CENTRAL NEW YORK DAIRY NEWS

What do MUN Values Mean?

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What is MUN measuring? - MUN stands for Milk Urea Nitrogen. It is a form of urea that is found in milk. Ammonia is a byproduct of the body that is formed through the breakdown of proteins in the rumen. Amino acids and peptides are absorbed in the small intestine or excreted in the urine. When there is a flush of ammonia in the body, the liver converts ammonia into urea via the portal vein. This urea moves around the body in the blood, urine, and milk of cattle. In order for the liver to convert excess ammonia into urea, energy is used and thus can take away from energy that could be directed toward production. In order for the rumen to properly use the ammonia as a portion of the protein broken down, the soluble carbohydrates and ammonia must be balanced in the rumen. The levels of urea in the body can sway significantly throughout the day, particularly in the blood due to variables such as when they eat or are milked. Blood levels are called BUN or Blood Urea Nitrogen. They certainly are more difficult to determine, as blood needs to be drawn and analyzed . And because BUN's can vary more throughout the day, they usually are not as reliable as MUN values.

A Little History & Current Recommendations: Most producers receive MUN values from the milk plant. In addition, producers on a testing program can have individual cow MUN values analyzed. Many years ago, when Dairy One began offering MUN testing of milk samples, the main concern was that high MUN values were related to lower conception rates. Concern levels were somewhere in the range of 16 mg/dl or more! Some herd values were in excess of 20mg/dl! Today more current research and on farm field experience tells us that values in the 8 - 12 mg/dl range are where we would like to be. Today, we are more concerned about how well the nutrition program is working than the negative effects on conception, unless of course the herd values are in excess of 16.

How can we use MUN values to evaluate our Nutrition Program? Herd or bulk tank MUN values can be quite useful in determining if our feeding program is on track. A variety of issues can be involved when we are outside the ideal range.

MUN values too high (> 12): Too much total protein in the ration, too much soluble protein in the ration, too little carbohydrate in the ration, an imbalance of rumen degradable protein and NFC fractions. In some cases the ration may look fine on paper, but the actual carbohydrates utilized could be low because of too coarsely ground corn grain or too dry C.S. and/or inadequately processed C.S. These high values are essentially telling us that we are wasting protein and not utilizing protein very efficiently.

MUN values too low (< 8): Total protein too low, an improper balance of NFC and protein, or too high a level of fermentable carbohydrates in the ration (risking acidosis). Since cows are not 100 %

efficient in utilizing protein to produce milk, we cannot expect MUN values of 0. In fact (based on the most recent research) we would expect that values less than 8 would mean that we are giving up some economical milk production because of the shortage of protein in the ration.
(Some information written by Sarah Barber, CCE Summer Intern)

Fermentation Analysis - How can You Use it to Gauge or Improve Your Results?

Forage Quality is often first evaluated by the NDF level & NDF digestibility (in hay crops) and by the NDF level, the NDF digestibility, starch level, and energy level (in C.S.) : However, we all know that when it comes time to feed a fermented forage how well it fermented can have a huge impact on how well the animals perform. Forage that did not go through a proper fermentation often smells bad, reheats readily, and is generally unpalatable.

Various laboratories that analyze forages can perform a variety of tests to gauge how well a feedstuff fermented: The most commonly used lab in New York is Dairy One and they can analyze for a number of fermentation acids and pH, which can give you a good idea of how well the fermentation process went. They routinely run a few basic tests such as % Lactic Acid, % Acetic Acid, and a VFA (Volatile Fatty Acids) Score. A more extensive fermentation analysis is available for an additional fee. So, what kind of values should you be looking for? The table below will give you an idea of where the various analysis results should fall (normal preferred values).

Expected Values

	Corn	Legume	Grass	HM Corn
Lactic acid	>4	>3	>3	>1
Acetic acid	<3	<3	<3	<1
Lactic/Acetic	1.5 - 4.0	2 - 3	2 - 3	2 - 3
VFA Score	8 - 10	8 - 10	8 - 10	---
Propionic acid	<1	<1	<1	<1
Butyric acid	<0.1	<0.1	<0.1	<0.1
Total acids	5 - 10	5 - 10	5 - 10	5 - 10
pH	<4	<5	<5	<4.5
Ammonia	0.6 - 1.0	1.5 - 2.5	1.0 - 1.9	0.4 - 1.0
Ammonia N/Total N	10 - 15	10 - 15	10 - 15	10 - 15

So, what if your fermentation values are not falling into the proper range? What do you do? Well, Dairy One's website offers pretty much the standard guidelines as to what you should be doing to get successful fermentation results. They are:

1. Harvest at the proper moisture (D.M.) content.
2. Chop at the correct particle length.
3. Fill rapidly to avoid excessive respiration and minimize exposure to oxygen.
4. Distribute evenly and pack firmly to exclude oxygen.
5. Seal to prevent exposure to oxygen.

Getting the oxygen out and sealing the storage as quickly as possible is key. Review your practices to see where the shortfalls may be. Determine if your feed out rate is a problem. In other words, is fermentation going O.K., but you are getting secondary fermentation problems because you can't feed out as rapidly as necessary? If you use bunk silos, is your packing density adequate? Do you need a heavier packing tractor or simply more packing time?
Should you consider the use of an inoculant? Inoculants add bacteria that can speed up the fermentation process. Many also have enzymes that help to provide the feedstock necessary to aid in jump starting the fermentation process. If you decide to use an inoculant, be sure it has some university research to back up it's claims and also be sure that you handle it properly. Improper handling (with the resultant dead bacteria) can cause the product to fail. And remember, the use of an inoculant WILL NOT overcome shortfalls in management practices (numbers 1 - 6 above).

The Hot & Humid Weather - How did You (or should I say your cows) Do?

The heat waves we have experienced so far this summer have really put our ventilation and management systems to the test. Did your cows come pretty much close to holding their own? Did they drop 5, 10, or 20 lbs./cow/day? I would suggest your evaluation looks at what the percentage drop was from the pre heat wave period. Researchers from the University of Florida suggest that milk production drops greater than 10% from the pre heat wave period indicate the cows are under heat stress and additional measures to provide relief from the heat would be warranted.

What you have currently (in regard to heat abatement) will dictate what additional measures may be warranted. Be sure adequate water is available. Fans and/or sidewall curtains are one of the first things to consider. For cattle exposed to the outside sun, access to shade can be a real benefit. In freestalll barns that can handle the extra water, sprinkler systems (along with the use of fans) have proven to be quite effective. Also, don't forget to consider overcrowding in freestall barns. The heat compounds the negative effects of overcrowding.

When installing fans the priority should be: 1. holding area 2. milking area 3. close up dry cows 4. calving area 5. fresh cows 6. high producers 7. low producers.

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