

Ten key herd management opportunities on dairy farms



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Maximize milk component production

- Dairy farms paid on lbs of fat and protein shipped rather than overall volume
- Highest herds shipping more than 6 lbs/day per cow of fat and protein combined and top-end herds shipping more than 5.5 lbs/day
- Major driver of component yield is milk yield
- Component percentages also important
 - Need to evaluate opportunity based upon individual prices of fat and protein



If milk fat is below 3.5% (Holstein)

- Amount and ruminal availability of unsaturated fats (linoleic acid from corn or oilseed sources)
- Altered ruminal biohydrogenation (low rumen pH, altered feeding patterns, off-fermented silages, mycotoxins, excessive unsaturated fat load in the rumen)
- Factors that affect rates of biohydrogenation (fish fatty acids, in some cases ionophores)
- Factors that affect rates of passage (unusually high feed intakes relative to milk production)
- Timeline for milk fat responses to ration changes 10 to 14 days



If milk true protein is below 3.0% (Holstein)

- Suggests that either rumen production of microbial protein is low or amino acid balance is poor
 - Carbohydrate availability in the rumen
 - Degradable protein availability in the rumen
 - Poor rumen fermentation (slug feeding, sorting)
 - Digestibility of undegradable protein sources
 - Amino acid balance (histidine on grass-based diets, methionine on many corn-soy based diets, lysine if most protein coming from corn)
- Consider balancing for amino acids (milk protein response ~ 50% of time within 2 weeks)



Relentlessly seek marginal milk opportunities

- In general, highest profit milk is that made through incremental (marginal) increases in production
- Herd-level management strategies (incomplete list)
 - Milking frequency (3X or 4X/2X versus 2X)
 - Decreasing dry period length on selected cows to 40 days
 - Use of bST
 - Capturing feed efficiency using compounds such as Rumensin
 - Grouping strategies (e.g., separate first calf heifer groups)



Frequent milking of fresh cows

- Some research suggests that milking fresh cows 4X to 6X for 20 to 40 days postcalving can result in carryover responses in milk yield after cows are returned to 2X or 3X milking
 - Field experience suggests that implementation of 6X milking is problematic on many farms, and may interfere excessively with normal fresh cow routines/behavior
 - 4X milking (milk fresh cows first and last at each milking) on a 2X dairy may result in 60 to 70% of the increase expected from changing a dairy from whole-herd 2X to 3X
 - Large commercial farm study in New York resulted in increased component-corrected milk yield of about 3.5 lbs/day across the first 7 monthly test days with 4X/2X for the first 21 DIM compared to 2X
 - Range of minimum interval 3.5 to 5.5 h



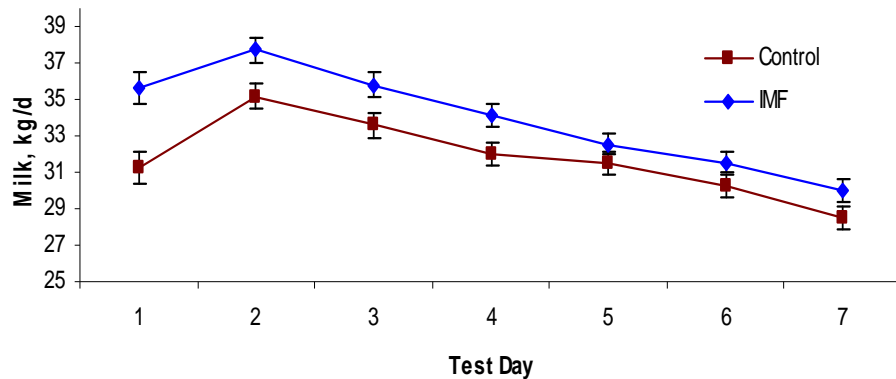


Figure 1. Least squares means and standard errors for milk yield during the first 7 test days of lactation for cows milked either 2X (control) for the first 21 d or 4X (IMF) for the first 21 d postpartum followed by 2X for the remainder of the period on three commercial farms. The P value for the effect of treatment was < 0.01 and the interaction of treatment and month was 0.27. Soberon et al., 2008.



