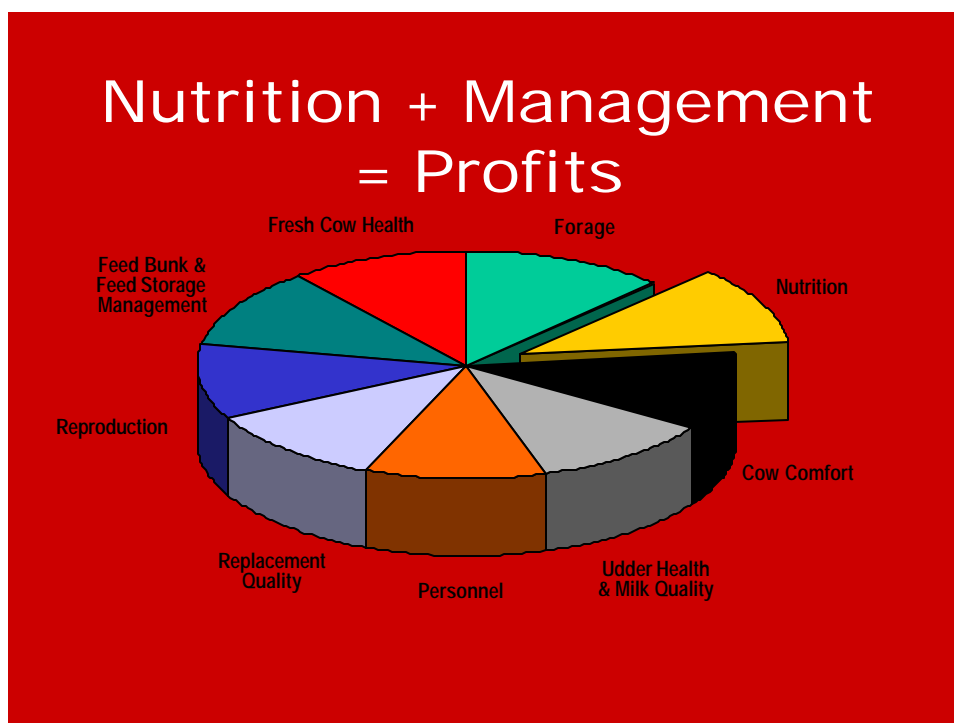


Dairy Cattle Management: Things that work and things that do not work! Douglas F. Waterman Ph.D

Today's dairy producers have access to a lot of new and innovative technology. These technologies are positioned to improve health, cow comfort, reproduction, milk yield, milk components, etc. If a producer adopted every new technology that was available, all herds would be over 100 pounds of milk, cull rates would be less than 20%, all cows would conceive, heifers would not be over \$1800, and all dairy producers would be extremely profitable. Unfortunately, this is not the case.

Several factors impact dairy producers profitability. The chart below illustrates several, but not all, of the factors that can influence profitability. In this chart, the factors are balanced out equally, which is not correct. The impact of each factor is directly dependent on each individual farm. This is why all technologies that are tried are not successful. Each farm and farm manager is different with different goals, opportunities, and needs. Applying the same technology to every farm is a mistake; it should be based on the producer's goals, objectives, needs, and capabilities.

Figure 1.



Another thing that impacts the success of technology implementation is the fact that the average dairy producer is **reactive** and not **proactive**. If the operation is going well (production, health, breeding, etc), the tendency is to not make any changes. The problem with this approach is most problems that arise on a farm are caused or initiated 2

to 4 months before we observe the problem. For instance, a producer has a poor pregnancy check of 2 pregnant out 15 checked. The producer's concern is today, but in all reality the problem started 40 to 60 days before that. Another example observed is lameness. Lameness issues are initiated 2 to 4 months prior to visible signs.

Producers should be more **proactive** in trying to reduce or prevent these incidences before they occur. Using tools, such as records, helps them make sound, fact based decisions that are necessary to prevent these problems from occurring. In addition, field service people must be helping producers use these proven tools and make suggestions to adopt technology based on that farm problems and goals.

