

## Monitoring Your Milk Urea N Could Save You Money

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What is Milk Urea Nitrogen (MUN)? Milk urea N is a by-product of tissue and dietary protein breakdown. Digestion of protein in the rumen releases ammonia, which is utilized by ruminal microbes in the presence of readily fermentable carbohydrates for microbial protein synthesis. If a diet has excess protein or is lacking in fermentable carbohydrate, excess ammonia is produced. The excess ammonia is absorbed into the bloodstream and converted to the less toxic urea in the liver and excreted in the urine. The conversion of ammonia to urea prevents ammonia toxicity. Milk urea N concentration, which equilibrates the blood urea N concentration, is an excellent indicator of the balance between dietary protein and carbohydrate intake.

The MUN concentration varies from herd to herd and within cows in the same herd. Normal herd levels of MUN range from 10 to 14 mg/dl and individual cow MUN range from 8 to 25 mg/dl of milk. Recent research has shown that high MUN can have a negative effect on reproduction and results in excess N loading to the environment. In one study, conception rates decreased by 15-20 % with MUN levels greater than 18 to 19 mg/dl.

How can we use MUN testing more effectively and economically? Establish a baseline MUN for your herd. Monitor MUN for 2 to 3 months to establish a good, reliable baseline value for the herd and for the different groups of cows. Pay particular attention when there is a major change in the ration.

How do you interpret MUN values? If the MUN is high (greater than 16 to 18 mg/dl) it might imply:

- Crude protein in the ration is too high
- Rumen fermentable non-fiber carbohydrates (NFC) is too low
- Protein and energy fractions in the diet are not properly balanced

If the MUN is low (less than 10 mg/dl) it might imply:

- Crude protein in the rations is too low
- Rumen fermentable NFC is too high
- Rumen degradable and rumen undegradable protein fractions in the diet are not balanced

Do not interpret MUN values as an entity in themselves, but rather use the results as an indicator of a problem/potential problem with the feeding and/or management program. What a too high or too low MUN value is telling you is that you need to re-examine your feeding program – feed ingredient composition, ration formulation, feed mixing, ration delivery, feed intake and water intake.

For more information, please contact:  
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