

Sick Cow Problems Are People Problems:

A Management System for the Periparturient Cow

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The most dangerous time in a cow's life is calving. The most influential period on profitability for any cow's lactation is the dry period and the first 30 days post-calving. Most dairy practitioners I know, and all of what I would call "good cow men" would agree with those two statements. Why is it then, that in most cases such a disproportionately small amount of time and effort is spent on these classes of cattle? It is my belief that "the game" is won or lost right here. . . . During this time of a cow's lactational cycle, we literally chisel in stone her road map for health and ours for wealth. Certainly, with profit margins as slim as they are in the dairy business, anything we as managers or you as practitioners can do that has a positive impact on the bottom line should draw and hold our undivided attention. It has been documented that parturient paresis affects about 5-9% of the dairy cows in the United States^{1,2} and that the direct costs of treating this disease is estimated at \$15 million annually, and that secondary problems associated with parturient paresis may skyrocket the costs to more than \$120 million annually.² Further, it has been documented that cows with milk fever are three to nine times more likely to develop other periparturient problems.³ As a result of these foregone statements, one of our major management objectives should be to control subclinical hypocalcemia, clinical milk fever, and "droopy cow syndrome," which exists when cows do not calve normally, expel fetal membranes in a timely fashion, and eat and milk normally during early lactation.⁴ Even though the periparturient cow and her management has drawn much more attention in recent years, I still believe that it is the area where we have the greatest opportunity for improvement of the whole cow, and thus, the profitability of the whole dairy enterprise.

I have been asked to share with you our system for management of the periparturient cow, as well as the people involved in that same system. Up front and for the purposes of our discussion here, let's get a definition or two out of the way. To my way of thinking, a "transitional cow" is a cow that is between lactations. Our job is to help her make the transition from one to another as smoothly as possible, thereby creating the most opportunity for her success in the following lacta-

tion. For me, a pre-parturient cow is any pregnant cow on the farm that is not in milk. We break these cattle down into a couple of sub-groups, specifically "drys" and "springers". As I speak of "dry cows", I am referring to cattle that are between the end of their just-completed lactation and 21 days pre-partum. At 21 days prior to calving in our system, a dry cow becomes a "springer" or a "maternity cow". She is grouped, handled, and fed as such. A "fresh" cow in our system, is a cow in the first 30 days of lactation. While seemingly obvious and elementary, these definitions are the fundamental benchmarks for our system, and thus important to have them clearly defined.

Our system of management for the dry/springer/fresh cow involves some relatively technical principles, but is simple in its operational application and execution. We have taken advantage of the good work done by many researchers in the field of the transitional cow. However, it is based on a three-pronged approach to dairy husbandry that, in our opinion is fundamental and necessary in all phases of dairy management:

1. Good Cow Health
2. Sound Reproduction Program
3. Comprehensive Nutritional System

As is the case with any program, one must have goals. I try to instill in our management teams the principle that goals should be individual in nature, not "averages". Some one once said, ". . . we measure success one customer at a time. . . ." We believe that this is how our transitional program should be measured. Averages may mean very little on the operational side of things. A cow could care less if the "average" calving interval for the herd is 12.8 months if she fails to conceive on time and is culled as a non-breeder. Many dairymen (and some practitioners, I am sure. . .) on the other hand, may be guilty of not being very disturbed about those that were culled if the "averages" look good. We believe that between those two vantage points lies the difference between mere management and excellence. In other words, it is one thing to have a goal for a calving interval, but we must remember that averages are made up of individuals, and that every detail counts. After all, attention to detail is the essence of management.

Our goals are not magical or unique, but have been developed over time, and are believed to be practical and workable. Think in terms of these goals applying to every individual cow, not an average that we are shooting for. The “average” is how we measure the general degree of our success. Our goals are relatively simple, and are categorized for the purposes of this discussion:

Dry Cows

- Dry Off @ 60-75 Days Prior to Calving
- Dry Off in Good Flesh (3.5 - 3.8 BCS)
- Rumen Regeneration
- Ample Exercise
- Nutrition Program Maintains BCS

Springer/Maternity Cows

- 21 Days in Springer/Maternity Pen
- Inclining Dry Matter Intake (DMI)
- Urine pH - Acidified (6.5 or below)
- DMI @ 30-32 lbs/hd/day @ Calving
- Unassisted Calving w/ Placenta Shed

