# **Cornell Cooperative Extension**

Southwest NY Dairy, Livestock and Field Crops Program

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# CROPS COWS & CRITTERS newsletter

A partnership between Cornell University and the CCE Associations of Allegany, Cattaraugus, Chautauqua, Erie and Steuben Counties. Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities. Volume 4 · Issue 8 · August 2023

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COWS & CRITTERS

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#### Mastering Pasture Management With Grazing Stick: A Pro Farmer's Tool For Success

By Camila Lage, Dairy Management Specialist, Southwest New York Dairy, Livestock & Field Crops Program

The grazing stick is a valuable tool for farmers to measure pasture dry matter and estimate the available forage for their livestock. Its importance lies in providing a quick, practical, and calibrated measurement system to assess the grazing potential of a pasture. While using the grazing stick, it's essential to take multiple samples from various areas to ensure a representative value of the pasture's dry matter. This helps account for variations in the pasture's growth and grazing potential.

#### HOW TO USE A GRAZING STICK

#### Measure Total Forage Height:

Use the ruler on the grazing stick to measure the total height of the forage. Subtract 3 inches from the total height to account for residual forage that should not be considered grazable material. To accurately gauge the average leaf height of the grass in trampled vegetation, hold the foliage upright in one hand, excluding stems and seed heads of tall grasses from the measurement for precise results. A good rule of thumb for large pastures is that grazing stick measurements should be taken at least 15-to-20 locations within a pasture. In smaller pastures, 7-10 measurements may give you an accurate measurement.

#### Measure Density:

Slide the grazing stick through the plants, keeping it flat on the ground at the soil surface. Observe the number of dots visible on the stick, which corresponds to the pounds of dry matter per inch of height.

#### **Calculate Estimated Harvest:**

Multiply the number of inches from step one (total height minus 3 inches) by the pounds of dry matter/acre inch of the forage type you have. This calculation estimates how many pounds per acre the livestock can harvest.

Using the grazing stick helps farmers have an accurate understanding of the available dry matter in their pastures. This knowledge is crucial for proper pasture management, preventing wastage of feed, and avoiding situations where the livestock may suffer from insufficient forage. By implementing

#### PASTURE MATH: CALCULATING FORAGE **Cornell Cooperative Extension** AVAILABILITY

Southwest NY Dairy, Livestock and Field Crops Program

UNDERESTIMATING = WASTED FEED

OVERESTIMATING = LOWER ANIMAL

PERFORMANCE/ OVERGRAZING

125-3

#### WHY measure how much forage a pasture can supply?

Designing a system: how many acres of pasture do I need overall? Rotational grazing stocking rate capacity; Managing a system: How much pasture I have available for animals to graze? How often should I move my animals?

#### Important concepts:

Dry matter: the part of the pasture that remains when all water content is removed. calculations made in DM.

Total Dry Matter = The entire amount of plant material in a pasture

Available Dry Matter = Grazable part, which is the average height of the pasture substracted by 3 inches (residual for regrowth)

#### HOW TO MEASURE?



# **Grazing Stick**





Time after grazing

### USING THE GRAZING STICK TO CALCULATE FORAGE

1.) Pasture height: Use the ruler on the stick. The number of inches of height used in this calculation will be the total height minus 3 inches (for the residue).

2.) Measure the density: Slide the stick through the plants so that its flat on the ground. Count the number of dots you can see. Look at the information printed on the stick and see how many pounds of dry matter there is per inch of height (This depends on your pasture composition, noted in the key on the stick.).

3.) Multiply the number of inches from step one (total height minus 3 inches) by the pounds of dry matter per acre inch. Now you have an estimate of how many pounds per acre the livestock can harvest.



DAILY ACREAGE REQUIREMENT - 50 COW (1000 LB BW) 1.) Find required DM per day for the herd. (50 x (3.5% BW (0.035) x 1000 lb)

2.) Divide by available DM/acre (use stick to calculate)

ing and research based inform The SWNY Dairy, Livestock and Field Crops Program offers educational program ation to agricultu ducers, growers, and agribusinesses. Cornell Cooperative Extension is an employer and education recognized for valuing AA/EO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.

short grazing and adequate recovery periods, farmers can successfully maintain a healthy grazing system that benefits both the livestock and the pasture's overall health.

In addition to reaching out to Camila, you can also contact your local NRCS (Natural Resources Conservation Service) office for a grazing stick. They are able to provide resources and support to farmers for sustainable pasture management and grazing practices.

Grazing sticks provide a quick, practical, and calibrated measurement system to assess the grazing potential of a pasture.



For assistance and guidance on how to get and use grazing sticks effectively, contact Camila Lage at 607-422-6788 or cd546@cornell.edu.

#### **Concentrate Feeding Strategies For Maximizing Performance In AMS**

By Victor Malacco, Michigan State University Extension and Camila Lage, Dairy Management Specialist, SWNYDLFC



A cow eating concentrate while being milked in an automated milking system. Photo Credit: Victor Malacco, MSU Extension

The advancement of automated milking systems presents an opportunity to optimize cow nutrition through tailored separate concentrate feeding.

The return of an age-old practice is gaining popularity within the dairy farming community with the increasingly rapid adoption of automated milking systems (AMS) - feeding part of the ration concentrate during milking. AMS farms routinely feed concentrate at the milking robot to incentivize cows to voluntarily go to the milking robots. However, concerns and questions about the amount provided, nutritional composition, physical form and effects on overall feed efficiency, health and the economics of the system need to be addressed.

In the AMS, the number of times cows visit the robot is defined by the management strategy and lactation phase. The most common way to reach the visits-per-day goal is by luring cows to the box with concentrate feeding. The amount fed to the cows is also predefined and can change from cow to cow, allowing an individualized nutritional plan to some extent.

As AMS are a relatively new technology, research-based information on the best practices for concentrate feeding strategies for AMS herds is still limited. Nonetheless, given the rapid adoption of this technology, it is imperative that such recommendations are established to optimize AMS performance.

### What do we know about feeding part of the concentrate separate from the diet? The physical form of the concentrate

The current recommendation and most widely used concentrate form is pelleted feed. Reasons for this include:

- Palatability and cows' preference.
- Reduced waste and leftovers in the bowl
- Ease of handling.
- Higher intake per minute

The downsides of using pellets include higher costs associated with the pellets and limited opportunity to use by-products and feeds produced on the farm. Producers are experimenting with alternatives to pellets, using simpler feed ingredients such as meals or farm-made processed grain mixtures. However, recent research from Canada observed that concentrate form (using steam-flaked barley to replace pelleted barley) affects milking behavior even when performance is not affected, suggesting that potential losses in performance can happen depending on the stage of lactation and traffic flow. The researchers conclude that using a pelleted concentrate in AMS is the best option to encourage voluntary visits to the AMS and reduce the time associated with nonproductive behavior.

