

Central Wisconsin Agricultural Extension Report



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Milk Urea Nitrogen By: Matt Lippert, Wood County

Milk Urea Nitrogen (MUN) often is routinely included in the lab report received from you milk plant. Sometimes high MUN levels have been implicated with lower fertility. Research trials on this have been inconclusive (Elrod and Butler, 1993; Elrod et al., 1993; Ferguson et al., 1993; Butler et al., 1996 Carroll et al., 1988). Grazing herds have high dietary Rumen Degradable Protein/ moderate energy diets and typically have high MUN levels but not lower fertility.

TMR diets have been trending lower in total protein as nutritionists have begun to utilize amino acid balancing and protein fraction balancing instead of crude protein as the standard for formulation. As diets have dropped in protein fewer high MUN tests have come back from dairy plants as well. Monitoring MUN is not a measure that its time has passed however.

MUN is measured in milligrams per deciliter (mg/dl) ranging from below 6 to as high as 20 on individual cows with a slightly lower range typically for bulk tank samples. Season, time of day of the sample, breed, age of the animal and stage of lactation are all factors in this number but the largest factor is related to the ration fed the cows. The amount and type of protein, the amount and type of carbohydrate and the manner in which they are fed are the largest factors affecting MUN.

High MUN is an indicator of protein that has been fed but not utilized by the cow. Using the milk sample to identify this ration inefficiency can help reduce excess purchased protein. Often high MUN is associated with milk production that has not been realized. Reaction to a high MUN may be one or a combination of several feeding changes. It may not be the total amount of protein that is the problem, rather the rate at which the protein is broken down in the rumen and if there is a complimentary carbohydrate source available to be utilized by rumen bacteria. The amount of protein and carbohydrate fractions such as starch and sugar must be in the right ratio and have complimentary availability so that rumen microbes can build new proteins and utilize dietary protein.

Monitoring and reacting to changes in MUN also have value as dairy producers



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implement increasingly close nutrient management plans.

A response to a high MUN if ration protein level is moderate may be an increase in grain feeding, it might be a review of the particle size of the grain or the starch availability in the silage, maybe introduction or increase of a sugar source is indicated. If high protein forage such as alfalfa haylage is fed a change of the types of supplemental proteins or inclusion of other forages in the diet may be a solution. The answer to the problem is not always an easy one but without MUN typically the problem would not even be noticed. Very low MUN may suggest increasing amounts of protein sources.

In response to heat stress or crowding cows may change their meal size and eating frequency. These changes may affect MUN levels without any change in the diet fed to the herd.

As you can see MUN can be used as an indicator of the consistency of the diet and the cow's environment. If MUN has been steady but is starting to be more random it has served like a parakeet in the coal mine to give us early notice of potential problems and providing opportunity to improve cow environment and diet formulation.

Controlling Pasture Weeds **By: Craig Saxe, Juneau County**

Fall is the perfect time of year to consider using a herbicide application for controlling pasture weeds. But, before we get to that conversation, let's talk about other issues that can create weed problems. Many times a pasture is just in need of some minor adjustments. Key factors include: proper fertilization, liming and suitable grazing pressure. If you haven't recently taken a soil test, I'd start there. If the grass is not being fed, the weeds will outcompete the grass. Pasture that is overstocked or overgrazed is a candidate for additional weed pressures. Review your rotational or managed grazing system and make sure it prevents overgrazing and allows time for the grass to rest. If you run out of grass, putting your animals in a sacrifice lot is better than overgrazing the whole pasture. There is research to suggest that grazing short in the fall can lead to higher weed pressure the next growing season. Overgrazing in the fall slows the spring green-up, leaving plenty of bare spots for germinating weed seeds.

Now, let's go back to where we started and restate that if your management practices need a little help, then yes, fall is an excellent time to spray the problem weeds with a herbicide. According to Mark Renz, Extension weed scientist, fall is a great time because: 1. Results are as good if not better than spring or summer applications. 2. Control will eliminate forage loss from competition with these weeds the following year. 3. Control will prevent loss of forage utilization from animals near spiny/thorny weed species. 4. Applications can be made late in the fall (throughout October) after corn and soybean harvest.