Fresh Cows

- No Break in DMI
- 90% of Herd Average DMI within 10 days
- Uterine Involution Begins Immediately
- Continual Daily DMI Increase
- No more than 1/2 to 3/4 BCS Loss @ Peak Milk (45-60 days)
- Uterus able to Conceive @ 40 days Post-partum

Reproductive Goals

- 3 heats by 60 DIM
- 1st Service @ 60 DIM
- 2 Services Artificially
- Days to Conception ≤130 DIM

As stated earlier, our goals are very simple. There are others (including this author, at one point in time) who would make this a much more detailed and complicated set of criteria. However, as stated already, that goes against my philosophy somewhat. There are a host of other things to measure, and as many ways to measure them. Experience has taught me that if I can get the aforementioned things done, I don't have to worry about what my %Milk Fevers, %Retained, %Ketosis (etc., etc.) or various other maladies may be. They will be acceptable, and well below anyone's published “goals” that I have seen. After all, though it may seem idealistic, our goal for most of those things is the same... Zero. I have learned that if I can get all our energies chan-

neled into cow care, I don't have to pay people to run statistical analysis programs to see if we are doing well or not. Besides, after all that analysis is done, you still have to figure out what is wrong and how you are going to fix it. Why not just start there? **Develop a good plan, train your people well, execute properly, and follow through. The results are much more palatable.**

So, given these goals, how do we organize our programs, protocols and people to get it done? To begin with, I figured out several years ago that it is unfair to expect performance from someone who does not know what it is that you want them to do, or how you want them to accomplish it. As a result, I decided that a written protocol for herd health and reproductive issues was a must. At the onset, I sought the help of the veterinarians with whom I was involved at the time to contribute to that document, and I challenged them to make it practical. That same quest has continued over the years, and the result is what we feel is a clear, concise approach to the everyday abnormalities that we run into in our herds. It is a dynamic document, to which additions and modifications are continually being made. We allow our own people to have a part in that process. Beyond that, we provide hands-on training for our people that allows them to gain or build on their experience. This is coordinated through our own veterinary staff, and involves the local veterinarian as well. This process is basic to the team approach that is essential if our goals are to be met.

We feed our cows with a total mixed ration (TMR) system. We monitor daily offerings and resulting DMI. This is true for all groups of cows, including milking, dry, or maternity groups.

We use PCDHI® as our herd health and reproductive records system. We are not on official test, but weigh our own milk on a monthly basis. We track all information relative to every individual cow through that system, and use those data to make all of our day-to-day decisions on an individual cow basis. We employ a “breeding setup program” using prostaglandin to program cows for breeding at 60 DIM. We blindly inject cows at 26, 42, and 56 DIM, and breed the cow artificially when she is detected in heat after the 56-day shot. We do not breed by appointment. If she returns to estrus, the cow will be artificially inseminated one more time. After that, she will be exposed to natural service. We palpate for pregnancy at 40 days post-insemination.

As per our goals, cows are normally turned dry between 60 and 75 days before they are due to calve. Cows are immediately shifted to a high-roughage diet that is primarily long-stem hay. We believe this is critical to rumen health, and we desire to stimulate the gut to rejuvenate itself during the dry period. Our “normal” dry cows generally are fed the poorer quality hay that results from our attempts to purchase dairy qual-

ity hay. "Normal" refers to those cows that are dried off in good body condition. In general, we should rarely need to supplement dry cows in order to maintain body condition. However, we do evaluate body condition, and divide our dry cows into management groups on the basis of body condition. We seldom run into a cow that is too fat when going dry. With culling pressure what it is, cows that do not produce enough milk to stay "in their working clothes" pretty much eliminate themselves. There are some exceptions, but not enough to justify a "fat" dry cow group. On the other hand, thin dry cows present a very real problem, perhaps the greatest challenge of all with regards to the periparturient cow. We carefully evaluate cows as they go dry, and place them into the "normal" group or the "thin" group on the basis of body condition and days until due. We generally do not feed milk cow refusal to our dry cows, as this practice creates confusion about what those cows are really eating. Refusal can be highly variable. Refusal is better suited and a more likely commodity to be used at some level in the ration for heifers.

"Abnormal dries", or cows that are turned dry prematurely present a whole new management challenge. We try to group these cows by body condition, and feed accordingly. Obviously, cows that are to be dry for extended periods of time are the biggest battle. These cows may range anywhere from thin to fat, depending on the circumstances and history of their previous lactations. However, with careful monitoring and close attention to rations, these cows can be managed to return to production. **It is not enough to balance and adjust rations. You must look at the cow. . . . Continually.** You must sort and group cows regularly in order to keep them going the direction that they need to go. If we could have every cow hit the maternity pen in a 3.5-3.8 body condition score, we would be very happy.

