

WHY TEST FOR MUN?

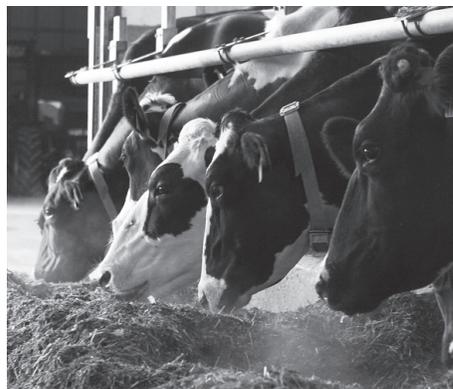
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Why look at MUN's? A dairy cow uses protein, which contains on average 16% crude nitrogen, which is broken down and used by the animal. Excess nitrogen from protein is converted to urea in the liver. Blood carries urea from the liver to several points of elimination. Some urea finds its way back into the rumen. The animal excretes the rest in the urine, manure or milk. Scientists have learned that there is a strong positive correlation between Blood Urea Nitrogen levels and Milk Urea Nitrogen levels.

In recent years equipment capable of measuring the nitrogen level in milk has been developed. The following key points come from research:

VARIATION

- There is a seasonal difference in MUN. Concentrations are highest from July to September.
- MUN is lowest during the first 60 days of lactation, higher between 60 and 150 days in milk, and lower after 150 days in milk.
- MUN is generally lower in first lactation animals.
- MUN levels are highest within a 2 to 6 hour period after eating.



- In herds with an alternating AM/PM test schedule, MUN is generally lower in AM than in PM tests.

REPRODUCTION

- Increased MUN is statistically associated with decreased fertility.
- Increased MUN is associated with a lower detectable pregnancy at herd checks.
- Cows with MUN levels below 10 mg/dl are 2.4 times more likely to be confirmed pregnant than cows with MUN levels above 15.4 mg/dl.

FEED COSTS

- Higher herd MUN is associated with higher feed costs per pound of milk fat, lower gross milk revenue and lower income over feedcosts

- MUN offers a useful tool for monitoring the efficiency of nitrogen utilization in commercial dairy herds.
- Diets may be balanced to achieve greater efficiency of nitrogen utilization, lower milk urea concentration, and lower feed costs, while still achieving high production. This may lead to improved income over feed costs.

Since cows have the final vote on a ration, MUN can be viewed as a report card on a herd's protein - energy balance. MUN will be high when there is too much protein for the amount of carbohydrate energy available to rumen bacteria. While high MUN levels will indicate the relatively high protein energy ration, they do not necessarily indicate which of these two nutrients are in relative excess or deficiency.

The place to start is to establish an acceptable concentration range for your herd. The generally recognized range for a group of Holstein dairy cows is 10 to 16 mg/dl. We recommend taking samples on a monthly basis and working with your nutrition consultant to establish the proper action for your herd.

**PRICE
REDUCTION
ON MUN
ANALYSIS**

CanWest DHI is pleased to announce that effective January 1, 2012 the price for milk urea nitrogen (MUN) analysis on the routine DHI samples, is reduced to 25 cents per sample. Our lab equipment in Chilliwack was recently upgraded which means that samples requiring MUN analysis no longer have to be shipped out of province.

MUN is a great indicator of protein-energy balance and an excellent tool to help monitor how your feeding program is performing at the cow and rumen level.

To request MUN analysis, simply notify your DHI staff on test day.

MUN Herd Summary Report

A dairy cow consumes protein, which breaks down into nitrogen in the rumen and is utilized by rumen bacteria. Excess nitrogen, which is not utilized by the bacteria, is converted into urea in the liver. Blood carries urea from the liver to several points of elimination, such as the urine, manure and milk. Since there is a strong correlation between Blood Urea Nitrogen and Milk Urea Nitrogen levels, we are able to test the milk to evaluate the efficiency of protein digestion and utilization in the cow's rumen.

MUN is a flag that signals when the feeding program is not in balance, resulting in lower milk production or higher feed costs. While the protein of different feeds varies in the speed at which they break down into nitrogen, the rumen bacteria require energy for digestion of this nitrogen. An imbalance of available protein and available energy in the rumen will result in the MUN being high or low. The most common cause of high MUN is a protein/energy imbalance due to:

1. To much or too little protein being fed
2. The wrong type of protein in the diet
3. Too little rumen available energy in the diet
4. Unbalanced sequence of feeds or presentation methods

Since MUN concentrations are influenced by many factors, we don't expect cows consuming the same diet to have the same MUN concentration. Dry matter intake, water intake, milk production, protein, and energy requirements will be different,

and each will influence urea concentrations. However, research has shown that MUN results from a group of cows, and the variation in values for a group of cows, should fall into specific ranges. Thus MUN concentrations of groups of cows are a monitoring tool for assessing nutritional status. MUN levels between 10-14mg/dl indicate "optimal rumen efficiency" but this may vary between herds due to feeding times, and other reasons.

The time between feeding and milking, age of cows and stage of lactation will all affect the level of MUN in the milk and should be taken into consideration when assessing your herd results. For this reason MUN tests should be done with every test. This will develop an acceptable results pattern for your herd and indicate when there is a possible feed imbalance, which should be addressed with your nutritionist.

INTERPRETING RESULTS

The MUN Herd Summary Report has three sections:

1. The top half of the page is a scatter graph that shows current test day MUN results by DIM. The plus sign indicates each individual animal while the triangle, circle and square indicate group averages for 1st, 2nd, and 3rd+ lactations. The most valuable part of this graph is to note the range from high to low. "Normal" is +/- 3.0 from the herd averages. What is the range of the majority of the animals in your herd?

2. The bottom right corner of the report, the Lactation Group Profile is a chart that shows group MUN averages based on Stage of Lactation and Lactation group. This is a good chart to evaluate trends across a herd. Be cautious not to over interpret averages representing only a few cows. MUN information should always be interpreted on a group basis of more than 8 animals, not on the individual cow.

3. The bottom left corner of the report shows a graph of the herd's average MUN value over the past 24 months. Watch for trends over time, and seasonal effects on your herd.

MUN results are another management tool to help you efficiently manage your herds. However, because your herd is within the 10 -14 mg/dl range does not necessarily mean that rumen function is great. Always make sure:

- The feeding program is adjusted when changes in forages or dry matter intake occur.
- The ration is properly balanced and dry matter intake is ideal
- The feed delivery to the animals is not affecting intake
- Your nutritional adviser is informed of any changes in your feeding program.

Discuss your MUN results with your nutritional advisor. They will be able to assist you in interpreting results and determining the proper course of action to maximize the profitability of your herd.