

TOP MANAGERS

By Bob Kozlowski

Optimize key performance factors of reproduction, transition cow health, heifer health and growth, hoof health and cow comfort, and forage quality and feed management

The Five Habits of Top Producers

When a farm has performance issues the nutritionist is often contacted to review “the diet.” These performance issues may include lower milk production, reproductive inefficiencies, transition cow health and lameness problems. Although nutrition is a significant factor in cattle health and productivity, the diets formulated by most nutritionists today are very sound and usually are not the single limiting factor in herd performance.

I have observed several key performance factors that are consistently characteristic in our top performing dairy clients. It is interesting to observe the success of these herds in terms of milk production and herd profitability when most or all of these areas are optimized. These “Key Performance Factors” are:

1. Reproduction
2. Transition Cow Health
3. Heifer Health & Growth
4. Hoof Health & Animal Comfort
5. Forage Quality & Feeding Management

Reproduction:

As we evaluate production records, reproductive efficiency has a clear impact on overall milk production performance on dairies. Herds with excellent reproduction generally achieve high milk production with little effort. The connection here is simply in the numbers as it relates to the lactation curve. We know that mature cows on average peak in milk production by 60 days in milk and 1st lactation animals by 80 days in milk. After peak, animals will decline in production by 5 to 10% per month. Herds that maintain higher numbers of animals in the first 100 days in milk produce higher daily milk due to higher numbers of cows at or around peak milk. On the contrary, herds with lower numbers of animals in the first 100 days and/or herds with high numbers of animals in late lactation (>300 days in milk) will almost always produce less milk on a herd average basis.

I like to remind producers that an ideal lactation cycle consists of 300 days in milk, followed by a 60

day dry period. This results in a 12 month calving interval. Therefore, if animals ideally milk for 300 days, 1/3 of the animals are 1 to 100 DIM, 1/3 are 101 to 200 DIM and 1/3 are 201 to 300 DIM. In the “real world,” top producers achieve >35% of the cows 1 to 100 DIM and under 10% >300 DIM. With many herds reducing the number of days dry for mature cows to 45 to 50 days dry, and the occasional problem reproductive cow, these levels are logically very good.

We see reproductively efficient herds achieve pregnancy rates of 26 to 28% on an annual basis, with overall conception rates of 40 to 42%, and 1st service conception rates of 38 to 40% for lactating animals. Breeding programs that combine a structured timed AI system along with visual heat detection and tail painting are very effective. The key to any program, however, is compliance as we see many failures when programs are not precisely followed.

Many producers lost use of Posilac over the

Reproductive Goals: (lactating animals)

Herd Days in Milk: 150-160

% of Herd 1-100 DIM: >33

% of Herd >300 DIM: <10

Pregnancy Rate%: >25%

Conception Rate%: >40%

1st service conception rate: >40%

Heat Detection Rate: >65%

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FYI

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past several years due to mandates from milk processors. Posilac improves overall milk persistency in herds and can mitigate the production effects of lower reproductive efficiency.

Herds that were not optimizing reproduction while using this technology experienced significant overall herd milk loss when they stopped using Posilac. As a result, we see better managers in this scenario re-focus on reproduction and gradually improve milk production back to high levels as the herd lowered days in milk.

Transition Cow Health:

The effect of transition cow health on milk production is well-documented. Most dairymen dedicate a significant amount of their time to the prevention and treatment of health disorders at calving. Significant dollars are often invested in the pre and post calving period in both labor and medication. Even if a sick animal is successfully treated, there are negative repercussions in terms of milk production and reproductive efficiency. Therefore, it is not a surprise that top managers successfully invest in strategies that minimize health disorders in fresh animals.

I see several management strategies implemented on dairies that yield excellent results. These strategies include minimizing the number of animals in pre-fresh and post-fresh groups, as well as segregating 1st lactation animals from mature cows in these pens. Top producing herds have “zero tolerance” for overcrowding transition animals in terms of freestalls or pack space. Many of our clients also implement a strategy to maximize feed bunk space. Regardless of stall numbers, they stock transition groups based on a minimum of 24 inches of feed bunk space per cow. With these reductions in animal density, I have witnessed excellent improvements in health. Systems of evaluating blood ketone status or BHBA levels are effective for many of these producers to track their progress.

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Transition Health Goals:

Segregate 1st lactation animals from mature cows pre-fresh and post-fresh

Stocking density: 24-30" feed bunk space per head

Cull Rate 1-60 DIM: 5% or less

% Retained Placenta: <5%

% Clinical Ketosis: <5%

% Displaced Abomasum: <3%

Body Condition Score at calving: 3.0-3.25

1st test day milk-Heifers: >65 lb

1st test day milk-Cows: >90 lb

The strategy of segregating heifers from mature cows in these groups is also very successful in terms of start-up and peak milk for 1st lactation animals. This is especially observed in herds where heifers are smaller than ideal at calving and we have removed competition with larger dominant cows.

Herds with successful transition cow health also experience

improved reproduction and lower involuntary culling rates. These factors become interrelated as health compromised animals are at a higher risk for culling or death, tend to lose body condition at higher rates which results in delayed conception, and become overconditioned due to prolonged lactation length which makes them more susceptible to health problems in the following lactation.

