farms in the US using the formula for the Dairy Margin Coverage (DMC) program, a formula used by OSU in developing the 15 Measures of Dairy Farm Competitiveness, and using the OSU Dairy Enterprise Budget for a cow consuming a diet whereby 80% of the forage is corn silage and 20% is hay. The feed prices used were those from Figure 1 and commodity prices by USDA and reported in Buckeye Dairy News (<https://dairy.osu.edu/>). The price for corn silage was left constant at \$46.62/ton.

The other major piece of the puzzle is what is happening with prices paid to farmers, and specifically milk for dairy farmers. The price for milk fell dramatically in March 2020 as the pandemic hit with all the supply chain issues and closing of restaurants. It began to rebound by June, but then the spread between the all-milk price and the uniform milk price for the upper Midwest became wide due to the negative producer price differentials (PPD). The uniform price has remained quite low, but the gap has narrowed. The all-milk price is expected to continue a gently increase through July and then begin a gradual decline through the end of the year. The uniform milk price is expected to follow a similar pattern, but of course, it will be lower and is more reflective of the price received by farmers in Ohio. It will likely hover around \$16 to 18/cwt, which is the cost of production for many dairy farms. With this in mind, along with the increased feed costs, profit margins are going to be tight during upcoming months.

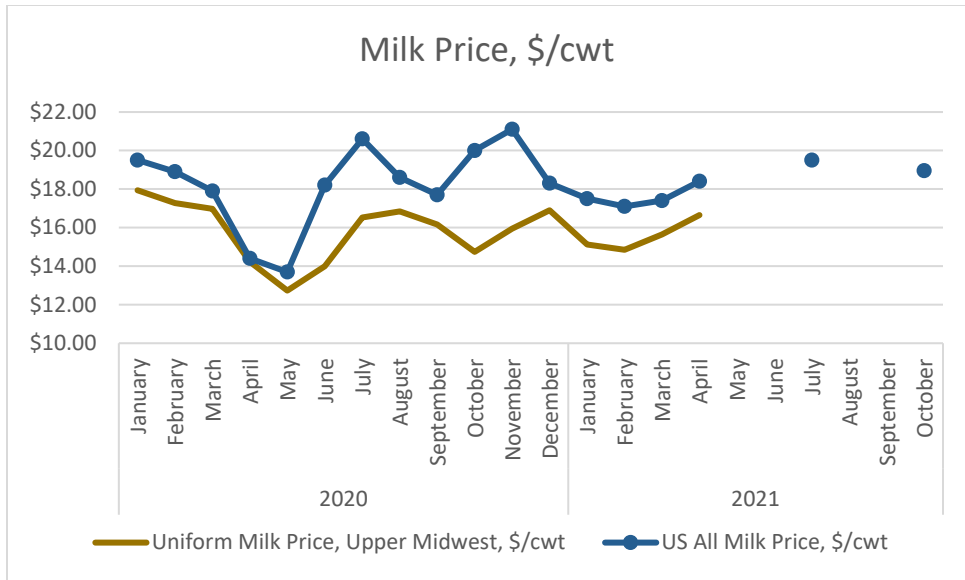


Figure 3. Milk price (\$/cwt) shown as the “US all milk price” and the “uniform milk price for the Upper Midwest”.

The soft milk prices in conjunction with the increasing feed costs together result in lower income over feed costs (IOFC) (Figure 4). The all-milk and uniform milk prices were used with the DMC feed cost estimates to observe the trends in IOFC. Using the uniform-milk price, more reflective of prices for Ohio farmers, there has been a general decline in IOFC since August 2020, attributed primarily to the rising feed costs. The leveling off of IOFC since February is attributed to the increase in milk price (Figure 3). Of course, feed is always the most contributing factor to the cost of production. If we assume that non-feed direct expenses are about 70% of the feed costs, then for April 2021, the feed costs were \$12.35/cwt and non-feed direct expenses are estimated at \$8.65/cwt. Thus, the total direct expenses for milk production are estimated at \$21/cwt, well above the uniform milk price in the Midwest. Yet, this does not take into account the indirect costs of production.