#### How much concentrate?

The main challenge when it comes to the milking frequency in AMS is that, beyond nutritional strategies, other factors also play a role, including the social structure of the herd,

barn design, cow traffic, productivity, and cow

The most common way to reach the visits-per-day goal is by luring cows to the box with concentrate feeding. health. Maximizing the milking frequency of the right cows and minimizing the need for fetching cows are the main goals of using concentrate as a treat in the AMS box. On the other hand, opportunities exist to feed cows more precisely based on their needs, potentially increasing profitability. The best strategy will be farm-dependent, but we will discuss some of the benefits and downsides of each strategy below.

The Canadian survey in 2013 reported an average of 9 lbs. of pellets offered in the milking robots daily. However, it can vary from 2 to 25 lbs. depending on the system (i.e., free-flow or guided flow). Swartz and colleagues (2022 - American Dairy Science Association presentation) reported an average of 12 lbs. of concentrate fed in the robots for 38 farms located in Minnesota and Wisconsin. The amount fed in the robots ultimately defines the nutritional density of the partial mixed ration (PMR). The variability of milk production and lactation stages in the same pen imposes a challenge, since greater amounts of concentrate are fed in the robots for highproducing cows in an attempt to avoid overfeeding cows that produce less milk. In addition, most AMS systems only have a single bin for storage and delivery of concentrate to cows in certain barns or pens. Under this situation, the only possibility to adjust cows' diets to their requirements is the amount of concentrate each cow is entitled to consume daily. Thus, cows receive different amounts of concentrate but with the same composition, which could result in an imbalanced nutrient

supply as milk yield deviates from the yield the nutritionist used to formulate the feed supplement.

In an AMS, special attention is given to the composition of the concentrate in order to attract cows to the robot and increase their visits.



Most studies report that increasing concentrate offered in the study found that cows preferred corn gluten feed over other AMS also increases variability in concentrate intake. Especially highly palatable feedstuffs. when cows go voluntarily to the AMS, daily variations in milking frequency can occur. If the milking frequency decreases, the amount of concentrate the cow can consume in the AMS will also decrease - since there is a limited concentrate allowance delivered per minute during milking. Moreover, research shows a limit to a cow's capacity to eat concentrate offered during milking. On average, cows are milked three times a day and spend around 6.8 minutes at the box; since cows can eat about 0.7 lbs. of pellets per minute, the maximum amount of pellets an average cow would be able to eat per day would be around 15 lbs.

Another less discussed point is that when feeding more concentrate in robots, nutritionists need to account for intake variability and substitution effect. Substitution refers to the decrease in PMR consumption when more concentrate is fed. The literature shows that the substitution effect is not linear and differs depending on the farm, diet and animals. The variation in the intake of PMR or concentrate can negatively impact milk production, as reported by other studies evaluating variation in milk production due to the daily variation in diet nutritional composition and intake.

Reducing the amount of concentrate fed in the robot and maximizing nutrient intake from PMR can be a good economic strategy when feeding a more homogenous group of cows and/or when concentrate costs are high. Halachmi and • colleagues (2005) compared milking frequency when limiting concentrate delivery at each milking to 2.64 lbs. versus a maximum allowance of 15.4 lbs. per day. They reported no differences in the number of voluntary visits to the AMS. Similarly, Bach and colleagues (2007) compared a concentrate allowance of 6.6 or 17.6 lbs. per day and reported no differences in the number of daily visits to the AMS. Producers may have more flexibility to use other feed forms without compromising visits to the AMS or production parameters when offering less concentrate. However, more data is needed before such strategies are widely recommended.

#### **Composition of the concentrate**

In an AMS, special attention is given to the composition of the concentrate in order to attract cows to the robot and increase their visits. Typically, the concentrate mixture is made up of over 50% grain, either ground or pelleted. Studies have shown that cows prefer a mixture of barley and oats and that the type of carbohydrate (starch versus high digestible fiber) does not affect their visits to the robot. Additionally, one

Do not feed more than 5 lbs. of concentrate per milking; if possible, avoid feeding more than 9 lbs. of concentrate daily.

While a high-starch pellet is commonly used to encourage cows to visit the automated milking system, there are concerns about the potential negative effects of high-starch intake on rumen pH, feed intake patterns and overall DMI. In a study comparing the effects of feeding high-fiber and highstarch pellets at different feeding amounts alongside a complementary PMR, researchers found no difference in milk production among treatments. This suggests that the composition of the PMR may have a greater influence on feeding behaviors and rumen fermentation than the type of pellet fed. Therefore, PMR formulation is crucial in optimizing milk production in automated milking systems.

Regardless of cows' preferences, using more than one feed bin to deliver concentrates to the robots is becoming more common. Having more than one concentrate available to feed cows milked in the same robot allows nutritionists to formulate, using one PMR, diets that can precisely meet cow's individual requirements, even if cows in a pen are in very different production stages. One interesting strategy is to formulate one protein and one energy concentrate and feed individual cows different proportions and quantities of the two to meet their requirements according to milk yield, body weight, stage of lactation and even milk components.

#### As a rule of thumb

- Do not feed more than 5 lbs. of concentrate per milking.
- If possible, avoid feeding more than 9 lbs. of concentrate daily.
- When working in a pen where cows have homogeneous milk production, formulating a more nutrient-dense PMR and feeding less concentrate in the robot may be the best option.
- There will be a difference between the amount programmed, delivered and consumed, so minimizing the amount of pellets fed will minimize the variation between amounts delivered and consumed and increase the possibility of formulating diets that can better predict production outcomes.
- Remember that PMR represents the bulk of nutrients; feeding high-quality forages and having good feeding management is essential for AMS as for any other dairy system.



Remember that PMR represents the bulk of nutrients; feeding high-quality forages and having good feeding management is essential for AMS as for any other dairy system.

#### Can Mutton Make Money?

By Amy Barkley, Livestock Specialist, Southwest New York Dairy, Livestock & Field Crops Program

Mutton is a historically low-value animal. When not considering major holidays, prices tend to be around \$0.75 - \$1.00 per pound live weight. This is a far cry from the \$2.00 - \$3.00/lb that many producers get for lamb. Mutton is a natural by-product of a sheep farm, and this article makes the argument that there is potential for it to become a valuable co -product.

While mutton may be taboo in the US, residents of England and other countries consume mutton regularly. In England, mutton refers to animals that are over 2 years of age. In the United States, sheep that are over 12-14 months of age are considered mutton. As sheep age, they become more flavorful, which is highly desirable in many cultures and countries, though this meat is too strongly flavored for many typical American palates. That said, consumers' tastes for more uniquely flavored and robust tasting meats is growing in some markets. It may be time for mutton to make a comeback!

