

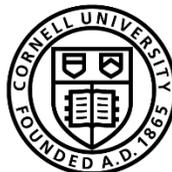
Ten Key Herd Management Opportunities on Dairy Farms During Low Margin Times

Tom Overton, Jason Karszes, Robert Lynch, Julio Giordano, and Mike Van Amburgh
Department of Animal Science and PRO-DAIRY
Cornell University

An unanticipated significant downturn in net milk price over the next several months due to the COVID-19 disruption of consumer demand and dairy processing makes it even more critical for dairy producers to focus their management skills on making sure that their herd management is “being all that it can be”. In a previous paper, we outlined “Ten low investment, high return management opportunities on dairy farms”. The purpose of this paper is to give some added focus to this material and add other key points for discussion and evaluation within individual dairy farms.

1) Maximize milk component production – Top-tier herds in the monthly Dairy Profit Monitor benchmarking program dairyprofit.cornell.edu are producing a combined total of 6.5 lbs/day per cow or more of fat and true protein, with a solid goal across herds of greater than 6.0 lbs/day per cow. Although the major driver of fat and protein yield is overall milk yield, component percentages are also important. In general, herd-level milk fat percentage below 3.7% and true protein percentage under 3.1% in Holstein herds suggest opportunities for improvement. Motivation to seek this improvement needs to be based on the current value of milk fat and protein – the value of milk fat has been and likely will continue to be an important driver of the milk check. Low milk fat suggests passage from the rumen of unique unsaturated fatty acids that directly inhibit milk fat synthesis and that there is opportunity either in ration formulation (unsaturated fats, carbohydrate balance, forage quality issues) or in ration implementation (dry matters, amounts fed, sorting, etc.). In the case of milk protein, levels below 3.0% suggest that rumen fermentation and microbial protein synthesis are not being maximized, or there are opportunities to improve amino acid balance by use of blended proteins or protected amino acids. The general timeline for the impact of ration changes on milk components is 10 to 14 days after implementation of the change.

2) Relentlessly seek marginal milk opportunities – Generally, the highest profit margin production is that from marginal (incremental) increases in milk production. This can be accomplished by herd-level management strategies such as changing milking frequency (e.g., 2X to 3X or 4X/2X milking), shortening dry period length on higher producing cows down to 40 days dry, capturing feed efficiency through use of compounds such as Rumensin, or improving cow



comfort. Several years ago, we completed a field study to evaluate production responses to 4X milking during the first three to four weeks postcalving followed by 2X milking thereafter. Although responses varied among farms and by lactation group within farm, all farms had positive production responses for cows milked 4X/2X and the average response was approximately 3.5 lbs of component-corrected milk yield across the first 7 monthly test days – responses likely will be better in herds that maintain fresh groups at less than 100% of headlocks and can milk the fresh cows with time away from pen no more than 30 to 40 minutes per milking. The overall increase in labor/milking capacity for a 2X herd to actualize 4X/2X is only about 7% compared to 30% for whole-herd 3X. With any of these changes, it is important to look at not only the expected increases in production, but also the changes in input costs to determine what the actual profit may be.

3) Don't lose fresh cows – The best dairies that we encounter maintain fresh cow loss in the first 60 days in milk at or below 5% of all parturitions, without keeping low producing fresh cows simply to keep this number lower. In a recent dataset of 72 herds in New York and Vermont, about 25% of the herds had 9 to 13% of fresh cows leaving in the first 60 DIM. Furthermore, within first calf heifers this rate averaged about 6%; alarmingly, the highest 25% of herds had between 7 and 11% of first calf heifers leaving in the first 60 DIM. This represents a large economic loss to these dairies. Frequently, contributors to these losses are overcrowding both before or after calving, frequent group changes before or after calving, or competition issues between springing heifers and older cows. In another recent dataset from our group, cows in herds with less than 28 inches of bunk space prefresh had 40% greater risk of leaving the herd in the first 30 DIM. Ration formulation issues are relatively rare, but ration implementation issues (long chop length of dry forages in dry/prefresh TMR leading to sorting, inaccurate weighing of ingredients, not accounting for dry matter changes) are common. Farms with high quality forages typically will need to obtain low energy forages for far-off dry cow rations because high-energy intake far-off can lead to more fresh cow health disorders and increased fresh cow loss. If overall management practices and grouping are in line, there is little added value from routine drenching/pumping practices.

