

Are You Controlling the Controllables In Your Dairy Business?



By Donna M. Amaral-Phillips

Recently, I was reminded of an article entitled “Control the Controllable”. These three words really resonated with me as they relate to both my professional and personal life. Often times, way too much energy is spent worrying about or tackling issues we have no or very little control over or those which will not have a major impact. Our time, financial, and other resources would be better spent on issues or practices that have a positive impact on our personal and professional lives.



When it comes to managing a dairy operation, one must juggle many balls at once. Decisions need to be made as to those issues or areas which are important to devote resources to completing or exploring. Some issues are just not worth the energy to worry about “fixing” or altering. Probably one of the timeless examples of “controlling the controllable” relates to worrying about if and when it is going to rain. Obviously, the amount and timeliness of rain impacts future feeding programs and potential profitability of a dairy operation, but we have very little direct “control” over getting it to rain on command, other than irrigating the crop.

Many day-to-day management practices in a dairy business are under your “control” and impact a dairy’s profitability. Sometimes the end result is beyond our “control”, but incorporating tried-and-true and research-based practices and checking to see that they are actually being practiced are not outside our realm of influence and, thus, control. At least you have control over the path toward achieving a beneficial outcome. In this article, several of these day-to-day controllable management practices are discussed. Many of these practices may seem mundane, common sense, and part of every-day chores, but are easily forgotten as to their role in “controlling the controllable”.

Controllable Feeding Practices

Feedbunk: Getting the appropriate amount and composition of feed delivered to the feedbunk, providing adequate bunkspace (24 inches/cow), and having feed available 20+ hours daily are the hallmarks for well managing feeding programs for lactating dairy cows. Have you or one of your employees fed the cows and discovered you did not have enough feed left in the mixer to distribute the feed the entire length of the feedbunk? Thus, feed space just became limiting. Cows should have fresh feed available after returning from milking. Feed should be pushed up often over the day, but 30 minutes after feeding and return of cows after milking are critical times to push up feed. Cows housed in tie-stalls also need their feed pushed up so they can easily reach it. The key is paying attention to all of these details and

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evaluating whether all employees and/or family help are following the correct feeding practices and, as a manager, making modifications when necessary. Some of the best-intended employees can incorporate bad habits or try to cut corners to get chores done faster.

TMR: Maintenance and appropriate adjustments for TMR mixers are important in the delivery of properly mixed feed with adequate particle length. In particular, knives may need to be replaced and leading edge sweeps adjusted for proper operation of a vertical mixer. Without this routine maintenance, the TMR may under or over mix the feed which can lead to cow-related, health issues, such as lameness or reduced butterfat.

Water: Clean, fresh water should always be available from at least 2 locations per group of cows. Water is the nutrient needed in the largest quantity by all mammals. For every pound of milk a cow produces, she needs to drink 4 to 5 lbs of water. Limiting clean, fresh water intake decreases feed intake and milk production, opposite to our goal. Cows should have a minimum of 3 inches of linear space per cow in the group. Waterers should be cleaned and scrubbed with a brush at least twice weekly using a weak chlorine solution (1 cup of household bleach/ 5 gallons water). Water bowls in tie stall barns also should be cleaned routinely.

Grouping cows: Lactating cow groups should ideally be stocked at 100% of resting and bunk space, but no greater than 120%. The fresh cow group should never be stocked over 100% resting space. Housing first-calf heifers separately from mature cows reduces stress on these heifers and improves milk production. Regardless, cows should not be in the holding pen longer than 45 minutes to 1 hour per milking. Thus, a group of cows moved to the holding pen should contain less than 4 to 4.5 times the number of total stalls in the parlor. For example, a double-8 parlor should have no larger than 64 (16 stalls X 4 turns/hour) to 72 cows placed in the holding pen at a time.

Monitor Open Dairy Cows

Dairy cows that become pregnant within a reasonable timeframe produce more milk over their lifetime and are less likely to be culled from the herd. Thus, the goal is to have as many cows pregnant as possible by the time they are less than 150 days in milk. Various researchers have calculated the cost of additional days open. The actual cost varies depending on heifer replacement costs, value of cull cows, age of the cow being culled, and the number of days cows are open. Although each researcher calculates a different cost, they all agree that there is a “cost” associated with extended days open. The more cows with extended days open, the greater the total cost. No great surprises here. But, closing this gap in getting cows bred and pregnant is a controllable management component.

Various tools and practices can be used to detect cows in heat and those cows which should be bred. Heat detection can be accomplished through routine, planned visual observation (3, 30-minute observation periods daily), use of heat detection aids, or through an activity monitoring system. Maintaining and using production and breeding records for individual cows are important to determine the best day in milk to start breeding a cow and whether they have been bred.