According to research, animals younger than 12-14 months of age have the most consistent mild flavor, regardless of breed. As those animals age, there is a diversification in the intensity of flavors caused by both by age and breed. This comes from fatty acid accumulation, which creates the mutton-y and pastoral (grassy) flavors, which many consumers are not used to. While animals over 2 years of age accumulate the mutton-y flavor, lush pastures made of a high proportion of legumes contribute to the higher concentrations of grassy notes than pastures with high grass populations.

One farmer, Cody Hiemke of Mapleton Mynd Shropshires, decided to test some theories and see if he could make a "bad" mutton. To do this, he finished out a 6 year-old ewe on alfalfa pasture until she was over finished. He then left the extra fat on the cuts and cooked the meat at a high heat to coax conversions of some off-flavors. The result? Surprisingly delicious mutton. The moral of the story is that mutton can surprise you, and your results may not read the textbook. So, it may make sense for you to give it a try!

To prepare ewes on the farm for processing, it's important to add condition back onto them, especially if they've just weaned their lambs and are on the lean side. Fat is flavor, after all! Farms that regularly send older sheep for processing recommend moving ewes onto a high energy ration following weaning to get them to a good finish, which is having about 0.25 inches of back fat. In addition to unfinished animals lacking flavor and texture, smaller animals will yield

less saleable meat than larger animals, as will fatty

Lamb is classified as mutton after it exceeds 14 months of age. Mutton is typically a discounted meat product.



animals compared to properly finished animals.

Does it make sense to have the processor turn your mutton into value-added products like sausages? Typically, there are additional processing costs for adding seasonings and linking. That said, mutton is a lower cost raw material, so if ground lamb sells well for you and your customers enjoy lamb sausages, it may make sense to make sausages from mutton and leave the ground lamb for sale on its own. Keep in mind that seasoning rates may be different for mutton vs pork, so either be open to experimentation or work with a processor who knows and understands working with lamb or mutton.

If you have access to a 20C kitchen, charcuterie items may be something to consider. The strong flavor of mutton can pair well with typical lamb seasonings and the flavors created during the curing process.

When your animals have been processed, it's time to price them in a way that will make this whole venture worthwhile. The price for processing any animal must be placed against the potential income from that animal to see if it's profitable. Considering the live weight value plus processing will give you a good benchmark in understanding what you need to charge per pound to earn a profit. Smaller, less fleshy animals may not be worth processing and are better candidates to sell live.

Selling mutton at a discount vs lamb for identical cuts can be a way to encourage customers to try the mutton and for you to sell it. Keep in mind that mutton cuts are larger than lamb cuts. If packaged the same way, mutton will appear more expensive to the consumer because there's more weight in each package.



The flavor of mutton can be contributed to age, breed, and diet, and not all mutton is gamey or strongly-flavored. To combat this, have larger roasts cut into stew meat or ground and pack them into smaller packages.

Lowering the price of mutton too much may make it appear that mutton is of inferior quality. Be conscientious of this if pricing mutton lower than lamb.

Value-added products like sausages and cured meats may have similar flavors between lamb and mutton, so their sale value may be equivalent.

Information for this article was taken from two presentations. The first is titled, "Turning Mutton into Money: Innovative Uses for Mutton" by Cody Hiemke of Mapleton Mynd Shropshires. The second presentation on marketing mutton was given by Cassie Wasser of Willow Pond Sheep Dairy. Both are from a larger webinar presented by the Cornell Livestock PWT on mutton and silvopasture.



That original recording can be found here: https:// www.youtube.com/watch?v=2Yo7bGC1rrQ For additional reading, the book, "Much Ado About Mutton" by Bob Kennard, is an insightful review of the history of mutton, it's social and cultural impacts, farming practices, and mutton recipes.



#### Interpretation Of Milk Urea Nitrogen (MUN) Values

Original Article By Virginia A. Ishler, Former Extension Dairy Specialist, Penn State University

#### Milk Urea Nitrogen (MUN)

Urea is produced in the liver from ammonia derived mainly breeds, e.g. Jerseys. However, this may be due to body weight from the breakdown of protein in the rumen and from normal rather than a breed difference. Also, MUN values tend to be daily metabolism of absorbed amino acids and body protein. If higher in the summer months. bacteria in the rumen cannot capture the ammonia and convert it to microbial protein, the excess ammonia is absorbed across the rumen wall.

Excess ammonia circulating in blood can be toxic and the helpful to have several MUN values to compare on a particular conversion of blood ammonia to urea is the way to prevent diet as a baseline. This will help determine possible problems this toxicity. The body excretes blood urea in urine and milk. in the ration or feed management practices. Two possible Urea nitrogen (N) levels in blood plasma, blood serum and milk problem areas would be MUNs that are high (>12- 14 mg/dl) of an individual cow are highly related. Therefore, MUN values and that are very inconsistent. are representative of urea levels of blood and other body fluids. Because MUN is a breakdown product of protein, it can be used to monitor protein status of cows. In addition, MUN values can be used to improve the efficiency of microbial protein synthesis, which may reduce N excretion into the environment.

Normal ranges for Milk Urea Nitrogen There are various ranges reported for MUN, which can make The advantage of DHIA MUNs is that individual cow and group interpretation challenging, Table 1. Some researchers recommend a range of 10 to 14 milligrams per deciliter (mg/dl) evaluate the whole herd on a more frequent basis. while others recommend at range of 8 to 12 mg/dl. The later range reflects rations that are formulated to the cow's requirement for protein and excel in the balance of protein, protein fractions, and carbohydrates to capture excess ruminal ammonia. These values typically are associated with a ration protein level of approximately 16%.

there is 2 mg/dl change for each one percentage unit change imbalance of ruminal protein, protein fractions and energy in protein when rations contain 15 to 18.5% protein. Herds (non-structural carbohydrates). These factors can also be with an MUN above 12-14 mg/dl would have increased urinary related to reduced milk yield, true protein, and feed efficiency. improvements.

There are many factors affecting MUN values. The feeding system, i.e. total mixed rations (TMR) versus component-fed herds, and cow eating patterns can affect MUNs. The time of Reasons for MUN levels falling outside recommended ranges feeding relative to milking time; MUN values usually peak 3-5 Milk and blood urea N have been related to efficiency of N use. hours after feeding. In addition, herds milked 3x tend to have As excessive protein or rumen degradable protein is higher MUN values than herds milked 2x. The AM MUN value consumed, MUN may increase. A positive relationship has is usually lower than PM samples taken from the same herd. been found between MUN and urinary N excretion so that When comparing MUN values in a herd between months, monitoring MUN can help reduce excessive N excretion. The account for differences in sampling times.