So given these market conditions, the next section will focus on some management strategies to be considered for managing through the turbulent conditions.

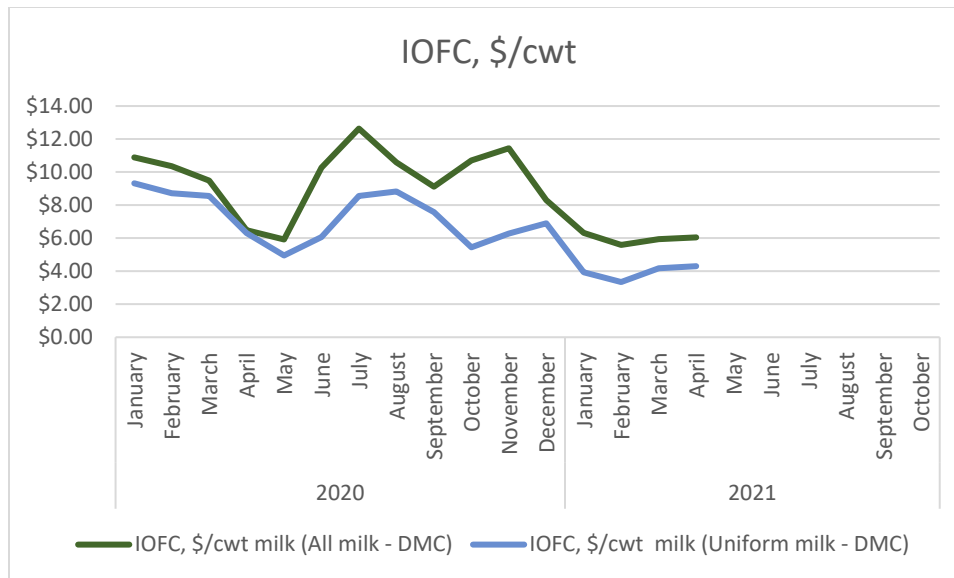


Figure 4. Income over feed costs (IOFC) using the all-milk price versus the uniform milk price minus the feed costs estimate using the formula for the Dairy Margin Coverage (DMC) program.

Management Options

Increasing Income

- 1) Efficiently increase milk yield. We typically express efficiency of milk yield as yield per unit of dry matter intake (DMI). You can use actual milk, fat-corrected milk (FCM), or energy-corrected milk (ECM). The best is to use ECM because it takes into account the fluid (lactose), protein, and fat yields (water in milk has limited value) and typically the range is 1.4 to 1.6 lb ECM/lb DMI. Efficiency can be increased by increasing yield from the same amount of DMI (A) or by achieving the same yield from less DMI (B). Improvement in efficiency can often occur by: A) removing bottlenecks to performance with improved ventilation, reducing health issues, improving reproductive performance, reducing stress, improving animal comfort, improving quality of forage, properly formulated diets, etc. and B) increasing forage in the diet and sometimes by substituting a lower digestible forage for some of the higher digestible forage in a diet (e.g. replacing some brown midrib (BMR) corn silage with non-BMR corn silage). The risk with this latter approach is that milk yield may decrease, leading to no change or a decrease in feed efficiency.

- 2) Increase milk fat or protein yield. Over the past two plus years, major shifts in the price for milk fat versus milk protein have been occurring as depicted in Figure 5. Milk fat prices exceeded milk protein prices during the first half of 2019. By October 2019, price for milk protein exceeded that for milk fat and has remained higher since. However, there have been major swings in price for milk protein, e.g. more than doubling between May and July 2020 and about a 50% drop occurred from November 2020 to