In the January 4, 2006 Dairy Herd Management, Wayne Weiland stated "cows love consistency and anything we can do to increase that consistency will increase how well cows perform for us". This is a very profound and true statement. In addition, they listed 10 areas or practices that can be improved on a daily basis to increase profitability:

1. Forage quality
 - a. Low pack density
 - b. Bunks not covered
 - c. Poor face management
2. Feeding consistency
 - a. Moisture levels
 - b. Feeding moldy, spoiled feed
 - c. Mixing time
 - d. Over filling mixer
 - e. Mixing order
3. Stall design and comfort
 - a. Bedding
 - b. Lunge space
 - c. Size
4. Time away from feed, water and stalls
 - a. Time in holding area
 - b. Distance to parlor
 - c. Cow flow
5. Pen Changes
 - a. Minimize moves
 - b. Consider leaving in one pen until dry off
6. Stocking density of pre- and post-fresh groups
 - a. Recommend 80% and never over 100%
7. Remove chronic disease carriers
 - a. BVD
 - b. Staph
 - c. Johnes
8. Co-mingling fresh cows and sick cows
 - a. Separate groups

9. Heat detection
 - a. Are cows in heat?
 - b. Implement programmed breeding
 - c. Heat detect
10. Early detection and intervention of lame cows
 - a. Spot lame cows before a locomotion score of 3 or higher

So how do we as farm service providers address these areas and what things work and don't work on today's dairy farms? The answer quite honestly is

“ It depends”

As I stated earlier, no two farms are the same. Each farm is different and should be evaluated as an individual and recommendations should be based on your observations and the producer's goals. This process improves the success of the technology that is being implemented. For example, sand is an excellent bedding source, but if not managed correctly it can cause major problems. The five areas I am going to discuss are:

1. Transition cows (pre- and post-fresh)
2. Herd Replacements
3. Cow comfort
4. Reproduction
5. Bunker and pile silo management

Transition Cows

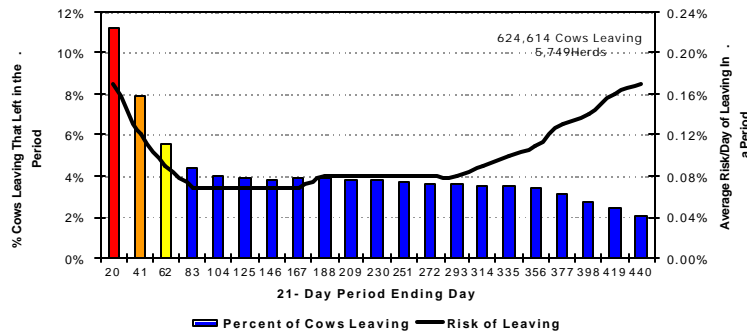
This is the period three weeks pre- and post-calving. A lot of research has been done in this area, but we still have not eliminated the metabolic disorders commonly associated with calving and the high incidence of culling. Figure 2 illustrates why we are focused on this area. Based on Minnesota DHIA data from 10/96 to 10/01, the period when more cows leave the herd is the first 60 days post-calving with the first 20 days being the highest.

A lot of factors could contribute to the high incidence of culling during this period, but the main cause is probably how the transition period is managed.

Figure 2

Cows Leaving the Herd

When Cows Leave the Herd (MN DHIA 10/96 – 10/01)



Source: 2002, Steve Stewart, DVM, Dipl.-ABVP, Univ. of Minnesota, College of Vet. Med.

Several feeding and management systems have been researched and recommended over the years (Two-group, One-group, Shorten dry period, Continuous milking and Low or restricted energy) in an attempt to lower metabolic problems and reduce the number of cows leaving the herd. They have all worked and they have all failed.

Typically, they fail because of over-crowding. In a bedded pack facility, 140 square feet per cow is recommended and at least one stall per animal in a stall facility, preferably 80% capacity. But 9 out of 10 times this is not the case, cows have 100 square feet or less than a stall per animal. Weiland stated cows love consistency and this comment is more true here than any other time.

I prefer a “one-group” dry cow program with an average days dry 50-55 days, being fed restricted energy. This system minimizes the numbers of social and diet changes, provides enough time for proper mammary involution, rumen papillae to reconstruct (if necessary), and appears to minimize the pre-calving decline in dry matter intake (DMI).

Not only is the decline in DMI just prior to calving less, but also the DMI post-calving is higher. Both appear to be beneficial in lowering post-calving metabolic disorders, specifically fatty liver and ketosis. Another interesting point is milk persistency is greater with this dry cow system. To achieve low energy diets, straw is typically fed.

Another management practice, which is extremely beneficial, is a post-fresh group for 14-21 days post-calving. Placing fresh cows into an over-crowded high group is a plan for disaster. Fresh cows are not as aggressive at the feed bunk, require a different plane of nutrition and require more attention. Again, over-crowding is critical and providing a diet that promotes/supports DMI is the key.