Another factor affecting MUN values is breed.

There are various ranges reported for MUN, which can make interpretation challenging. See the table on the next page for interpretation.

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Holsteins usually have a lower MUN value than other dairy

One strategy for a meaningful interpretation of MUNs on a particular dairy operation is to evaluate the current ration along with either DHIA's MUNs and/or bulk tank values. It is

When the herd MUN changes by more than 2 to 3 points (normal variation), investigate ration or forage changes and feed management problems (e.g. sorting). As milk plants include MUNs in their testing programs, there is an opportunity to examine weekly averages as large variations occur day to day. Also, DHIA and milk plant MUN values can (MUN) vary due to differences in machine standards and sampling. problems can be identified whereas bulk tank MUNs can

When it is determined that MUN levels are outside normal ranges, investigate the ration, milk components, feeding management and nutrient balance. Low MUNs (<8-10 mg/dl) indicate a possible dietary protein deficiency, which can result when the rumen bacteria yield is reduced, thereby limiting milk production and milk protein yield. High MUN levels (>12-Researchers from the University of Wisconsin estimate that 14 mg/dl) can be associated with excess dietary protein or an excretion and there would be opportunities for High MUN values indicate wasted feed protein and more energy being used by the cow to excrete that extra protein. It also means that excess nitrogen is being excreted into the environment.

> factor is providing adequate rumen kev available carbohydrates to provide the energy for the rumen microbes

to convert ammonia into microbial protein.

One strategy for a meaningful interpretation of MUNs on a particular dairy operation is to evaluate the current ration along with either DHIA's MUNs and/or bulk tank values.

Some feed and management changes that may lead to higher MUN values:

- Feeding new crop corn silage that may not have the same level of fermentable carbohydrate (less starch or starch is less available) compared to corn silage that has fermented for a period of time.
- Cows grazing lush pasture can increase their intake of total microbial protein synthesis. If MUNs are low (<8-10 mg/dl), and degradable protein
- Change to a different hay-crop silage that is wetter or higher fractions being fed. A nutritionist should be consulted when in protein and/or soluble protein.
- Feeding corn grain that has a coarse particle size. This may nutritionist better ways to balance both protein and match with the protein fractions being fed.
- Shifting from processed corn silage to unprocessed or improperly processed corn silage. This could affect the amount of available fermentable starch.

Incorporating more degradable protein sources (e.g. changing from heat-treated soybeans (whole or cracked) to raw soybeans or heat-treated beans that are ground), which results in more rumen ammonia. If the rumen does not maintain a minimum level of ammonia, milk yield and milk protein yield may drop because of reduced evaluate the protein level, protein sources and protein MUNs are outside the normal range. Discuss with your reduce the rate of fermentation in the rumen and may not carbohydrate fractions in the diet to improve rumen fermentation and nutrient balance.

MUN	Comment*	Suggestions*			
<8 mg/dl	Low	Consider MUN as too low if production is less than 70 lbs. and the herd ration are not formulated for low protein (i.e. 16%). For TMR-fed herds, send out an analysis to confirm protein level. For component-fed herds and TMR-fed herd use DHIA to evaluate individual cows and groups of cows. Evaluate protein and carbohydrate sources.			
<8 mg/dl	Okay	If production is greater than 70 lbs, and the ration is formulated for low protein and well balanced for protein and carbohydrates, then the MUN may be okay.			
8-10 mg/dl	Slightly low	If the ration is not formulated for low protein and milk production is less than 70 lbs, then there may be some feed management problems and/or ration program issues to address.			
8-10 mg/dl	Okay	If production is greater than 70 lbs, and the ration is formulated for low protein and well balanced for protein and carbohydrates, then the MUN may be okay.			
12-14 mg/dl	Slightly high	If the ration is formulated for low protein and there are no feed management issues, then closely evaluate the protein fractions (especially soluble protein) and the level and sources of nonstructural carbohydrates.			
12-14 mg/dl	Okay	If the ration is formulated for high levels of protein (>17.0%) and there is only one cereal grain source being fed, then the MUN level may be okay. However, there may be opportunities to lower the protein level to reduce N excretion.			
>14 mg/dl	High	For TMR-fed herds, send out for analysis to confirm protein level. For component-fed herds and TMR-fed herds, use DHIA to evaluate individual cows and groups of cows. Evaluate protein and carbohydrate sources. Evaluate feed management practices, e.g. sorting.			
>14 mg/dl	Not recommended	If the ration is formulated for high levels of protein (>17.0%), high levels of degradable protein and/or inadequate starch or sugar sources, then N is not being efficiently used by the animal and excessive levels of N are being excreted.			

\*Comments and suggestions are based on field observations and do not address every possible explanation for the MUN level being observed.

**Original, full-length article:** https://extension.psu.edu/interpretationof-milk-urea-nitrogen-mun-values.



For additional information or if you are interested in discussing MUN values in your operation, please do not hesitate to contact Camila Lage at 607-422-6788.

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A partnership between Cornell University and CCE Associations in these nine counties: Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Seneca, Wayne and Wyoming.

Strategic Deworming of the Beef Herd: Continuing the Resistance Fight

July 2023

#### **Nancy Glazier**

#### What are internal parasites?

Internal parasites are gastrointestinal worms that infect cattle. Cattle shed eggs on pasture where they hatch, and larvae grow through stages. At the L3 stage, larvae crawl up plant stems and become ingested by cattle where they mature and recent presentations from Dr. Christine Navarre, overwinter. They lay eggs in the spring and the eggs are shed back on pasture.

#### How do I know if my cattle has internal parasites?

Cattle can look unthrifty and have poor gain. Before there are visual signs production losses may have already occurred. Even low populations can impact gain and milk production. Fecal egg counts (FEC) are necessary to assess parasite load.

Fecal egg counts are determined from a 'clean' manure sample. Rectal or freshly dropped samples should be collected. The sample is weighed, and eggs are

floated in a solution to give an egg count per gram (typically) sample.

#### How can I tell if my cattle have resistant worms?

To check for resistance Fecal Egg Count Reduction (FECR) tests are recommended. Manure samples are collected at the time of treatment and then resampled 14 days later. The recommendation is to test the same cattle, minimum of six, if possible 10-15, from the same class or life stage both times. What has been found, 80% of the worms may be in 20% of the cattle. Your veterinarian may be able to assist with testing. Other options include Cornell Animal Health Diagnostic Center (https://ahdc. vet.cornell.edu/) or commercial labs. One I have worked with is MidAmerica Ag Research (https:// midamericaagresearch.net).