For more details, see the following publications or fact sheets: "Pest Management in Wisconsin Field Crops, A3646 (yes, it includes a section on pastures)," "Thistles in Pastures and Beyond: Biology and Management" and "Brush Management in Wisconsin." Mark Renz is either an author or co-author for these publications, an Internet search including his name and the publication title should get you the document.

If you're concerned about how late in the fall you can apply, results are species and method of application specific. While foliar treatments on brush lose their effectiveness as the leaves start to change colors, herbaceous weeds can be treated much later into the season. Results will be herbicide specific, so check the label, but as long as leaves are actively growing, you should get good results with common pasture herbicides. If frost injury is visible on leaves, wait several days to determine if the plants will outgrow this injury before making applications.

Tools in the Toolbox for Livestock Producers

By: Lyssa Seefeldt, Marquette County

Cattle

Interested in learning more about how cattle carcasses are graded? There is a great publication from Colorado State University on Cattle Carcass Grading available at <http://goo.gl/19kOsy>. You should also check out the Beef Research simulation on Carcass Grading at <http://goo.gl/p6Noqf> to learn more and try your hand at grading. A great way visualize feedback you may be getting back from your processor.

The Wisconsin Beef Information Center (<http://fyi.uwex.edu/wbic>, hosted by UW-Extension) is a great place to find beef related, research-based information relevant to Wisconsin beef farmers. Topics range from feeding Holstein steers to decision making software to pasture & forage resources.

Curious about cattle myology (muscles)? Check out the University of Nebraska-Lincoln's Bovine Myology website to explore the cattle skeleton, muscles, and cuts at <http://goo.gl/gqnMYc>.

Sheep & Goats

Do you ever get frustrated trying to keep track of records? You can make your sheep records easier to manage with the Cornell Cewe program. Check out <http://goo.gl/dACQfi> to find the link to download the software (Microsoft Access based, so if you have Microsoft Office, you can run the program) and get some how-to information on how the program works.. You can track your herd inventory, health records, lambing information, sales, weights, and more.

The small ruminant toolbox was developed by collaborators with Sustainable Agriculture Research and Education program to support sheep and goat producers. Take a look at what is available at <http://goo.gl/YsMmiW>. If you have questions on sheep or goats, this is a great place to start looking for answers.

If you were at the Wisconsin Sheep & Wool Festival September 11-13, you may have stopped in to see the lamb carcass breakdown demonstration. With that demonstration was also a tool (Microsoft Excel based) for **deciding how to price your direct-marketed lamb carcasses**. More information on the tool is expected to be available on the American Lamb Board website in the near future (tool is currently in Beta testing). If you have questions about this tool, call Lyssa at 608-297-3141.

Swine

Pig Connect is a UW-Extension hosted website for you to list pigs or pig equipment for sale or that you are in search of. The website (<http://pigconnect.uwex.edu/>) is also good place to check out pork related, research-based information.

Curious about hog myology (muscles)? Check out the University of Nebraska-Lincoln's Porcine Myology website to explore the pig skeleton, muscles, and cuts at <http://goo.gl/RX3VmX>.

Poultry

Do you raise poultry? Do you struggle to figure out how much to charge your customers? The poultry break-even calculator offered by the UW-Extension agriculture agent in Richland County might be just what you need. The poultry break-even calculator is Microsoft Excel based and is available at <http://goo.gl/2Lxzsd>.

Raising poultry can be a profitable small-scale business if planned out properly and you are willing to do a lot of things yourself. A great getting started resource is available at <http://www.extension.org/poultry>. Many subjects are covered including nutrition, brooding, housing, health, anatomy, and other management topics. The extension.org website is also a great place to find poultry webinars (upcoming and recorded), see <http://goo.gl/C6sLL8> for topic details.

The National Center for Appropriate Technology hosts all kinds of fact sheets related to poultry production (and other livestock). You can find the fact sheets available as a download for free or a small cost at <https://goo.gl/w6zPk1>.



ADAMS COUNTY MASTER GARDENER CLASS

February 2 through June 28, 2016

Registration is limited to the first 15. First Tuesday of every month, at the Adams County Community Center. Times TBA. For more information, call the UW-Extension Office 608-339-4237.