4) Identify and potentially cull low value and low profit cows – Identify the low producing cows who are not generating enough revenue to cover variable feed and labor expenses and use routines such as COWVAL in DairyComp 305 (either on-farm or can be run by DairyOne technician at monthly herd visit) to identify those lower value cows in the herd for either removal, dry off or replacement. In overstocked pens, removal of low profit cows may result in little to no change in overall milk yield because of better overall performance of the remaining cows. If barns are understocked, how can culling be controlled or heifer rearing be improved to ensure that facilities are being used at optimal capacity? It is important to analyze each individual herd situation, perhaps in conjunction with your agri-service professionals (consultants, extension, veterinarian, nutritionist) because the opportunity can vary widely from herd to herd.

5) Ensure that all management protocols are still appropriate, are working, and are being followed – Protocol drift in many areas of dairy herd management (an incomplete list includes milking routines, calving and colostrum management, reproductive program implementation, and feeding management) is more common than desired. This can easily lead to drag in milk yield, higher SCC, poorer conception rate, increased morbidity and mortality in calves, lower feed efficiency and poorer rumen health among other issues. Are you losing out on milk quality premiums because of milking routine/facility issues or a few high SCC cows that are elevating the entire tank? Spending time and money on protocols that are no longer appropriate or needed on the farm adds unnecessary expenses to the farm. Take the opportunity to review protocols with employees and provide feedback to ensure that these protocols are getting the response and return that you expect. Also take time to review protocols with key agri-service personnel and farm

employees to determine if they are still needed and providing positive returns, or if there are changes that can be made.

6) Don't incur excess heifer rearing costs: raising animals longer than necessary or raising too many – Despite years of research and herd experience that suggests that herds can grow heifers well and calve them at 21 to 22 months of age, many herds still average 24 to 26 months age or higher at first calving. This can incur substantial additional cost both in terms of feed requirements and facility/labor to support additional heifer inventory. Preliminary results indicate that the economic costs to raise a heifer on dairy farms in NY is over \$2,300. If raising more heifers than necessary, what is the ability for the farm to recoup the investment in the animal? An Excel spreadsheet calculator for evaluation of the heifer enterprise is available at the PRO-DAIRY website located at prodairy.cals.cornell.edu/business-management/resources

Of course, quality of heifers also counts. In our recent study, lactational milk yield of first lactation animals averaged between 75 and 80% of mature cows in 25% of the herds studied, however, we have observed individual herds where first lactation 305d milk yield is as low as 68% of mature cows. The goal is 80% of mature cow 305d milk yield and anything less than that is simply unrealized milk. Among several herds studied, 72 to 74% of mature milk is equal to approximately 10 lb milk per day that is unrealized, which is a significant loss of revenue. To overcome this, the goal is to be 82 to 85% of the body weight post-calving of the mature cows or to be approximately 94% of the mature size pre-calving. Furthermore, cull and death rates of first lactation animals varied widely. Herds averaged about 19% cull and death rate in first lactation animals – the highest 25% of herds ranged from 25 to 37% and the lowest 25% of herds ranged from 5 to 15%. If poor heifer quality is driving high turnover of first lactation animals, this can be a large economic loss that can go unrealized on many farms.