This method has drawbacks depending on the time of the year. There may be immature nematodes in the intestines or abomasum that may not be egg laying which may show

Limited classes of dewormers makes strategic deworming imperative to fight growing resistance concerns.

inaccurate numbers. Worms become dormant in the winter and mature and begin reproduction in late spring.

#### How do I control worms?

Strategic deworming recommendations are revised as new information is evaluated. From Louisiana State professor/veterinarian, there are two strategies: targeted selective treatment and selective non-treatment; both treatments need to be tailored to your farm. With selective treatment only animals that will most benefit will be treated.

They include calves, young females, and bulls. Depending on breed no adult cows should be treated after weaning their first calf. If they are wormy, they should be culled to remove those genetics from the herd.

For selective non-treatment: if your herd is segregated – cows are kept separate from young or after weaning - treat the bottom 90% of the group of replacement heifers or calves. Leave the heaviest ones

untreated. Another suggestion is to treat 9 out of 10 animals unless the 10th is unthrifty; treat and skip the next.

With both strategies some cattle are left untreated to provide refugia, where worms have had no exposure to dewormers.

It is also recommended to treat with two different classes of dewormers concurrently, but not mixed.

 Macrocyclic lactones (Ivomec, Dectomax, Cydectin, etc.)

• Benzimidazoles (Valbazen, Safeguard, Synanthic, etc.)

• Imidazothiazoles / Tetrahydropyrimidines (Levasole, Tramisole, Rumatel, etc.)

Dose calves based on actual weight, or on the heaviest. Use pour-on products cautiously; dosage may be impacted by rain, rubbing, or licking. Don't deworm in feed or mineral, and properly store the products. Thoroughly read the label.

The previous recommendation of deworming a whole herd is no longer recommended. Work with your herd vet to develop a strategy that suits your needs. newsletter



Pasture management is vital for parasite management. Ideally, pastures should be rested 3 months. Do not graze pastures shorter than 4 inches. Limit access to pastures that are wet.

Some further guidelines include:

- Increase overall herd immunity
- Proper nutrition
- Decrease other stressors/diseases
- Do not buy resistant worms (from purchased animals)
- Cull cows that are not thriving in your environment
- Use hybrid vigor!

Your veterinarian can help you develop your strategic deworming plan for your farm to meet your production goals.



Preserving refugia is important to maintain efficacy of deworming products.

Infographic source, OnPasture.com, February 2015

Selecting the least thrifty animals to deworm is a good management strategy.



When worms resistant to dewormers mate with worms that are not resistant, the result is worms that are partially resistant to dewormers.

#### Perennial Weed Control In Grass Forages

By Dwight Lingenfelter, Extension Associate, Weed Science, Penn State University

#### HERBICIDE OPTIONS

One of the most common weed management questions we often get relates to perennial weed control in grass hay and The most common herbicides used to control many of the and what herbicides are the most effective. The short answer to the story.

#### WEED BIOLOGY AND HERBICIDE APPLICATION TIMING:

With the autumn weather, these plants more actively transport carbohydrates and sugars to underground storage structures such as rhizomes, tubers, and roots to enable them to survive the winter and to provide the necessary energy to begin the next cycle of growth in the spring. During that time of year, systemic herbicides such as 2,4-D, dicamba, triclopyr, glyphosate, and others are readily moved along with the sugars into the root systems allowing for more effective control. However, since many of these perennials begin to flower and set seed by mid-summer, waiting until fall to spray herbicides can be challenging, if the goal is to reduce weed populations and stop reproduction. Therefore, during the growing season, we typically suggest mowing pastures a couple of times to, not only stop weed seed production, but also to "setup" the weeds for a more effective herbicide application in the fall. Time the late season mowing to occur early enough to allow perennial weeds to regrow about 12-15 inches (usually about 4-6 weeks after cutting) before a herbicide application in the fall. In general, the With this tactic the herbicide is wiped across the leaves and stems applications must be followed by routine mowing and

a fall herbicide application for best control.

Effective control in grass hay/pastures is primarily based on routine mowing, timely systemic herbicide applications, a thick forage stand, and not overgrazing.

pasture. Many people want to know when the most optimal broadleaf weeds in the fall are 2,4-D and dicamba (Clarity, etc.) for time is to control perennial weeds such as Canada thistle, broadleaves. However, other systemic products such as triclopyr milkweed, hemp dogbane, horsenettle, quackgrass, and others (e.g., Crossbow, Candor, Crossroad, Remedy Ultra) or metsulfuron can be options as well. A combination of these products may be late summer and fall with systemic herbicides but there is more the best solution for a mixture of different perennial weeds. Below are some best bets when controlling selected perennial weeds in grass forages:

- **Smooth bedstraw** Crossbow (late June/early July)
- Canada thistle Stinger/clopyralid or 2,4-D+dicamba (bud to bloom or mow during the season and spray in fall)
- Hemp dogbane- Starane Ultra, Yukon, 2,4-D+dicamba or Cross-• bow (high rates), (mow during the season and spray in late summer)
- Horsenettle Crossbow (bud to bloom in June-mid-July)
- Johnsongrass Glyphosate spot spray or wick applicator (spray during September)
- Milkweed 2,4-D+dicamba, Yukon, or Crossbow (high rates), (mow during the season and spray in late summer but expect only suppression: <70% control)</pre>
- Multiflora rose Cimarron Plus/metsulfuron, Crossbow (bloom or fall)
- Quackgrass- Glyphosate spot spray or wick applicator (October -November)

#### WIPER APPLICATIONS

herbicide application window runs from early September of weeds. Wiper applicators (weed wipers) are devices that use a through October depending on where you are in the region and herbicide-saturated sponge, ropewick, or roller that physically what weeds you are targeting. Warm-season perennials such as wipe a concentrated solution of herbicide directly onto weeds by horsenettle, hemp dogbane, common milkweed, smooth taking advantage of sufficient height difference between the groundcherry, pokeweed, bindweed, poison ivy, and brambles weeds and crop canopy. Since only the top several inches of the should be sprayed with a systemic herbicide (such as 2,4-D, weeds are contacted with herbicide solution, a translocated dicamba, triclopyr, etc.) from September 1 through October 15 herbicide such as dicamba or glyphosate is usually required for or before a hard frost. In general, applications by October 1 may effective control. Repeat applications may be required to manage be more effective but as long as the weeds have green leaf certain perennial weeds. Keep in mind, university data shows that tissue and are actively growing, herbicide applications can be wiper applications have not been as effective as broadcast or spot made later in the year. These suggested dates target central PA, spray applications on perennial weeds in pastures. However, they so adjust by a week or so forward or backward if you are south can provide some necessary suppression of weeds if spraying is or north of I-80 in the region. Canada thistle, quackgrass, and not possible. Bidirectional application is recommended to provide dandelion can be effectively controlled after several light frosts, thorough control. Herbicides labeled for wiper application will so an additional 2 to 4-week or more application window can usually provide specific application instructions on the label. In exist for these species because of their cool-season habit of addition, research trials have indicated that a 5 percent solution growth. Spring herbicide applications are possible, but perennial applied in a wiper applicator is somewhat comparable to a weeds must be at least 12 inches tall for control. Spring broadcast application rate of 1 quart per acre. Or use a mix ratio

of 1/3 glyphosate to 2/3 water in the tank or this can be tankmixed with Crossbow, 2,4-D, or dicamba.