April 2021. Protein price remains higher than fat at this time, yet volatility in prices for these components are expected to continue. Even though breeding decisions on selection for high component sires are a long-term approach, they are very important in maximizing component yields. In the short term to respond to the changes in the prices for milk fat versus milk protein, feeding changes can be implemented. Many of these aspects are addressed in the Dairy Industry Brief 43-20 published in 2020 located at: <https://dairy.osu.edu/sites/dairy/files/imce/DIBS/DIB%2043-20%20DIB%2043-20%20Consider%20dietary%20changes%20to%20take%20advantage%20of%20changes%20in%20milk%20component%20prices.pdf>

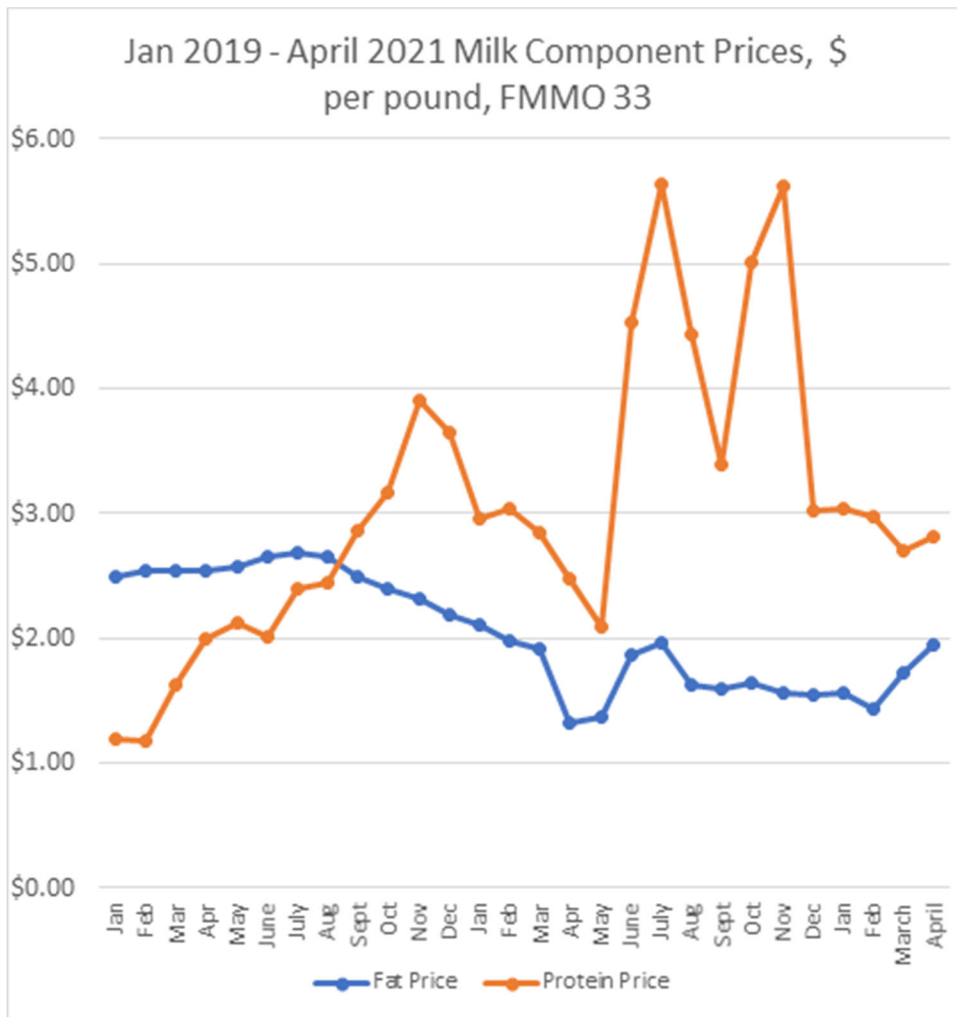


Figure 5. Price (\$/lb) for milk fat and protein during 2019 to current (graph courtesy of Dianne Shoemaker; FMMO = Federal Milk Marketing Order).

