Calf Notes.com

Calf Note #166 – Bias in decision making

This is a Calf Note about accelerated milk feeding – but only as an example of how we expose bias in decision making. Please allow me to explain. I recently attended a dairy conference that included interesting presentations on dairy nutrition and management. During the shuttle ride from the airport to the hotel, I sat with a colleague who routinely consults with dairy producers all over the world. The consultant (we'll call him "Bill") and I sat together and had a few moments to catch up with each other. Bill just finished some extended travel where he was asked to speak on milk feeding programs for pre-weaned calves.

"Yup.", Bill said, "I recommend that calves should be fed a lot more milk than in the past." He went on to describe how producers reported to him how calves were growing faster, stayed healthier, and even produced more milk after calving. Bill was a true convert to the program of accelerated milk feeding and talked at length of the benefits he'd seen on many farms.

It was a compelling story. Throughout, however, my mind filled with objections. "Well, what about starter intake?", I thought to myself, "And what about all those calves with failure of passive transfer? They won't be able to properly utilize all those additional nutrients?". I was skeptical. Just a few days before, I met with a group of veterinarians, several of whom told me that they had experienced "train wrecks" with producers who tried accelerated milk feeding. How could Bill be so convinced when others (including my own research) had such negative experiences with similar feeding programs?

I concluded that Bill must be a victim of "confirmation bias", which is described in Wikipedia as "*…a tendency of people to favor information that confirms their beliefs or hypotheses. People display this bias when they gather or remember information selectively, or when they interpret it in a biased way.*" I thought that, because Bill was a "convert" to the program, that he made observations and interpreted data in a way that supported his belief. And any data that refuted his belief was discarded, as somehow being inaccurate, conducted inappropriately, or somehow not applicable to the "real world". I felt badly for Bill that he suffered so severely from this bias. What a shame that he couldn't see the "real truth" of the matter – that is, what I believed to be the real truth!

A few days later, it struck me – that, in fact, I was just as biased (maybe more so) than Bill. I've always been somewhat skeptical of the glowing, sometimes unrealistic, descriptions of improved performance of calves fed with an accelerated milk-feeding program. My own paradigm is that starter intake is important for long term growth and feeding lots of milk is not only expensive, but will inhibit starter intake, slow rumen development and extend the age at which calves are ready to wean. And I found myself rejecting Bill's observations as "unscientific" and "biased" and protecting my own paradigm. After all, I've done research in the area… I must know what's right! But, in

reality, I shared the same confirmation bias with Bill. I've rejected objective data that supports the concept of feeding more milk because it doesn't fit into my concept of the best way to feed young calves. (Note: for more information on confirmatory bias, an interesting resource is Wikipedia: http://en.wikipedia.org/wiki/Confirmation_bias).

But, this Calf Note isn't about accelerated milk feeding. It's about bias, and how we defend our paradigms – usually to our detriment. To make the correct decision, it's essential to evaluate information dispassionately and be willing to adjust our understanding of things based on new information. In my conversation with Bill, I rejected his positive observations, clinging to my belief about the problems associated with accelerated feeding. My confirmation bias restricted me from incorporating these objective studies into my paradigm and adjusting that paradigm to fit the objective data.

Wikipedia has a great list of various cognitive biases that can affect us all (http://en.wikipedia.org/wiki/List_of_cognitive_biases). The most typical I see include confirmation bias, availability cascade (repeat something enough and it becomes true), the bandwagon effect, knowledge bias, and recency bias.

As a researcher, it's my job and my responsibility to avoid (or at least minimize) bias. Research is the business of developing hypotheses, testing them and rejecting them when objective data doesn't support them. Researchers use the term "null hypothesis" to refer to the default condition that there is no relationship between treatments or observed data. We reject the null hypothesis when we determine there's enough information to conclude that there is a relationship among the observed data. This rigorous approach helps us make the correct decision. And it tells us we must change our understanding of things to incorporate this new information.

Sometimes , when people (even researchers) develop a theory, it takes on a certain level of importance – particularly when significant time and energy are invested. They develop a theory by starting with a concept, finding data that support that concept and then develop a full-fledged theory as to "the way things are" (i.e., reality) based on that theory. A critical error in the process occurs when confirmation bias takes over and data refuting the concept are ignored. As this new theory takes form, it becomes more difficult to simply accept the fact that perhaps the idea was incorrect in the first place. People become passionate about their new concept of reality and then, it's difficult or impossible to convince them to change. Listening to climate change detractors is a another wonderful example of confirmation bias at work.

I have biases. They impair my ability to see the world for the way it really is. However, by being aware them and their effect on my decision making, perhaps I can make better decisions by looking at ALL the information available – not only that which supports my preconceived notions.

So how does this affect accelerated milk replacer feeding? It's certainly a concept that some people feel strongly about. And, strength of conviction often leads to greater potential bias. From my perspective, whether or not additional milk feeding may affect future animal performance is based on increasingly sound data. There's more and more research information all the time in many

species of animals to suggest that neonatal nutrition can affect future animal performance. However, the *expression* of that future potential depends on many, many factors, including management, health and nutrition of the animals. For example, I may feed the animals aggressively to weaning, but if I then overcrowd them in pens with inadequate ventilation and feed them a diet with inadequate protein, then it is unlikely that I will recover my investment in additional nutrition prior to weaning. On the other hand, if my calves were otherwise limited by the amount of nutrients I fed them prior to weaning (e.g., I fed them limited milk in cold weather), then it's more likely that I'll see a significant growth and health response in these calves.

Making the correct decision requires dispassionate evaluation of all data – those which support your concept of reality and those that don't. We make bad decisions when we allow our biases to influence our decision making. Be aware of your biases and when you're considering an important decision in your company, consider whether your decision is truly an unbiased one. Good luck!

Written by Dr. Jim Quigley (19 March 2012)
© 2012 by Dr. Jim Quigley
Calf Notes.com (http://www.calfnotes.com)