The most common herbicides used to control many of the broadleaf weeds in the fall are 2,4-D and dicamba for broadleaves.



#### GRAZING AND HAVING RESTRICTIONS

And finally, whenever using herbicides make sure to follow any label or in references such as the Penn State Agronomy Guide. grazing and having restrictions for each of the products. Some have no or minimal waiting periods between herbicide application and crop utilization while others have periods of up to a month or more. Each product can differ depending on if the forage is being grazed or harvested for hay. Furthermore, the restrictions can vary on the kind of livestock and if they are lactating. This kind of information is found on the herbicide

In conclusion, if perennial weed populations have been growing for many years in a field, it will take a few years or more to get them under control with these repeated measures. Effective control in grass hay/pastures is primarily based on routine mowing, timely systemic herbicide applications, a thick forage stand, and not overgrazing. Over time these tactics can drastically reduce or eradicate these weed populations.



# SAVE THE DATE SEPTEMBER 2023

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# **Cornell Cooperative Extension**

Southwest NY Dairy, Livestock and Field Crops Program





Whenever using herbicides make sure to follow any grazing and haying restrictions for each of the products.



We are hosting a Corn Silage Pre-Harvest Meeting in Caneadea this year!

# Agronomic Weed Management and Cover Crop Field Session

#### Organized by the Cornell Weed Ecology Lab

When: Tuesday, August 15th, 2023 at 3:30PM – 7:15PM Location: Property across from 5701 Burton Road, Orchard Park Cost: \$10 Program followed by dinner.



#### Presentations on:

- Weed ID & Management
- Cover Crop Demonstrations
  - Herbicide Efficacy and more!

#### Speakers From:

- Cornell University
- Cornell Vegetable Program
  - Erie County SWCD
- Southwestern NY Dairy &

Livestock Team

- USDA NRCS

#### **Registration Bonus:**







#### Cornell Cooperative Extension Southwest NY Dairy, Livestock and Field Crops Program

#### NYS DEC Pesticide Recertification Credits in Application!

#### Register by Aug 11th at: erie.cce.cornell.edu/events or scan QR code

Accommodations for persons with special needs may be requested by contacting Jolie Hibit at (716) 652-5400 ext. 176 or jah663@cornell.edu at least 5 days before the event.

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Thank you, Preferred Seed, for donating seed to the cover crop demonstration!



// Register for this event today at <u>https://</u> <u>erie.cce.cornell.edu/</u>events or use the QR code above.

#### Solid Waste Rules Part 361

#### Update creates a registration requirement for custom manure applicators who work on CAFO farms in NYS

By Kristen Workman, Sally Rowland and Sara Latessa

On June 7, 2023 NYS Department of Environmental Conservation (DEC) adopted a revised version of the Part 360 Series (including Parts 360-369) Solid Waste rules (6 CRR NY part 360. Solid waste management facilities general requirements). These rules will be effective July 22, 2023. Part 361 - 2.3(c) of this document has new rules for certain custom manure applicators. Those manure applicators will have 180 days from the effective date of July 22 (or by January 18, 2024) to register with the DEC and be compliant with these new rules. Below are selected excerpts of the revised rules that apply to commercial (custom) manure applicators who work on CAFO farms in New York State along with examples of how it might apply directly to you and your business.

## To read full text of the revised rules on the DEC website visit:

www.dec.ny.gov/docs/materials\_minerals\_pdf/part360fulltextadopt.pdf \*

\*361 - 2.3 (c) Registration requirements for third-party CAFO land appliers starts on page 10 of the Part 361 section or page 137 of the entire document

## **GET ANSWERS TO THESE QUESTIONS**

Who must register with the DEC? How do you register with DEC? What do I need to do once I am registered? What is the Contractor Certification Statement? What kind of records need to be kept and reported to the DEC?

### RESOURCES

For questions about practical implementation of these new requirements, how to access or understand a farm's CNMP, record-keeping tools, how to calibrate manure application equipment or general technical assistance, contact: Kirsten Workman | Cornell CALS – PRO-DAIRY Nutrient Management Specialist | kw566@cornell.edu or 607-255-4890

> For questions directly related to these new rules, how to register or how to report, contact: Sally Rowland | NYS DEC – Division of Materials Management | sally.rowland@dec.ny.gov

For questions related to the CAFO permit and how these new rules relate to CAFO farms and facilities, contact: Sara Latessa | NYS DEC – Division of Water | sara.latessa@dec.ny.gov

**REGISTRATION FORMS ARE FILLABLE AND CAN BE FOUND AT DEC'S WEBSITE:** 

dec.ny.gov/docs/materials\_minerals\_pdf/360regform.pdf.



College of Agriculture and Life Sciences

Custom Manure Applicators who work with NYS CAFO farms will need to register with the DEC by January 18th and report annually (due in March).





For more information about this new requirement, contact Kirsten Workman of Cornell PRO-DAIRY by calling 607-255-4890 or any of our SWNYDLFC team members.

#### What Impacts Fungicide Efficacy?

By Katelyn Miller, Field Crop and Forage Specialist, Southwest New York Dairy, Livestock & Field Crops Program

Research shows that the greatest yield benefit in corn from a fungicide application occurs at the VT-R1 stage, or the tassel to silking stage. Some corn is at this stage throughout the region, making it a good time to think about fungicide applications. There are many factors that can impact fungicide efficacy like drift, available spraying windows, making the decision to spray, and the performance of the fungicide. Let's review these factors and how they can impact the efficacy of your product.

**CROPS** 

COWS &

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newsletter

#### DRIFT: WHAT IS IT AND HOW CAN IT HAPPEN?

Drift is the movement of pesticides at the time of application or soon after. There are various factors that can affect pesticide drift. These include factors impacted by equipment like droplet size, and the distance from the nozzle to the target and weather effects like wind speed, temperature, and humidity. Additionally, there are environmental conditions such as air stability and temperature inversions that can increase the chances of drift occurring. Let's breakdown each of these factors and how they can impact the chances of drift occurring.

