

# FARM REPORT



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## FROM THE PRESIDENT'S DESK: WHAT'S ALL THE NOISE ABOUT?

"What?" "I can't hear you." "Come closer."

These were common phrases during recent on-farm tours and workshops at Miner. With warm, humid weather and barn fans running at full blast, conversations were often drowned out by the constant hum of equipment. I've grown so used to that background noise that I barely notice it anymore...until it became a barrier to communication. It got me thinking: how much noise is too much? And what impact does all this sound have — not just on us, but on our cattle?

Noise is defined as any unwanted, unpleasant, or loud sound. It can be constant or intermittent and is measured by its frequency or pitch (hertz; Hz) and intensity or loudness (decibels; dB). Interestingly, cattle can hear over a wider frequency range (23 to 35,000 Hz) than humans (20 to 20,000 Hz). That means they can detect sounds we can't and those sounds may affect their well-being in ways we don't always consider.

Noise is inevitable on-farm and comes from many sources including machinery like tractors, feed trucks, skid steers, milking equipment, ventilation equipment, electronic equipment, cattle, and people just to name a few. It all contributes to the ambient noise of a farm. To get a better sense of our own farm's noise levels I used a free app called Sound Meter during a recent heat wave with temperatures ranging from daytime highs of

80 to 90°F with high humidity. Our calf barn with natural and tube ventilation was 70 to 73 dB, the heifer and cow barns with natural ventilation and circulation fans were 69 to 77 dB. Interestingly, the decibels didn't change much from ~6 am readings to ~3 pm readings except for one of our cow barns with variable speed fans. The noise increased about 6 to 7 dB as the fan speed increased with rising temperatures. The loudest places in our barns were our parlor (75 to 79 dB) which was influenced by the radio volume and large mobile fan use as well as the barns when the feed truck was dispensing TMR (79 to 80 dB). The holding area with circulation fans was one of the quietest at 69 to 70 dB.

It seems that our farm is typical when compared to other farms for noise. Good farms will have ambient noise levels up to 70 or 75 db with some short periods of time where noise will exceed 75 db according to Nesli Akdeniz and John Shutske in a Wisconsin extension publication and researchers in a 2023 review article in the Acoustics journal about noise hygiene in dairy farming. To put the 70 to 75 dB in perspective, here are some common noise levels:

- 30 dB: quiet library, soft whisper
- 50 dB: quiet office, refrigerator hum
- 70 dB: restaurant, washing machine
- 90 dB: lawnmower, shouted conversations
- 110 dB: concerts, power tools

See **NOISE**, Page 7

# SHOULD WE UPDATE MINERAL REQUIREMENTS DURING PREGNANCY IN DAIRY COWS?

A recent study published in the *Journal of Dairy Science* suggests that it might be time to rethink how we feed minerals to dry cows. For years, nutrition guidelines have assumed that cows only need extra minerals late in pregnancy, but this new research shows that cows start needing more minerals much earlier — sometimes as soon as 30 to 40 days after conception. That means many cows could be underfed important nutrients like calcium, phosphorus, magnesium, and sulfur during much of their pregnancy.

The study followed over 60 pregnant and nonpregnant cows to measure how minerals like calcium, potassium, and phosphorus are stored in the body throughout gestation. The results showed that the demand for minerals increases steadily — not just in the last two months. For example, by mid-pregnancy, sulfur needs were already six times higher than they were earlier in gestation. This steady increase suggests that waiting until the final trimester to boost mineral levels might be too late to support healthy calf development and set cows up for success after calving.

One of the key takeaways from the research is that fetal growth isn't the only factor driving mineral demand. The mammary gland, placenta, and uterus also begin accumulating minerals well before the last trimester. The

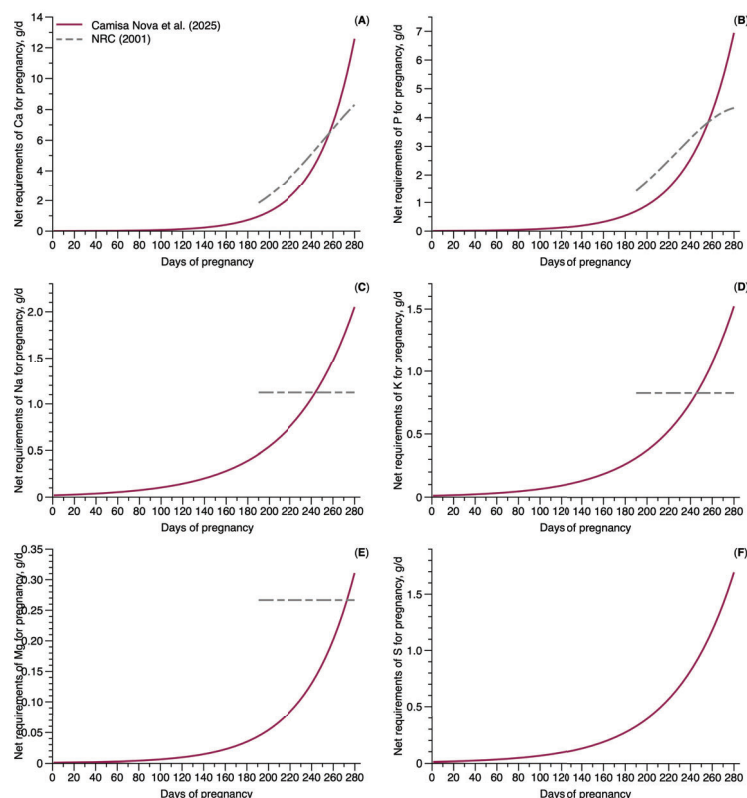
study introduced a new way to measure how efficiently these tissues use minerals as pregnancy progresses, showing that cows become better at retaining minerals over time — but only if their diets provide enough to begin with.

