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Dairy Extension

Precision dairy technology will change dairy management: Are you ready?

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If cows could talk, would we listen? The truth is, new innovations in precision dairy technology are now emerging that allow us to "hear" the cow's complaints long before a performance or disease crisis emerges. "Great," you say... but then ask, "What are we going to treat her for?" After all, it is impossible to know what treatment is appropriate until a specific set of clinical symptoms is evident. While it is true that there will always be some animals that need treatment for clinical disease, we need to shift from this treatment mentality to a prevention mindset. In a preventative management strategy, the signaling cows are the "sentinel canaries" tipping off management that trouble is looming on the horizon not only for those cows but perhaps other herd mates too.

Our research studies have shown that the most sensitive non-specific indicator of trouble is a drop in milk production. In addition, other non-specific signs of approaching trouble that precision dairy sensors can now measure are:

- Elevated or depressed core body temperature
- Changes in milk composition
- Changes in body weight
- Reduction in activity
- Changes in feeding behavior or rumination

It is also true that most cow troubles have similar predisposing causes (see diagram) and that they are often related to sub-optimal herd management circumstances. Anything that causes stress and upsets the cow's biological balance predisposes her to sub-par performance or disease. Many of these predisposing causes of stress are preventable and are under your control. There are only two acceptable stressors; high production and calving. High production is required to maximize profit and calving is required to initiate lactation. Even calving stress can be reduced by assuring that 1st lactation heifers are well grown and that calving ease sires are used for breeding. All other stress can be eliminated or at least minimized. So why wait before taking action? Let's prevent cow troubles long before clinical symptoms of disease show up.

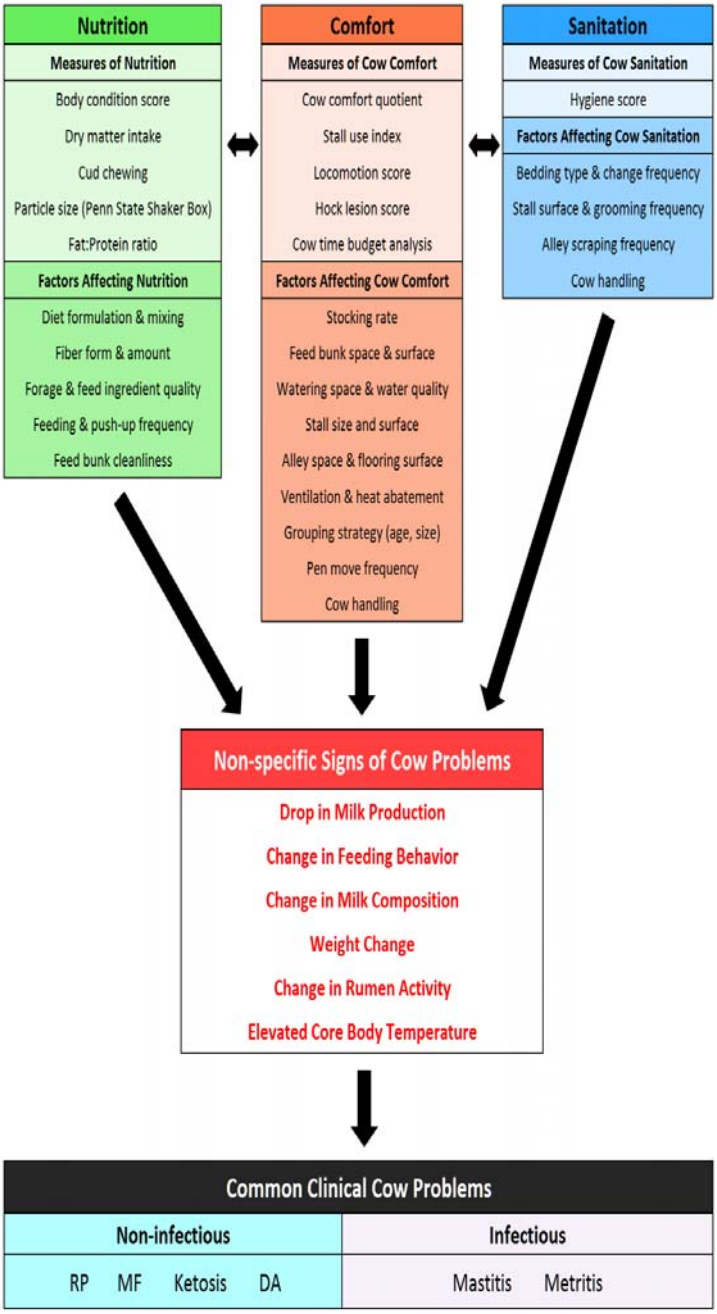
There have been many studies documenting that fresh cow disease is preceded by non-specific symptoms 5 to 10 days prior to the onset of specific clinical signs. Elevated core body temperature, reduced activity, drop in milk production, decline in dry matter intakes, and changes in milk composition like high fat:protein ratios (greater than 1.4) are all signals that need immediate attention. Pennsylvania

State University researchers demonstrated that cows that became sick had less milk and/or less activity (steps per hour) several days prior to diagnosing the clinical disease. Numerous studies have indicated that depressed pre- and post-calving dry matter intake is a good predictor of fresh cow disease. Wisconsin and Canadian researchers found that fat:protein ratios on 1st DHIA test greater than 1.4 was associated with high risk of subclinical ketosis; whereas, ratios less than 1 indicate risk of acidosis. Also, when 40% of fresh cows are above or 15% below these thresholds, it should trigger an investigation of predisposing causes. Our research found that a drop in milk production, changes in milk electro-conductivity or cow activity signaled the approach of trouble up to 10 days prior to the appearance of a clinical episode.

The question is not whether we should pay attention to these non-specific signals of trouble but what should we do when they occur? My suggestion is to take an inventory of all predisposing factors that lead to any cow problems and correct them. These are numerous as the diagram accompanying this article indicates and they are often interactive, usually with several of these factors occurring simultaneously. Most common is the overstocking of pens, which creates excessive competitive pressure for essential resources like feed, water and resting space. This is often further complicated by stalls that may be too small or uncomfortable and/or compromised by poor sanitation due to inadequate alley scrapping or bedding changes. Recently it also has been observed that too frequent pen moves that disrupt cow social hierarchy contribute to fresh cow health problems. Removal of all these unnecessary stressors makes it possible for most fresh cows to negotiate calving and initiate lactation uneventfully without post-calving disease.

Treatment is not a victory; it represents a significant loss–a loss of time, money, cow productivity and welfare. My advice is to get ahead of any need for treatment. Application of new precision dairy technology offers you an opportunity to respond at the very first non-specific signs of imminent trouble. Act to remove any of the predisposing causes of sub-par performance or disease. Unstressed healthy cows rarely need treatment intervention. They are more productive, have higher fertility, and enjoy greater longevity. Preventing clinical disease altogether is the only real victory... and everyone wins–the cows, the dairy farm, the processor and the consumer, and since healthy cows are also more efficient, the environment wins too.

Predisposing Management Factors of Sub-par Cow Performance & Disease



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