Heifer Health and Growth:

Heifer health and size at calving are missed opportunities on many dairies today. The average milking herd is generally comprised of 35 to 45% of 1st lactation animals. I see the most successful dairies raise heifers that milk at high levels upon entering the herd.

A significant part of achieving high levels of milk production in 1st lactation is the size of the animal at calving. Top producers consistently freshen heifers that are at least 80% of their mature cow weight after calving. If the mature cow weight of a herd is 1,500 lbs, 1st lactation animals should average 1,200 lbs after calving. A research study in 1986 documented a strong relationship between 1st lactation weight at calving and milk production yield. The study concluded that in undersized heifers, 100 lbs of body weight was equivalent to 500 lbs of milk for the lactation, most likely due to

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Heifer Growth Goals:

Weaning weight: Double birth weight

Breeding weight: 55% of mature cow weight

Calving weight: 80% of mature cow weight



using nutrients for growth. Therefore, herds that calve heifers at weights of 150 lbs under the target could experience as much as 750 lbs lost milk for the lactation and 2 lbs milk per head on overall daily herd average.

Targeting growth throughout the life of a heifer is effective to determine opportunities for growth. It is a generally accepted goal for calves to double birth weights by weaning. The next time frame we target is weight at first breeding. Top managers achieve 55% of mature cow weight at first breeding. With our 1,500 lbs example, the optimum animal weighs 825 lbs at this time. With these data points, we can begin to “connect the dots” and determine where we have a breakdown in the system. Growth challenges are often associated with poor calf health, including respiratory illness and coccidiosis outbreaks, with overcrowded facilities.

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Hoof Health and Cow Comfort:

Hoof health and cow comfort are synonymous in the dairy industry. With an increased emphasis on animal welfare and the implementation of evaluation systems like locomotion scoring, the industry is beginning to make great progress to identify opportunity

4 Pen Stocking Rate Goals:

Dry, Close-up Dry & Fresh Cows—stocking rate based on providing 24–30" feed bunk space per head

—maximum of 100% stocking on free-stalls in 4 row facility

High Cows—maximum of 110% of free-stalls

Mid-Late Lactation Cows—110–120% of free-stalls



areas in animal comfort. Two areas that I see as significant differences on dairies related to hoof health are stall comfort and overstocking.

The average dairy cow has increased in size over the past 30 years. Many of today's larger cows are housed in older facilities that were sized for cattle weighing as much as 200 lbs less than today. As a result, stall comfort and use are compromised, leading to lower lying times. Furthermore, poor stall surfaces produce hock problems and consequent structural breakdown in legs on cattle. Top producing dairies identify these areas of opportunity and invest in changing freestall dimensions, both in loop style and stall length and width. Feet and leg improvements are also the result of changing stall surfaces from rubber filled mattresses to deep bedded sand or manure solid stalls. I have documented highly significant improvements in lying time in a very short period of time after these changes are made.

The economics of the dairy industry have driven many producers to overstock barns by as much as 150% of stall availability. I believe that when many other factors are correct, herds can achieve high production with overcrowded facilities in the short-term. However, over the long-term, laminitis problems emerge and can become a chronic problem. The top performers I work with maintain stocking levels at 110% or less in high production groups, with zero overstocking in fresh and dry cow groups. Hoof health and structural integrity of feet and legs are superior in these dairies, resulting in higher intakes, better body condition and higher reproductive efficiency.

Forage Quality and Feed Management:

Forage quality has improved greatly over the past 20 years. Harvest practices such as wide swath mowing of hay, improved genetics such as BMR corn silage, increased bunker packing density and improved bunker face management have yielded excellent results in forage quality and subsequent herd performance. These improvements have allowed cows to produce at high levels of milk on higher levels of forage than were fed in the past.

Top managers today increase the dry matter level of corn silage to 35 to 40%, with excellent kernel processing and packing to bunker silo densities of >18 lbs dm per cubic ft. Likewise, these managers are harvesting drier haylage at 40% dry matter and packing to densities of >16 lbs dm per cubic ft. These herds are doing an excellent job with bunker face management. Most operate a silage defacer, which limits secondary fermentation and heating and provides more consistent feed to cows.

Improved silage genetics (including Brown Mid-Rib Corn Silage) and better harvesting techniques result in higher fiber digestibility of forages. Our top producing herds consistently harvest haylage and corn silage with 30 hour NDF digestibilities of >55% and BMR Corn Silage >70%.

Even though it is difficult to excel in all these areas on a consistent basis, top performing operations are generally successful in these areas most of the time. Drafting a plan to maximize performance in one area at a time can yield excellent results.

5 Forage Quality Goals:

Bunker Silo Density: Corn Silage >18 lb per cubic foot DM

Haylage >16 lb per cubic foot DM

Forage Dry Matter%

Corn Silage 35–40%

Haylage 35–45%

Forage NDF digestibility (30 hour invitro)

Corn Silage (conventional) >55%

Corn Silage (BMR) >70

Haylage >55