Herd Replacements

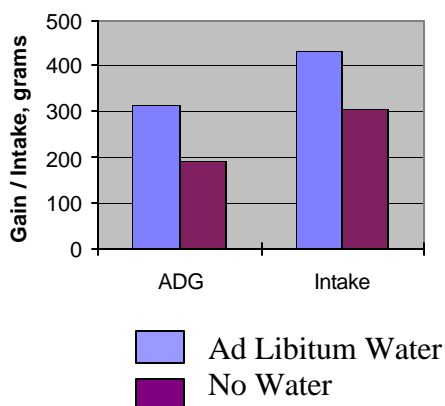
This is the future for any dairy producer, but so often an area of neglect. Calves do not receive adequate amounts of colostrum nor soon enough after birth to support immunity. They are not provided enough nutrients to support growth rates of 1.5-2.0 pounds per day. In addition, weaned heifers are often fed fermented feeds via a total mix ration (TMR) and housed in over-crowded facilities, on concrete without any bedding.

Too many times I see producers that do an excellent job with calves, ruin it with poor heifer facilities and poor management. The end result is heifers, which do not have the proper structural growth, are over-conditioned, and calve over 24 months of age.

Calves should receive a minimum of 2 quarts of colostrum immediately after birth followed by 2 more quarts at 6 and 12 hours later. Feed saleable milk, pasteurized milk (do not feed waste milk), or milk replacer to support 1.5-2# of ADG. Offer free-choice water and dry starter beginning on day 3 of birth, but no hay.

CALVES NEED WATER !!!

Source: Kertz, et al., JDS, 1984



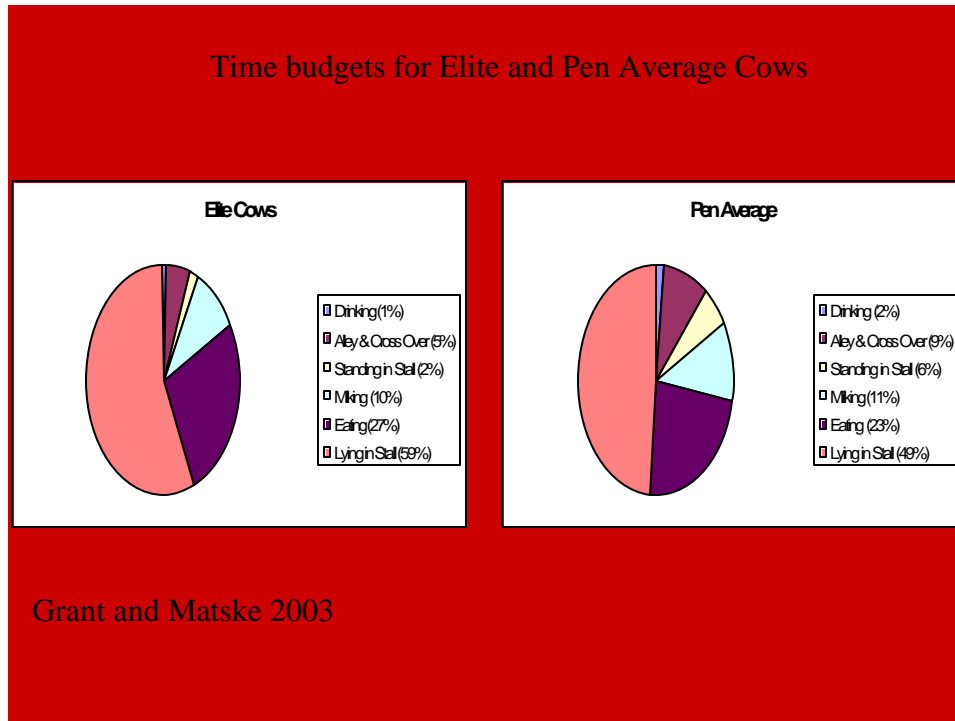
At weaning, animals should be offered free-choice water, starter or grower, dry hay, and housed in transition pens of 4-6 calves for 3 to 4 weeks. Do not overcrowd group pens and limit the number to 20-40 animals per pens. Feed dry hay and grain until at least 6 months of age. Regardless of the forage base (corn silage or hay silages), heifers can become over-conditioned, so it is recommended that you feed straw or a lower quality hay mixed into the TMR to lower the energy density. Harvesting a dry cow and heifer hay silage or hay of medium maturity is ideal.

Cow Comfort

I am rolling a lot of items into this category from the time in the holding area/parlor to stall design. The amount of time a cow spends eating, drinking, milking, and lying down is critical to her ability to milk and reproduce in a healthy manner. Grant and Matzke monitored the activity of the average cow compared to elite cows (top 10%). You can

see a significant difference in the amount of time spent lying down and ruminating between the two populations.