Decreasing Feed Costs

- 1) Reduce prices for purchased ingredients in rations. Reduction in price paid for typical ingredients used in rations can sometimes be achieved by shopping among different suppliers, purchasing in bulk instead of bagged, paying cash instead of using credit, buying larger quantities at once, or use of forward contracting.
- 2) Don't cut corners; make sure the feeding decision is the right one. One common example in this scenario is feeding a single TMR to all lactating cows on the farm, regardless of their level of milk production. This commonly increases total feed costs in comparison to feeding different rations to the different groups. All too often, the fresh cows may be short-changed and lead to low peak milk yield that impacts the entire lactation and cows in later stages of lactation are overfed. This especially impacts the use of high-priced feed additives in rations which are typically most beneficial to fresh cows and cows at peak milk production.
- 3) Use lower priced ingredients for purchased feeds. The primary purpose of the specific ingredients in rations is to provide the nutrient needs of the animals, yet it is recognized that some ingredients can have other attributes. The idea of "sacred" ingredients needs to be put aside and shop for ingredients based on intrinsic value and price. Ingredient prices do change over time based on many factors, such as crop yields, time of harvest, supply and demands, value of co-products from the respective commodity, etc., so their inclusion needs to be constantly evaluated based on market conditions. Every other month, feed prices and their calculated economic value are provided in the Buckeye Dairy News at:
<https://dairy.osu.edu/newsletter/buckeye-dairy-news>

Also, there are always some highly priced ingredients in rations to supply specific nutrients (e.g. rumen protected amino acids, vitamins, etc.) or to address health occurrences that may be prevalent on the farm. The focus really needs to be on finding the cause of the health problem and work at eliminating the cause. Another point of assessment is whether the animals are really able to utilize the specialized ingredients based on other bottlenecks on the farm. It may be more important to resolve the other bottlenecks and then consider adding these specialized ingredients back into the ration.

- 4) Reduce feed shrink. Feed shrink refers to any grown or purchased feed that gets lost along the way and never gets consumed by the animals. This shrink occurs during harvest, storage, loading in feed equipment, wasted by the animals at the feed bunk, and includes the refusals that are removed from the bunk and dumped as waste. The feed losses vary at each stage, which can be huge, but when you consider adding up the shrink from each stage, the losses can be enormous. Farmers should carefully evaluate each stage of feed storage and handling to reduce shrink. The cost of the feed wasted adds to overall feed cost without milk being produced from it to cover the costs. Look close, its not like looking for a needle in a hay stack.

- 5) Reduce the number of free loafers. Scenarios that include such animals are:
- a. Excess heifers on the farm that will not be used for replacements. The replacement heifer market is rather weak, especially for springing heifers. The heifers not needed for replacement need to be identified early and marketed. You are not running a dairy heifer sanctuary.
 - b. Unprofitable cows in the herd. These cows may exist because their milk yield is so low they are not evening paying for direct expenses. They may be present because of being non-pregnant or chronically ill. Sometimes, they are even contributing to overstocking that is reducing the performance of all cows. The open and ill cows are often right under our noses, but you really have to go looking for the others.
 - c. Cows too long in the dry pen. At least 45 to 50 days are needed for cows to be dry, but typically 60 days is used as the target. Many dairy farmers today have reduced the number of days dry by 10 to 15 days so cows are producing milk longer to pay for expenses. A long dry period may be caused either by an incorrect breeding date, failure to confirm pregnancy, or abortion after pregnancy diagnosis. When cows are dried-up early due to low milk production, the decision as to whether the cow remains on the farm should be made.

Managing livestock operations always presents challenges and prices for their commodities, whether meat or milk, are highly variable. The pandemic and major shifts in markets have contributed to shortages of labor, increased costs of production, and soft commodity prices. There are always cycles in the livestock industry, but the low profitable periods can be long and the higher profitable periods can be short. As with any investment, managing resources during the lows and highs are key to not just survival but having a long-term profitable business. Although profits will likely be slim during the next several months, thus likely for 2021 overall, there is yet opportunity to make some changes to have positive impacts on the profit from your farm enterprise.

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