New Wide IoH Lighting and Marking Requirements Take Effect November 1, 2015

By: Ken Schroeder, Portage County

As we become deeply involved in the harvest season and day light hours become less and less it is important to be thinking about safety and making sure our ag vehicles are visible to others when we operate them on the roads. This is not only for their safety but ours as well. This is a reminder that new Implements of Husbandry lighting requirements put into law by 2014 Act 377 and 2015 Act 15 take effect November 1 of this year. Here is a brief listing of what the requirements are, please go to <http://fyi.uwex.edu/ioh/> for a pdf copy of the new regulations or use the post <http://fyi.uwex.edu/ioh/2015/08/18/lighting-and-marking-of-implements-of-husbandry/>.

Current Lighting and Marking Requirements for *all* IoH:

Lights or lamps must be activated when operating on the road or parked in the right-of-way during **hours of darkness**. New wide IoH requirements for lighting require lights to be activated at all times vehicle(s) are operated on the highway.



What is a wide IoH?

Any **IoH exceeding 15 feet in total width or that extends over the center** of the roadway into a lane intended for the opposite direction of travel. Width is determined by the widest measurement of the equipment in a highway transport configuration. A town road may have a roadway of 18 feet. This means at 9 feet an IoH vehicle or vehicle combination meets the definition of a wide IoH. Standard lane width for a county or state roadway with a marked center-line is 11 feet. It is important to know your route and roadway factors that may require additional considerations for wide IoH.

In addition to the current requirements for lighting and marking, the following requirements apply at all times when wide IoH vehicle or vehicle combination is operated or parked on a highway:

Self-propelled IoH including farm tractors in excess of 12 feet:

Must be equipped with a 360-degree yellow or amber rotating strobe or beacon light, mounted at the highest practicable point **or** 2 flashing amber lights visible to the front and rear. **Note:** Any attachment to a self-propelled IoH or farm tractor is included in the vehicle's width.

Wide IoH must have:

- At least 2 amber flashing warning lamps, visible from both the front and rear. Must be mounted, as nearly as practicable, to indicate the extreme width but not more than **16 inches** from the lateral extremities.
- Red retroreflective material, visible to the rear and mounted within **25 inches** of the extreme left and extreme right of the IoH, spaced as evenly as practicable.
- At least 2 strips of yellow retroreflective material visible to the front. On left and right sides of IoH, the outer edge of this material shall be mounted within **16 inches** of the extreme left and extreme right of the IoH.
- At least 2 red tail lamps mounted to the rear of the IoH, or as close to the rear as practicable. These lamps are not required to be wired to light when headlamps or other lamps are activated. This provides for the use of battery powered tail lamps.
- A slow-moving vehicle (SMV) emblem.

IoH wider than 22 feet, must have all wide IoH lighting and marking. In addition, when traveling greater than 0.5 miles, an escort vehicle with hazard lights activated, is required. On a highway with:

- one lane of travel in each direction, the escort vehicle shall operate ahead of the wide IoH.
- more than one lane for travel in each direction or on a 3-lane highway, escort vehicle shall operate behind wide IoH.

For full details and additional requirements for Agricultural IoH Train (3 IoH vehicle combination) and Trailering IoH, please go to <http://fyi.uwex.edu/ioh/> for a pdf copy of the new regulations or use the post <http://fyi.uwex.edu/ioh/2015/08/18/lighting-and-marking-of-implements-of-husbandry/>.



Have a safe and productive harvest season!

I Have Late Blight, What Do I Do Now?

By: Ken Schroeder, Portage County

This is a community disease – management by all growers of susceptible crops is necessary. In the circumstance when late blight gets out of control, early harvest and crop destruction options must be considered to limit development of inoculum that could pose heightened risk for other area producers.

How do I destroy and/or dispose of my late blight-infected tomato plants?

There are several methods of destroying infected plants:

- 1) Pull up plants by the roots, bag, leave in the sun for a few days for plant and pathogen to die, and put out for trash pickup. This method is OK for a few plants.
 - 2) For many infected plants, plants can be cut at the base and allowed to die in place. Once plants are dead, you can go in and remove stakes, strings, and plastic and dead plant material can be incorporated into the soil. Shallow incorporation of debris is recommended to avoid creating a warm, sheltered environment which would keep the plant tissue and pathogen alive for extended periods of time beneath the soil surface.
 - 3) Plants can be flame-killed with a propane or other torch.
 - 4) Infected plants can be pulled and placed in a small pile covered over with a dark colored plastic tarp and left in the sun. This will create heat in the pile from the sun beating on the plastic tarp and plants will die within a few days. The winter will provide an excellent freeze kill for exposed infected plants.
- **DO NOT COMPOST late blight infected plant material**, as many piles may have warm centers that can allow plant material and the pathogen to remain viable.
 - **The goal is to kill the plants and this will kill the pathogen.**

Are tomato fruits from late blight infected tomato plants safe to eat?

