



## Manure Screening : Offering New Insights in Dairy Nutrition

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As the science of dairy nutrition continues to evolve, there are many different areas to focus on in helping our customers make healthy, safe and profitable milk. Over the past 50 years, researchers have made significant advances in the areas of ration digestibility and its impact on dairy cow performance through dietary protein, energy, and minerals. Recent published literature has focused on rumen health, feeding efficiency, digestible fibre sources and the effect of enzymes on ration digestibility, milk production, and resulting cow profitability.

In dairy nutrition, our focus has always been on balancing the best ration possible, using the above advances in dairy research and technology, combined with the realities and opportunities in each of our customers herds. However, this approach cannot always take into account the exact ration that is eaten by the cows. We all know about the 3 rations that exist on all farms:

- 1) **Paper ration** – the computer balanced ration using feed & forage analyses for specific production parameters.
- 2) **Mixed ration** – the ration that is mixed on-farm and delivered to the herd. Changes to any of these ingredients that are not routinely monitored (ex. forage moisture levels, changes in protein, energy etc...) can have a significant impact on how close this ration resembles the paper ration.
- 3) **Consumed ration** – the ration that is actually consumed by the cow which can be very different from the paper and mixed ration due to sorting, and feeding management.

When troubleshooting or improving herd performance, it is the consumed ration that is the most important to understand and change. Many times this does not involve changing the ration nutrient balance at all. Any tool that can help us to gain a better understanding of this ration, and evaluate a herd's nutrition management is invaluable in offering our customers the best service possible. The development of a 3 tiered manure screening tool has now allowed us to interpret a fourth ration on the farm : the **digested ration**.

By evaluating the “leftovers” of the consumed ration, we are now gaining an appreciation of how the ration impacts rumen health and efficiency, allowing us to make changes to the other 3 rations in order to enhance cow performance. More importantly, we can do repeated screenings over time to qualify changes to rations throughout the year and have a sound basis for the important fine-tuning of

herd nutritional programs. We have been using the manure screener tool intensively for the last 6 months in our herds and have been very impressed with the opportunity this tool affords us and our customers. Screening manure is an excellent indicator of how well the ration is working, and is another tool we can use to work with our producers to meet their production goals.

Farmers and their advisors have evaluated the consistency of manure for many years. We all know how protein fractions and poorer forages impact manure (ex. manure becomes very loose as cows consume lush pasture or the resulting stiff manure with very mature forages). The typical method involves spreading it across the gutter floor with our boot to assess manure consistency and quantity of grains coming through (toe testing). Using a more refined system for analyzing manure has allowed us to gain a much deeper understanding of ration changes and the impact of on-farm forages and grains on rumen health and efficiency.

Using this exciting new tool across the province has also allowed us to appreciate the impact of rumen acidosis and improperly processed grains on ration digestibility. It has been a real eye opener to see the amount of undigested grains and forages in some manure samples. The 3 screens add a new dimension to ration evaluation that can't be matched with just "toe testing" manure. How many times have we said "Just turn down the roller mill down a little." With the manure screener, we can now follow these changes closely and see the direct impact of on-farm mill adjustments and how it affects the digestibility of the ration.

Higher feed prices last fall, resulted in many producers choosing to feed roasted soybeans in their rations. While beans can be a good source of protein and energy in dairy rations, improper roasting along with the negative impact of the oil can significantly affect rumen digestion. In herds where the beans have been improperly roasted or fed at high levels, the manure screener has been key in helping see the quantity of undigested beans that pass through the cow. We can now assess changes in the processing and feeding rates of roasted beans, or look at alternative ration ingredients to evaluate their impact over time.

The weather conditions of last year's growing season resulted in the harvest of drier than normal corn silage. Manure screening analyses have been instrumental in making producers aware of how important proper forage harvest is to herd performance. Seeing the quantity of hard, undigested kernels on the top screen provides easy proof on how important it is to make that extra effort to make sure that corn silage is harvested at the correct moisture this fall or consider silage processing.

It is always interesting to see the look of farmers when we collect manure samples and start seeing the results of the screening. Their initial joking and skepticism is quickly replaced with deep interest as they watch how the resulting analysis provides them with real insight into their herd's nutrition. The manure screening tool allows us to quickly evaluate and act on different ration issues in order to enhance aspects of the nutrition program or management that will directly influence the digested ration that the cow uses for maintenance, milk production, and reproduction.

One of the most important things with any tool is understanding when to use it, along with its limitations as well. Choosing the proper cows that are representative of the feeding group is important as well as understanding the impact of stage of lactation on results. The screener provides a qualitative analysis. It is ideal in capturing information about how the ration is being digested by the cow. Making too many detailed conclusions with ration numbers and dollars lost is potentially misleading since the sample is a representation of a group of cows at one time in the year. The real benefit of the manure screener is its repeated use on farms and evaluating changes. This novel tool has given us an opportunity to monitor herd performance and troubleshoot problems on-farm with new insight and perspective. The manure screener has helped us to understand why cow performance does not always match the balanced ration or TMR analysis. It also allows us to "tweak" the ration nutrients with more confidence because we can now follow these adjustments more accurately over time and provide the proper recommendations to our customers – especially today with rising quota prices and the requirement for rations that optimize the profitability of the farm.

Screening manure will never replace qualified people balancing proper rations with high quality feeds. On the other hand, the screener provides us with an improved perspective on how the consumed ration is digested and what improvements can be made to optimize ration performance. The manure screener, together with all of the new advances in dairy nutrition, can only help dairy producers gain more insight and profits from the resulting nutritional management of their herds.