The most important controllable component in a breeding program is to identify open cows and to do something about getting them pregnant. Open cows include not only those not bred past the voluntary waiting period, but, also, those not currently pregnant, even if they have been bred. The earlier these cows are identified, the quicker they can be rebred (or bred) to decrease the total number of days open. Routinely having a veterinarian palpate or ultrasound bred cows or collecting milk or blood for testing for compounds associated with a pregnancy is the best way to determine cows which ARE OPEN, not whether they have not come back in heat. (Pregnancy diagnosis does require that cows are at least 28 to 35 days pregnant, depending on the test/veterinarian.)

Generally, pregnancy diagnosis is recommended for herds every 2 to 6 weeks, not every 2 to 6 months. Your veterinarian can help select the best frequency needed. In herds using natural service (bull-bred herds), routine

pregnancy diagnosis is as important, if not more important, as those herds using AI. Pregnancy checks help determine not only those cows open or pregnant; but also an estimated breeding date to use when calculating a dry off and expected calving date.

Improving and Maintaining Cow Comfort

Cow comfort is often listed as one of the most important aspects associated with getting dairy cows to milk to their genetic potential economically. Cow comfort involves not only providing a comfortable resting place and surface for cows, but also providing for proper ventilation within the facility to minimize heat stress, prevent condensation of moisture, and allow for good air quality, i.e. low ammonia concentrations.

Optimize cow rest

Cows spend 10 to 14 hours daily lying down, representing almost half of their day, and prioritize this behavior over others, such as eating. Thus, when lying times are restricted as can occur with increased stocking density or uncomfortable resting environments, performance (reproductive, production, health) or chances of being culled may be negatively affected. Research has shown a minimum of a 40-hour recovery time is needed for cows previously deprived of lying times by 2 to 4 hours.

For optimum performance of individual cows, stocking densities (number of cows per stall or 100 sq ft bedded pack) should be kept close to 100%. However, stocking densities are often increased to 120% to increase returns per group of cows. Recommended maximum stocking densities are dependent on milk price, returns per cow, barn costs, and stage of lactation and production of cows within the group. Fresh cows should never be crowded as stresses decrease their chances of becoming pregnant later. In facilities with high stocking densities, cows will wait for an available stall (especially from early morning till 4 AM) and upon return from milking they immediately lie down to ensure they get a stall. Thus, feeding times may be reduced and time spent eating may be more rushed with the potential for a sub-optimal rumen environment which can negatively affect milk production and butterfat test.



Stall Surfaces

Stall surfaces (i.e. mattresses or rubber mats versus sand) also impact lying times. Sand bedded stalls are generally considered the “gold standard”. Deep-bedding stalls with sand reduce hock injury, provide better cushion and traction when rising and lying, reduce lameness, reduce standing time in stalls, and increase lying times. However, like any stall surface, they must be properly maintained. Deep beds of sand, 12 to 18 inches of sand on top of an earthen or limestone base, need to be groomed at each milking to removed soiled sand and manure and to keep the bedded surface level. New bedding (20 to 80 lbs sand/stall/day) should be added twice weekly. Although retrofitting barns is complicated and may not be feasible, stall length does impact stall usage and lying times. Today’s cows are larger compared to previous generations of dairy cows seen when many barns were built.

With mattresses or stall mats, the use of adequate amounts of bedding on top of the mattresses or mats is important to keep cows dry and “clean”, to prevent hock and knee injuries, and to minimize negative impacts on lying time. Studies have shown that cows prefer “clean”, dry stalls over those that are wet and soiled with manure. Mattresses should be bedded with 3 inches of sawdust. Studies in tie stall barns with

as little as 1 inch of bedding on top of rubber mats saw increased lying times by 72 minutes per day and found a 25% reduction in hock lesions and knee injuries. (With the FARM program, 95% or more of the lactating cows need to have hock and knee scores of 2 or less.) Rubber mats vary in the amount of cushioning provided and have limited life expectancies and should be replaced when cushioning benefits are compromised.

Fresh Air Exchange Is Important

Proper ventilation in barns is important for removing heat, moisture and noxious gases (i.e. ammonia) and is accomplished when fresh air enters the barn from outside. This is different from recirculation of air achieved with fans. Box fans move air within a barn and do not bring in fresh air from outside. Properly sized and designed open ridges, correct barn orientation (east-west orientation or a direction perpendicular to prevailing summer winds) and effective use of the side curtains on each sidewall in the winter are needed to allow fresh air to enter a naturally ventilated barn and for heated air to exit through the ridge opening. In the winter, the eave openings at the top of each sidewall curtain should be open equal to half the width of the ridge opening. Ventilation is just as important in the winter as in the summer. Generally speaking, air exchange rates during the winter should occur at least 4 times per hour and should increase to 40 to 60 times per hour during the summer under high heat loads where the side curtains are completely open.