Healthy-appearing fruit from late-blight-infected tomato plants are safe for human consumption. If they have been infected, but aren't yet showing symptoms, they won't keep in storage. There are some concerns about canning infected fruit because bacteria can enter late-blight infected fruit and impact quality. UW-Extension food science extension specialist, Dr. Barbara Ingham recommends avoiding canning tomatoes that exhibit late blight infection. Further information can be found at: <http://fyi.uwex.edu/news/2009/08/26/tomatoes-and-potatoes-infected-with-late-blight-are-they-safe-for-eating-or-preserving/>.

I have tomato or potato late blight in my garden – will I get it next year if I plant tomatoes again?

The strain of the late blight pathogen that we currently have in WI cannot survive outside of living plant tissue. Our strain or 'type' of late blight is probably US-23 which is known to be an A1 mating type. What does this mean? Much like we have male and female 'mating types' in our human population, the late blight pathogen requires an A1 and A2 mating type to be present together to form persistent, overwintering, long term spores (oospores). Oospores can persist in soil for many years. However, without a compatible mating type in WI (we do not have any A2 strains at this time), there are no oospores produced and there is no risk of this season's late blight residing in the soil over winter. To reiterate, the late blight pathogen that we currently have in WI will not overwinter in the soil on its own. It requires living plants or plant parts to remain viable and infective. Therefore, it is critical to kill infected tomato plants and plant parts such as fruit. Potato tubers can also serve as a source of overwintering inoculum and should also be destroyed if found to be infected with the late blight pathogen.

How fast will late blight infected plants die?

This depends upon how many points of infection the plant received, the cultivar (some cultivars are more susceptible than others), the history of use of protectant fungicides (such as copper), and on the weather. Hot, dry, sunny weather typically holds back late blight; whereas cool, rainy, overcast weather will cause late blight to progress rapidly killing the plant in 7 to 10 days.

Can late blight be seedborne in tomatoes?

Generally, the late blight pathogen is not considered a seedborne pathogen in tomato.

*The above information is excerpts from *Managing Late Blight in Organic Tomato and Potato Crops* by Amanda J. Gevens 2015. For additional information on dealing with late blight, contact your local University of Wisconsin Extension Office <http://counties.uwex.edu/>.*

Nitrogen Fertilizers Deplete Soil Organic Carbon

By: Nav Ghimire, Green Lake County

The common practice of adding nitrogen fertilizer is believed to benefit the soil by building organic carbon, but University of Illinois soil scientists dispute this view based on analyses of soil samples from the Morrow Plots that date back to before the current practice began.

The research, also drawing upon data from other long-term trials throughout the world, was conducted by four soil scientist and their paper "The Myth of Nitrogen Fertilization for Soil Carbon Sequestration" was published in the Journal of Environmental Quality.

It is fortunate that researchers over the past 100 years have been diligent in collecting and storing samples from the University of Illinois Morrow Plots in order to check how management practices have affected soil properties. The Morrow Plots are America's oldest experimental field. Researchers in this study were intrigued that corn growth and yields had been about 20 percent lower during the past 50 years for the north (continuous corn) than for the south (corn-oats-hay) end of the Morrow Plots, despite considerably greater inputs of fertilizer nitrogen and residues.

To understand why yields were lower for plots that received the most nitrogen, the researchers analyzed samples for organic carbon in the soil to identify changes that have occurred since the onset of synthetic nitrogen fertilization in 1955. What researchers found is that after five decades of massive inputs of residue carbon ranging from 90 to 124 tons per acre, all of the residue carbon had disappeared, and there had been a net decrease in soil organic carbon that averaged 4.9 tons per acre. Regardless of the crop rotation, the decline became much greater with the higher nitrogen rate.