7) Get the most out of your reproduction program – Many dairies are consistently achieving pregnancy rates of 26% or higher. Comparing this to what used to be considered a good goal of 20% a few years ago, there is significant revenue to be gained. Even at current milk prices, a 500 cow dairy stands to gain \$42,000/yr if they can improve from 20% to 26%. Of course, any additional expenses needed to make improvements in the breeding program must be deducted from this dollar figure. Evaluate all aspects of your reproduction program and take advantage of the advancements our industry has made in this area to improve.

8) Optimize neonatal management – Opportunities exist on many dairies to decrease stillborn (DOA) rates and decrease morbidity and mortality in calves through the milk-fed phase and weaning. Our best dairies consistently maintain dead-on-arrival (DOA) rates in female calves at around 4 to 5% of all calvings; however, a number of dairies have DOA rates of 8 to 10% or more, especially in first calf heifers. Intensively managing the calving process for a “just-in-time” move from a close-up group to a calving area usually decreases DOA rates (and also decreases overall fresh cow problems). More calves born alive provides more calves that either eventually enter the herd or can be sold to improve cash flow.

Once born alive, studies suggest that calf mortality rates average 8% and morbidity averages about 30%. In our recent study, the best 25% of dairies averaged less than 2% death and cull rate in the first 3 months of life. Excellent colostrum management [4 quarts of quality colostrum (> 45 to 50 mg/ml of IgG; < 100,000 CFU/ml of bacteria) within 4 hours of birth for Holsteins] is critical to ensure that calves have sufficient passive transfer of immunity and nutrition immediately after birth. Calves should be fed to double their birth weight by 56 days of life, which is higher than traditional feeding recommendations – this level of nutrient intake enhances the efficiency of lean gain and provides nutrients to allow the immune system to function, thereby decreasing veterinary

and medicine costs for the calf program. Daily diet costs increase, but return on investment (gain:feed) decreases accordingly.

9) Strategically identify ration opportunities – Opportunities exist both in terms of using accurate forage analyses to enable tighter ration formulation and more sophisticated forage analyses (e.g., fiber digestibilities) integrated with nutritional models to optimize use of homegrown forage within dairy rations. If forage is of high quality and inventory is adequate, is it being utilized to its potential? Likewise, if high quality forage is not available, are there other ration adjustments that can be made to optimize milk yield? Recent work has suggested that there are opportunities to strategically decrease protein feeding levels and maintain high milk and milk component yield. This strategy has focused primarily on decreasing rumen degradable protein supply to about 8 to 9% of diet dry matter and using high quality undegradable protein sources and amino acids to ensure adequate metabolizable protein supply. Economics likely will make this approach more attractive in high corn silage based diets when haylage inventory is limited. Research consistently indicates that there is no productive or reproductive reason to exceed approximately 0.40% phosphorus for fresh cows, and 0.35% phosphorus for cows at other stages of lactation. Formulated diet levels of 0.35% phosphorus are typically achieved using only basal feed ingredients, and no added phosphorus from mineral sources. Although it is tempting to remove nutrients or feed additives from the ration to lower cost, be careful that you are not hurting subsequent returns by doing so. It is reasonable to carefully review with your nutritionist what is going into diets and ensure that you are making solid decisions. When making changes to the overall nutrition program, it is important to measure and track net milk income over feed costs to ensure that the changes you are making are providing the results that you are looking for. More information on this topic can be found in the companion paper “Feeding strategies during challenging times” authored by Tom Overton and Larry Chase and found at prodairy.cals.cornell.edu.

10) Maximize your feeding management program – The feeding management program can result in hidden losses in feeding programs. Opportunities range from decreasing shrink at the silo by better face management in bunks and bags to accurate and frequent (at least weekly) assessment of silage dry matters to ensure more consistent delivery of diets to cows to decreasing shrink of purchased ingredients during storage and feeding. This is another area in which protocol drift both within a feeder and across multiple feeders has occurred. This can change particle size and consistency of diets, which contributes to inconsistent intakes and lower efficiency of use of diets. This protocol drift may also impact other costs on the farm, such as labor, fuel, maintenance, and repairs.