Figure 3.



Typically cow numbers grow faster than the number of units in the parlor, so the amount of time in the holding areas increases as farms grow. Any time over 1 hour is excessive and can negatively impact milk production and reproduction. In addition, it can be a main contributor to lameness. Splitting milking groups in half is one method used to lower holding area time. Splitting an overcrowded group has often resulted in 2-3 more pounds of milk.

A lot of emphasis is placed on installing the proper stall divider and neck rail, with specific stall dimensions. Having enough lung-space and being free of obstacles are also important. However, the most critical factor is the surface material and what the stalls are bedded with. Are your cows comfortable when they lay down and do they have adequate footing when trying to stand up? In others words, do the stalls contain enough bedding. If greater than 12% of the cows are standing in the stall or are half-in/half-out, you have a stall comfort issue and more often than not it is related to a lack of bedding.

Sand is the bedding material of choice in regards to being inorganic (reduces incidence of mastitis) and providing cow comfort. Cows are comfortable and lying in sand provides excellent footing when trying to stand. It is, however, difficult on manure handling equipment and, if not managed correctly, can be a major nightmare. One farm I visited was using sand, but had a high somatic cell count (>400,000) and a lot of

damaged/broken cows. He had heard all about the positive things with sand bedding, but failed to hear the part about filling the stalls full with sand on a weekly basis. This producer was bedding once per month and never filled the stalls. The situation was definitely worse than if he had installed mattresses or used sawdust on top of cement.

Rubber belting or matting has been installed in a lot of facilities. The first rubber was installed in the feed alleys to encourage cows to eat more. However, the greatest benefit to installing rubber is in the holding area, parallel parlors, walk ways, and anywhere a cow must make a turn, such as return alleys and backing out of stalls. The benefit is less wear on the hooves, especially rear feet.

Reproduction

Based on DHIA records, the average pregnancy rate for the United States and Canada is 14-16%. To maintain herd numbers, the pregnancy rate needs to be over 20% and in order to have significant internal herd growth, it should be 25% or greater. To overcome our less than ideal breeding programs, it is being recommend to breed cows earlier and earlier and/or use programmed breeding to get semen into more cows.

A lot research has been conducted on programmed breeding and producers have heard how valuable a tool programmed breeding is. A concern with programmed breeding is the pregnancy rate. In some herds, pregnancy rates have not improved due to poor and improper implementation of the program being used.

Herds that focus on heat detection and make it a priority have been able to raise pregnancy rates above 20%. Cows are observed for heat three times per day, with the first observation coming prior to milking and when groups are being moved to the parlor. These herds are recording heat detection rates around 70% (+/- 5%) and with 30 to 35% conception rate are recording high pregnancy rates. All cows that fail to show heat by 70 days are given a shot of prostaglandin and bred only if estrus is observed. Old tools still work when it is a priority.

Bunker and Pile Silo Management

As herds have gotten larger and the need to harvest forages faster has increased and more and more bunker silos and pile silos are being used. These structures can store many tons of feed more economically than traditional uprights. They can be filled faster and have faster unloading rates than uprights. Another advantage can be more consistent feed since the fields are layers, so there is less variation day to day. However, the feed quality can and is often compromised when they are not managed well.

The amount of shrink or waste recorded for bunker silos and pile silos range from 12-25% and in some cases closer to 40%. The loss is a result of poor packing, not covering the silo, harvesting forages that are too wet or too dry, a storage facility too large for the herd size, poor bunk face management, too much surface exposed to the air, and over filling the structure.

Ideally, forages should be harvested at 30-35% DM to provide the best quality forage. This allows for proper packing to ensure good density. A minimum of 6 inches should be removed from the face per day to reduce dry matter loss. Building silos that are narrower allow for greater freedom in feed inventory use. Because bunkers are often oversized (to reduce cost), the pile is split to reduce the amount working face being exposed. Splitting the bunker or pile increases the overall surface area exposed to air resulting in more spoilage and waste.

All bunkers and piles should be covered the day harvesting is completed to reduce DM loss and spoilage. In addition, covering stops the rain and snow from seeping into the silage. Recently, some producers are also lining the bunker walls with plastic to reduce the amount of surface area exposed to air due to cracks and to prevent water damage along the walls as well.

Summary

Everything that has been tried has worked and failed at least once depending on the farm and its management. On the average some management practices are more successful than others, but as the old saying goes “there are exceptions for every rule”.

I encourage all producers to be more **proactive** and think about how any decisions made today may influence your operation down the road. Implement new technology based on the information available, but more importantly, on how it fits into your goals and objectives.