- <u>Droplet size</u>: the smaller the droplet is, the easier it can be carried by the wind to an unintended target or evaporate
- <u>Wind speed</u>: the stronger the wind, the easier droplets are moved
- <u>Temperature</u>: the warmer it is, the quicker the droplets evaporate
- <u>Humidity</u>: dry air causes droplets to evaporate faster
- <u>Soil conditions</u>: (applicable for vapor applied products) wet soil increases volatilization (stuff going into air) and decreases the effectiveness of incorporation
- <u>Air stability</u>: warm air will increase rapidly and create air currents that lift droplets
- <u>Temperature inversions</u>: cool air is trapped by a hotter layer (fog)
- <u>Distance from nozzle to target</u>: the farther the nozzle is from the desired target, the increased risk that it will move off site.

# TIME CONSTRAINTS: HOW CAN YOU WIDEN YOUR SPRAYING WINDOW?

Making a spraying decision can be difficult. Often, there are constraints like weather and time that may push the decision to spray. There is a variety of things you can do to help widen your spraying window. This includes:

- <u>Frequent scouting/monitoring to help detect pests early</u>. This can help decrease the urgency of applications compared to detecting it when there is already serious damage.
- <u>Utilizing a wide range of choices to control pests</u>. Having a flexible IPM plan can allow you to utilize different control measures and adjust to unforeseen factors that can impact product efficacy.

 <u>Establishing buffer zones</u> can allow you to spray within a wider range of wind speeds and increases the distance between the target area and sensitive areas.

Any pesticide that is carried outside of the target area may damage non-target plants, contaminate surface waters, & harm wildlife, domesticated animals, and even people.

#### MAKING THE DECISION: TO SPRAY OR NOT TO SPRAY?

Although you can adjust your spraying plan for more leeway to spray, same day decisions often need to be made. Using the questions below can help make this decision.

- How is the weather at the application site?
- Are there sensitive areas nearby or downwind?
- What nozzle types(s) are you using?

• How close to the target surface are you spraying? The answers to these questions help factor into one large question: *What is the likelihood of drift occurring*?

If you conclude that drift is likely with adverse risk, do NOT spray.

#### FUNGICIDE PERFORMANCE: WHAT AFFECTS IT?

Fungicide performance is affected by a variety of factors. Not only is it impacted by factors like those listed above, but it's also impacted by the actual fungicide you are utilizing. It's important to make sure that you are utilizing the right product for the pest you are trying to control, following its label to apply the appropriate amount, and applying it at the right time. There are different types of fungicides that can be applied based on the timing of application, which are explained below.

- <u>Contact fungicides</u> work on the outside of the leaf to stop infections from entering the plant.
- <u>Systemic fungicides</u> work inside the plant to stop infections from germinating and penetrating the plant.
- <u>Preventative fungicides</u> are applied to prevent infection.
- <u>Curative fungicides</u> work to stop infection once it has already entered the plant.

Different scenarios can call for different types of fungicides, so it's important to make sure that the right one is selected for the situation at hand.



Pathogen Envir

Environment

There are many factors that can impact fungicide efficacy like drift, available spraying windows, making the decision to spray, and the performance of the fungicide.

16 - August 2023

Last, but not least, it's also important to think about fungicide resistance. Fungicide resistance is a genetic mutation that results in reduced sensitivity to a fungicide. This can occur when the same fungicide/mode of action is repeatedly used to control a pest. Be sure to switch up your spraying program to involve different modes of action to help reduce the chances of this occurring.

Keeping in mind these considerations, and following the product label as directed, can help make sure that the product you purchased is going to perform effectively.









This information is for educational and reference purposes only and is not a substitute for following product labels.



# Funding for Northeast Agricultural Producers Farm Credit East releases report on grants and incentives.

There are a number of grants and incentives available for Northeast agriculture businesses but learning about their availability and navigating the application can be a challenge. To help with this process, Farm Credit East recently released a report identifying federal, regional and state grants, loan guarantees, and other incentives available to assist Northeast producers of all types and sizes.

"Grants can be a great resource to provide additional funds needed to take on larger projects," said Chris Laughton, Farm Credit East Director of Knowledge Exchange. "Unfortunately, they're often under-utilized because they can be time consuming and involve quite a bit of paperwork."

This report, from Farm Credit East Knowledge Exchange, includes funding opportunities available in the eight states served by Farm Credit East: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. Programs are divided into broad categories according to their main focus: beginning farmers, conservation, environment and forestry; energy; fisheries and aquaculture; organic; rural business development; and research, education and promotion.

To view this latest Farm Credit East Knowledge Exchange report, titled Grants and Incentives for Northeast Agriculture, visit FarmCreditEast.com, or contact Chris Laughton at (800) 562-2235 or Chris.Laughton@farmcrediteast.com for more information.

Fungicide resistance occurs when a fungus "sees" too much of a pesticide. Rotating active ingredients and spraying at treatment thresholds help to reduce it.



-Farm Credit East

Any farms interested in learning more about funding opportunities can contact Katelyn Walley-Stoll at 716-640-0522.

# Dairy Market Watch July 2023 Prepared by Katelyn Walley-Stoll. Funded by PRO-DAIRY.

An educational newsletter to keep producers informed of changing market factors affecting the dairy industry.

Milk Component Prices			Milk Class Prices				Statistical Uniform Price & PPD				
Month	Butterfat	Protein	l (Boston)	Ш		IV	Jamestown, NY		Albany, NY		Albany \$/gal. to farmer
July 22	\$3.36	\$2.91	\$29.12	\$26.66	\$22.52	\$25.79	\$25.21	\$2.69	\$25.81	\$3.29	\$2.23
Aug 22	\$3.40	\$2.14	\$28.38	\$26.91	\$20.10	\$24.81	\$24.27	\$4.17	\$24.87	\$4.77	\$2.14
Sep 22	\$3.56	\$1.88	\$26.87	\$26.51	\$19.82	\$24.63	\$23.67	\$3.85	\$24.27	\$4.45	\$2.09
Oct 22	\$3.65	\$2.45	\$25.96	\$25.73	\$21.81	\$24.96	\$23.62	\$1.81	\$24.22	\$2.41	\$2.09
Nov 22	\$3.37	\$2.53	\$27.34	\$24.67	\$21.01	\$23.30	\$23.12	\$2.11	\$23.72	\$2.71	\$2.04
Dec 22	\$3.15	\$2.65	\$25.83	\$23.11	\$20.50	\$22.12	\$21.91	\$1.41	\$2251	\$2.01	\$1.94
Jan 23	\$2.77	\$2.80	\$25.66	\$21.61	\$19.43	\$20.01	\$20.71	\$1.28	\$21.31	\$1.88	\$1.84
Feb 23	\$2.71	\$2.36	\$24.03	\$20.83	\$17.78	\$18.86	\$19.60	\$1.82	\$20.20	\$2.42	\$1.74
Mar 23	\$2.73	\$2.41	\$22.24	\$19.52	\$18.10	\$18.38	\$18.78	\$0.68	\$19.38	\$1.28	\$1.67
Apr 23	\$2.70	\$2.56	\$22.10	\$19.20	\$18.52	\$17.95	\$18.62	\$0.10	\$19.22	\$0.70	\$1.66
May 23	\$2.75	\$1.80	\$22.82	\$19.11	\$16.11	\$18.10	\$18.31	\$2.20	\$18.91	\$2.80	\$1.63
Jun 23	\$2.76	\$1.51	\$21.26	\$18.83	\$14.91	\$18.26	\$17.46	\$2.55	\$18.06	\$3.15	\$1.56
	June Utilization (Northeast): Class I = 27.1%; Class II = 25.1%; Class III = 30.5%; Class IV = 17.3%.										