Don't lose high value fresh cows

- Best dairies that we encounter maintain fresh cow loss (dead and sold for nondairy) during the first 60 days in milk in the range of 6 to 7%, WITHOUT hanging on to low producing, low profit early lactation cows
- Ranges of 10 to 15% exist on many dairies largely due to clinical or subclinical transition cow health disorders
 - Sound ration formulation and *implementation* during dry and fresh periods
 - Minimize effects of nonnutritional factors
 - Prevent overcrowding (minimum 100 sq ft of pack and 100% of headlocks – some data suggests 80%)
 - Ventilation / heat abatement for dry cows and fresh cows
 - Separate cows and heifers if feasible



Identify and evaluate low value and low profit cows

- Calculate breakeven production level and identify low profit cows
- Identify low value cows (e.g., low production, open, high SCC, etc.) and determine whether to replace, remove, or dry off
 - COWVAL routine in DairyComp 305
- Removal of low profit cows from overstocked pens sometimes does not change overall milk yield
 - Remaining cows perform better
- Critical to analyze each individual herd situation, perhaps in conjunction with agriservice professionals (consultant, extension, veterinarian, nutritionist)



Ensure all management routines working and being followed

- Many routines on the dairy farm
 - Milking, breeding, feeding, calving mgt, colostrum mgt, herd health mgt
 - Easy for protocols to drift
 - Can lead to drag in milk yield, higher SCC, poorer conception rate, increased morbidity and mortality in calves, lower feed efficiency and poorer rumen health



Evaluate milking routine and opportunities for milk quality premiums

- Target prep-lag times in range of 60 to 90 seconds (easy to let this slip)
 - Deviation from this prep-lag time leads to slower milk flow rates and altered patterns, lower production, greater risk for mastitis, and elevated somatic cell count
 - Low cost evaluation of milking routines available using lactocorder graphing (through QMPS and some veterinary practices)
- Are you missing out on milk quality premiums because of milking routine/facility issues or a handful of high SCC cows in the tank?



Don't incur heifer rearing costs longer than necessary

- Many herds maintain age at first calving (AFC) at 21 to 22 months
- Still have many other herds with AFC of 24 to 26 months
- Significant direct cost and opportunity cost
 - Feed and labor requirements
 - Facility requirements
 - Spreadsheet to calculate available at
 - <http://www.ansci.cornell.edu/prodairy/index.html>



Maximize reproductive program

- Good reproduction means lower average days in milk and generally higher milk component yield per cow
- Calculated cost per day open ranges from \$3/day at about 120 DIM to \$5/day later in lactation
- Are all cows getting bred for the first time by 70 DIM?
- Overall calculated 21-day pregnancy rate at 20% or higher?



Optimize neonatal management

- Focus on stillborn (DOA rate)
 - Many dairies 8 to 10% of heifer calves
- Colostrum management
- Nutrition through milk-fed and weaning phases
 - Mortality 8% and morbidity 30% or more on many dairies



Maintain low dead-on-arrival (DOA) rate in newborn calves

- Best dairies that we encounter maintain DOA rates in heifer calves in the range of 4 to 5%
- Ranges of 8 to 10% or more are common, and have huge effects on the number of calves available to enter the replacement enterprise or be sold as excess
- Intensive management of the calving process for a “just-in-time” move from a close-up group or pack to a calving area usually decreases DOA rates (and overall fresh cow health problems)
 - Requires 24/7 monitoring of calving
 - Eliminates cow moves 2 to 5 days prior to calving



Colostrum management and early nutrition

- Need to ensure consumption of 4 quarts of quality colostrum ASAP following birth – within 6 hours of birth
- Quality colostrum
 - > 45 to 50 mg/ml of IgG
 - < 100,000 CFU of bacteria
- Insufficient colostrum consumption
 - Increased sickness and death loss in calves
 - Slower growth rates at same nutrient intake
 - Potentially decreased lifetime production
- Feed to double birthweight by 56 days
 - Provide nutrients for growth and immune function



Strategically identify ration opportunities

- Accurate forage analyses enables tighter ration formulation to maximize return on purchased ingredients
- More sophisticated analyses (e.g. digestibilities) enables fine-tuning of use of homegrown forages
- Is high quality forage being used to its potential?
- May be opportunity to decrease overall protein feeding levels (primarily rumen degradable) in higher corn silage-based diets
 - Tougher to accomplish in higher haylage/baleage diets
- Research suggests no reason to exceed 0.40% phosphorus in early lactation and 0.35% phosphorus in other stages of lactation



Maximize feeding management program

- Hidden losses in feeding programs
- Accurate forage analyses
- Face management in bunkers and bags
 - Decrease shrink losses
- Accurate and frequent (at least weekly) silage dry matters
 - Ensure more consistent delivery of ration as formulated
- Protocol drift within and among feeders is common
 - Changes in particle size and ration consistency
 - Contributes to variable intakes and less efficient use of nutrients



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