Findings have troubling implications for corn production due to the widespread use of yield-based nitrogen recommendations since the 1970s. The one-size-fits-all approach was intended to minimize the risk of nitrogen deficiency as insurance for high yields. Unfortunately, the usual result is over-fertilization because of the assumption that the fertilizer supplies more nitrogen than the soil. The opposite is true in most cases, and especially for the highly productive soils of the Corn Belt that receive the highest nitrogen rates. The rates have been progressively inflated over the years by yield increases from agricultural advances such as better varieties and higher populations.

Their findings for the Morrow Plots are confirmed in published literature from field studies that included initial soil organic carbon data. Studies in numerous publications spanning more than 100 years and a wide variety of cropping and tillage practices, found consistent evidence of an organic carbon decline for fertilized soils throughout the world and including much of the Corn Belt besides Illinois.

Researchers don't question the importance of nitrogen fertilizers for crop production. But, excessive application rates cut profits and are bad for soils and the environment. The loss of soil carbon has many adverse consequences for productivity, one of which is to decrease water storage. There are also adverse implications for air and water quality, since carbon dioxide will be released into the air, while excessive nitrogen contributes to the nitrate pollution problem.

Because soils differ in their capacities to supply nitrogen, researcher stress the need for soil testing, ideally on a site-specific basis, as a prerequisite to soil-based nitrogen management that optimizes fertilizer rates.

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In comparing USDA data for Iowa and Illinois, the states that rank highest in corn production, they found that from 1994 to 2001, annual grain yields in Iowa averaged 1.7 billion bushels with 740 thousand tons of nitrogen, as compared to an average of 1.5 billion bushels produced in Illinois with 847 thousand tons of nitrogen. The difference, translates into lower fertilizer efficiency that cost Illinois farmers 68 million dollars per year.

The source of this article is the Journal of Environmental Quality (November/December, 2007) and is also available online at ScienceDaily Magazine. Material is edited for content and length.

2014 Farm Program Updates **By: Ken Williams, Waushara County**

This past spring there was a lot of coverage and a number of articles about the 2014 Farm Program. A number of meetings were held around the area to provide information to producers about the various options available to farmers under the 2014 Farm Bill. There were deadline dates last spring to sign up for these programs. Additionally there is a requirement that a farmer must enroll each year with their FSA office to remain covered under the program they originally signed up for. The final date for this enrollment is September 30, 2015. September 30, 2015 is also the final date for producers to sign up for the Dairy Margin Protection Program (DMPP).

Dairy producers may sign up for catastrophic coverage (CAT) of \$4 margin coverage level of 90 percent of their established production history by paying a \$100 administrative fee. Dairy producers may purchase increased coverage by selecting a percentage of coverage from 25 to 90 percent of the established production history in 5 percent increments and a coverage level threshold from \$4.50 to \$8 in 50 cent increments.

Producers may access a Margin Price Protection (MPP) tool at <http://DairyMarkets.org>.

Milk price pressures have pushed the margin down to about the \$8 level from January 2015 until the present and the current opinion is for the rest of 2015 to also be in the \$8 range. The forecast for 2016 is for the first half of the year to be at the \$8 level and then rise to nearly \$10 by the last quarter. A vast number of factors can affect the dairy milk margin. The strength of the dollar, the drought in California, the strength of the Chinese economy, milk production in New Zealand and in Europe, as well as crop and milk production in the Midwest can all have positive or negative effects on our local milk margin.

Sequestration, or reduction, of annual spending for most Federal programs, including USDA farm programs, was part of 2011 legislation passed by Congress, and is intended to reduce the Federal budget deficit. The Federal Office of Management of Budget (OMB) is responsible for determining when sequestration is administered, and what the level of sequestration is. Provisions in the 2014 Farm Bill allow for farm program payments to be reduced by sequestration. Conservation Reserve Program (CRP) and Federal crop insurance payments are exempt from sequestration.

The OMB is expected to require USDA to reduce 2014 farm program payments between 6.8 and 7.3 percent. Expectations are that there will be a sequestration reduction of 7.2 or 7.3 percent for ARC-CO, PLC, and other farm program payments for both the 2014 and the 2015 crop years. For sequestration to not occur Congress would need to override the application of the sequestration provisions on farm program payments for the 2014 and the 20145 fiscal years, which seems unlikely to occur at this point in time.



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