Dairy Commodity Markets (Excerpt from USDA Dairy Market News – Volume 90, Report 30, July 28th, 2023)

**Dry Products:** Low/medium heat nonfat dry milk (NDM) prices moved higher. Export demand is trending upward with increased interest from purchasers in Mexico. High heat NDM prices also moved higher. High heat NDM inventories are tighter as some manufacturers indicate a Q4 start for further high heat NDM drying schedules. Prices for dry buttermilk moved lower in the West, while Central and East dry buttermilk prices held steady. Some off-spec loads are selling into feed channels below the reported prices. Bottom end dry whole milk prices moved lower. Stakeholders relay most dry whole milk production is to meet contractual obligations.

<u>Cheese</u>: Cheesemakers in the Northeast say production has plateaued, as milk output is declining in the region. In the East and Midwest, contacts report strong cheese demand. Export sales of cheese are mixed in the West, as contacts report steady interest from purchasers in Mexico but note some hesitation in Asian markets. Cold storage space has become more available in the Northeast in recent weeks. and contacts in the Midwest say loads are moving quickly.

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employment opportunities.

June's Albany \$/gallon to the farmer was \$1.56, a record low in recent years. With the seasonality of milk pricing, this will hopefully be the lowest. CROPS COWS & CRITTERS newsletter

**Butter:** In the East and Central regions cream availability is tightening. East region butter makers are running active production schedules, while some butter makers in the Central region report scheduled down time at plants this week. In the East, increased market activity is starting to chip away at butter stocks, but contacts note inventories remain ample. Demand for butter is steady from retail and food service customers in the East. Export demand for butter is light in the West, while retail sales are steady, and food service demand is strong.

**Fluid Milk:** Milk production is seasonally declining week to week. Some areas of the East and Midwest are experiencing abnormally dry conditions. Drought monitors indicate pockets of moderate to severe drought. Heavy rainfall and flooding have caused crop damage concerns in portions of the East.

Friday CME Cash Prices										
Dates	6/30	7/7	7/14	7/21	7/28					
Butter	\$2.44	\$2.48	\$2.55	\$2.58	\$2.68					
Cheese (40# Blocks)	\$1.33	\$1.39	\$1.48	\$1.78	\$1.90					

Dairy Market Watch is an educational newsletter to help keep dairy producers stay informed of changing market factors affecting the dairy industry.



Dairy Situation and Outlook - July 20, 2023 by Bob Cropp, Professor Emeritus, University of Wisconsin-Madison Originally published here: https://fyi.extension.wisc.edu/kewauneeag/files/2023/07-Dairy-Situation-and-Outlook-July-2023.pdf

After record high milk prices in 2022 milk prices continue to fall reaching prices not seen since 2020 and 2021. Class III was in the \$13's from October of 2020 to February of 2021. The January Class III price was \$19.53. The July Class III could be as low as \$13.80, \$5.63 below January and \$11.99 below \$25.79 a year ago. Milk prices are now well below profitable levels for dairy producers. These milk prices show that milk prices are subject to rather small changes in milk supply, milk demand or a combination of changes in supply and demand. Last year milk production was just 0.1% higher than the year before. This year milk production from January to June has been 0.7% higher than a year ago but the increase is slowing. June milk production was unchanged from a year earlier. But increased domestic demand and/or dairy exports are required to take up this increased production to prevent falling milk prices. Record high milk prices last year resulted in higher retail prices of dairy products which may have dampened domestic demand some. With lower milk prices retail dairy product prices are starting to decline some but not nearly to the extent of lower milk prices.

Dairy exports were a record last year with record cheese exports. But on a volume milk solids equivalent basis May exports were 13% lower than a year ago with cheese exports 18% lower and dry whey product exports down 29%. May was the third consecutive month dairy exports were lower than the previous year. Weaker demand from key export markets such as China and increased competition from New Zealand have dampened exports. Lower dairy exports mean more milk is needed to clear the domestic market without lowering milk prices. June cow numbers were finally below a year ago, down 5,000. There was no increase in milk per cow. As a result, June milk production was unchanged from a year ago.

Milk production is likely to run below a year ago for the remainder of the year. With the existing widespread drought this year's final crop production is uncertain. The drought has already reduced alfalfa hay production. Feed prices will remain at relatively levels. Higher feed prices and lower milk prices will make margins tight for dairy producers. Dairy producers are likely to reduce cow numbers in response.

Domestic demand may improve as retail prices soften some. Dairy exports could improve some by the third quarter of the year. Except for butter the price of cheese, dry why and nonfat dry milk/skim milk power are very competitive on the world market. Some export markets may take advantage of these lower prices and start to increase purchases.

Milk prices will trend higher for the remainder of the year. Milk production will be in its seasonal low August through September. Schools will begin to open at the end of August and early September which will help beverage milk sales. By October butter and cheese stocks will start to build to meet the higher season sales of cheese and butter Thanksgiving through Christmas. Class III futures show a continued improvement in the Class III price with it in the \$15's by August, the \$16's by September and the \$17's for the remainder of the year. But the latest USDA forecast is not as optimistic. USDA has Class III averaging just \$14.30 for the third quarter and \$15.05 for the fourth quarter with the average for the year \$16.05 compared

The July Class III price should be the bottom for the year with the price trending upward for the remainder of the year. Milk cow numbers fell by 16,000 from May to June.



to \$21.96 last year. •

With the sensitivity to small changes in milk supply and/or demand I think the probability is high for third quarter and fourth quarter prices to be higher. The Crops, Cows, and Critters (USPS#101-400) is published monthly by Cornell Cooperative Extension of Chautauqua County, JCC Carnahan Center 525 Falconer Street, PO Box 20 Jamestown, NY 14702-9608.

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