Rations are formulated and fed to our dry cow groups on a need basis. With herds scattered across the country, and in varying climates and feeding regimes, these needs change with time. For example, our thin cow ration in Florida will look very different in July when dry matter intake is difficult (even for dry cows) than it might look in December. Suffice it to say that the "eye of the master" is the best guide to success in this arena.

At 21 days prior to calving, we move dry cows to our springer/maternity pens. We believe that these 21 days, together with the first 5 days postpartum are the most crucial days in a cow's life. If I had to choose only one time of the cow's life when I could impact her management, I would trade everything else for this period. It is that important. I believe that if managed properly during this time period, 90% of the war is won before the battle even begins.

We employ the anionic ration technology in all of

our herds. We have read and studied the good work done by a host of researchers, and have employed the technique now for several years and across a diverse group of circumstances. I believe that short of the vacuum pump and the electronic pulsator, it is the most revolutionary principle to come along since God invented cows. To be able to virtually eliminate pre- and postpartum problems that have plagued us for so long with something as simple as a "negatively charged ration" is amazing. Let me hasten to say that simply putting an anionic ration in front of your maternity cows will not solve all of your problems relative to the transitional cow in the absence of very close attention being paid to the other factors associated with the proper implementation of this practice.⁴

Our maternity rations at all locations are balanced with the goal of achieving a total diet that is -15 meq/100g DM. This is done by attempting to get this number as low as possible in the ration initially by looking closely at the makeup of the components of the ration. We want to utilize as much forage as we can in all of our rations, including our maternity rations. However, the problem is that most forages are high in potassium, which reeks havoc with an anionic ration. In any event, once as much as can be done in this manner is accomplished, anionic components are included to achieve the desired level (-15 meq/100g DM). This level has been recommended to allow for some margin of error, be it in mixing/delivery of the ration, or in individual component variation.⁴ With the levels of calcium that we are feeding (150g/hd/day), without some reasonable margin of error, one could have a wreck on their hands in short order. We believe and have demonstrated that when we let our management slip in just a couple of areas surrounding this principle, we simply predispose ourselves to the very thing that we are trying to eliminate... Usually, it is even more pronounced.

We monitor urine pH of our maternity cows on a weekly basis. We desire to see urine pH below 6.5 on any cow who has been in the maternity (on the anionic ration) for three days or more. This simple evaluation tool can tell much about our management. We already know that the principle works. Whether or not it produces the desired effect has nothing to do with the science. . . Only our ability to manage the process.

Given the established and well-documented fact that reducing subclinical hypocalcemia has a very positive impact on herd health and profitability, we measure our success with this system on a periodic basis, and fine tune our management based on those results. Our own data from our herds clearly demonstrate that the system can and does work when properly employed.

Certainly, things don't always work perfectly at our operations. It is here that the "people" side of what I have been asked to discuss comes into play. I have just

described a system of handling the prepartum cow that will virtually eliminate all the bad things associated with calving cows, and have even demonstrated with our own, real data that it can be done. However, knowing the science of this wonderful tool is only a part of the equation. For example, as I have described this system and as easy as it sounds, you probably think that we just don't have problems with milk fever, ketosis, and droopy cows anymore. Wrong! Every time we let our people management slip, we have a "hiccup" in all of the very things that we are working to avoid.

As a recent example, we experienced one such "hiccup" in February this year. At our Colorado facility, on February 24, we had two cows down with milk fever on the same day. Knowing the science and believing that we were managing it properly, I was dumbfounded. How could this be? I immediately ordered the entire maternity to be locked up the next morning, and for the urine pH test to be done. Guess what? Only 45% of the cows had acid urine. A quick review of dry matter intakes of the mix revealed that intake had dropped to less than 20 pounds/head/day. (At this time, we were feeding hay separate from the mix, supposedly on a controlled basis.) A review of the hay feeding sheets revealed that the night feeder (who was relatively new) was grossly overfeeding hay during the night. Cows were filling on hay, which with its high K content was turning our DCAD upside down. Complicating this insult, obviously the cows were failing to consume all of the mix, thus destroying every effort relative to the DCAD concept.

On March 1, just one week after the initial indications of a problem, two displaced abomasums were diagnosed in cows that calved during this short window of error. That's how fast it can happen.

Let's look closely at the genesis of this problem. Experience has taught me that if you really want to see how good your management is, follow your mistakes to their highest level, and deal with it there first. It would be easy to blame the night feeder ... Was it really his fault?

Certainly, the night feeder put out too much hay. Why? When his feed sheets were pulled, he was putting out the correct amount of hay. Guess what? The first guy you would want to fuss at was the only guy doing his job "by the book!" He was doing exactly as he was told.

After that embarrassing revelation, we looked further. How could we possibly be overfeeding hay if he was putting out the correct amount of hay? Someone got the bright idea of checking the pen counts. We counted cows. The pen counts were grossly overstated due to heavy calving and failure of that information getting to the computer which calculates pen amounts and rations. **The feeder was feeding the right**

amount of hay, only for twice as many cows.

It gets worse. After resisting the urge to fuss at the maternity herdsman, we learn that the person operating the computer failed to realize that the counts were not being turned in daily. Worse yet, the dairy manager, who is supposed to review daily dry matter intakes and be at the veritable pulse of the operation had not even looked at these reports in a week or more.

Not being afraid to embarrass myself anymore, who do you think is responsible for making sure that that dairy manager is minding his P's and Q's?

Of course, all of these problems were immediately addressed, and on March 7, urine pH was once again measured. At this point, 98% of the maternity cows had acidified urine, and the problems went away as fast as the had come.

During the last 8 or so years of working with this anionic principle, I have seen a variety of "hiccups" like I have just described. Everything from a gross error like the truck driver delivering the milking ration to the maternity pen and vice versa, to something as simple as a creative and undetected cow straining her neck every day to steal from the next pen's ration (which is not anionic). This one piece of science has probably been responsible for teaching me more about people, cows, and the management of both (either independently or in conjunction) than any other experience. It is a classic example of something simple being made complicated. Most often, it is because of either a lack of training, or a breakdown of communication, both of which are totally non-scientific in their origin.

I am certain that I have not impressed you with my understanding of the internal workings of the cow. That was not my assignment (which is a good thing). I have tried to stress simplicity in this discussion, as I try to do in everyday application and approaches to management problems/opportunities.

In my 25 years of cow and people management, I have learned a couple of things. By and large, most of it, as the saying goes, I learned from a cow. The older I get, the more I believe that these are indisputable truths:

- **Cows are easy; people are tough.**
- **On the average, our biggest "problems" are caused by making something simple complicated.**
- **Your "problem" is not your problem.**
- **The simpler a thing is, the more repeatable it is.**
- **Success (at anything) is more directly proportional to attitude than anything else.**

My dream for our organization has nothing to do with size. It is much simpler than that. I dream of a circumspect approach to management, that starts with a detailed training program, rewards progress, and later rewards performance over the long haul. I want to be surrounded by people that are smarter than me, who

challenge the way that I think, and push me to be better than I am. My approach to our management team in all that we say and do is the same. I dream of and work toward an environment that truly lets that milker, feeder, or whomever it might be truly know that their role is important. . . That without them we cannot be successful. It is only when we accomplish this that we can be successful.

Sick cow problems really are people problems. There is no way around it. As you move about your daily routines, I challenge you to spend more time on "sick" people than sick cows. I see treating that mastitis problem or that lameness problems much the same way that I see a lot of things around our operations. . . Just a chore, not the real job. Circumstances, not the real

problem. Try my approach. **I promise you that when you focus on "sick" people rather than "sick cows", you will find the latter goes away in direct proportion to your success with the first.**

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Abstract

Laminitis in young dairy calves fed a high starch diet and with a history of bovine viral diarrhoea virus infection

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Six of the 33 calves born in a Swedish dairy herd during a period of four months developed laminitis when they were eight to 12 weeks old. The clinical signs included difficulty in rising, a stiff gait, overgrown claws and hemorrhages in the sole horn. Samples of blood were taken from four of the calves when they had shown signs of laminitis for two to seven weeks; the serum concentrations of calcium, phosphorus and vitamin D₃, the activities of aspartate aminotransferase and glutathione peroxidase, and the patterns of serum proteins were within their normal ranges. The feet of the same four

calves were examined after slaughter; the third phalanx of each calf was rotated and its distal end osteolytic. Histologically there was separation and degeneration of the squamous cells of the white line, and thromboses and vasculitis in the fine vessels of the corium. Four of the six affected calves were persistently infected with bovine viral diarrhoea virus and one had antibodies against the virus. From six weeks of age the calves had been fed rye wheat, a hybrid seed rich in starch, and this may have contributed to the outbreak of laminitis.