Compared to traditional systems like NRC (2001) and NASEM (2021), this new model predicts slightly higher mineral needs in mid- to late gestation — especially for calcium, magnesium, and sulfur. Importantly, these levels still fall within safe feeding guidelines and don't pose a risk of overfeeding. The goal is not to increase mineral intake across the board, but rather to match supply more accurately with the cow's changing needs during pregnancy.

It's important to note that this model still requires validation in other herds and conditions. However, it offers new insights into how mineral needs evolve during pregnancy and raises important questions about whether our current feeding strategies are truly meeting those needs. These findings deserve close attention from both nutritionists and dairy producers aiming to optimize cow and calf health.

For farmers and nutritionists, the practical message is clear: Don't wait until the dry cow is two months from calving to start thinking about minerals. Earlier adjustments could improve fetal growth, reduce metabolic stress, and support better health and production after calving. It also opens the door to more precise and cost-effective mineral supplementation throughout gestation.

Bottom line: If we want to support the full genetic and productive potential of modern dairy cows, it's time to bring our mineral nutrition models into the 21st century. Nutritionists and producers should begin to consider gestation stage-specific mineral needs — not just in the last trimester, but across the entire pregnancy.



adapted from Camisa Nova et al (2025).

— Marcos I. Marcondes  
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# SHARE YOUR THOUGHTS ON PRECISION DAIRY TECHNOLOGIES!

The University of Wisconsin-Madison Smart Farm Hub team would like to invite you to take a brief online survey about the adoption and perception of dairy technologies.

As a thank you for your expertise, participants who complete the survey will be entered to win \$50 VISA gift card.

Access the survey by scanning the QR code below, or copying and pasting the following link on your browser: <https://go.wisc.edu/smart-farm-survey>.

Please feel free to share this survey with others who may be interested!

The Smart Farm Hub is funded by the U.S. Department of Agriculture and the National Institute of Food and Agriculture offers resources for farmers, industry professionals, and students. It features articles, guides, and videos about digital technologies in agriculture and livestock.

**We want to hear from you about  
Precision Dairy Technologies**

We are looking for people involved in farm decision-making (owners, part-owners, managers, or consultants) to participate in a short survey about precision dairy technologies.

Participants who complete the survey will be entered to win one of twenty \$50.00 Visa gift cards.

**Access the  
survey using the  
QR code or the  
link below!**



**Smart Farm Hub**  
UNIVERSITY OF WISCONSIN-MADISON

[go.wisc.edu/  
smart-farm-survey](https://go.wisc.edu/smart-farm-survey)

This survey was approved by the UW-Madison Institutional Review Board under protocol 2024-1302. If you have any questions about this survey, please feel free to contact Gustavo Mazon ([gustavo.mazon@wisc.edu](mailto:gustavo.mazon@wisc.edu)) or Victor Cabrera ([vcabrera@wisc.edu](mailto:vcabrera@wisc.edu)).

Thank you for your participation!

— The University of Wisconsin-Madison Smart Farm Hub Team



**Strawhatters  
Community Band  
Live on the Lawn!**

**July 29  
7 pm**

**Miner Institute  
1034 Miner Farm Rd.**

**Bring your lawn chair and some snacks  
and enjoy some live music!**

**This event is free and fun for all ages.**





# TOLD YOU SO

For years now I've been telling farmers to apply insecticides to alfalfa and alfalfa-grass only when an insect infestation is at or over the threshold for economic control. In part that's because the insecticides not only kill the pests but also the many beneficial insects in the field, many which are feeding on alfalfa pests. A second reason is that if the same insecticide is applied to the crop year after year there's an increasing chance that the insect pest will evolve to become resistant to that insecticide. And that is exactly what appears to have happened in at least two counties in Pennsylvania, where this spring there were numerous reports that alfalfa weevils have developed resistance to the pyrethroid insecticides commonly used in their control. Now farmers there may have to resort to insecticides that are more expensive and/or environmentally inferior. This situation was most likely preventable; it appears that too many farmers there were

applying pyrethroid insecticides to first cut alfalfa as "insurance" treatments even when they didn't need to.

In much of Northern NY alfalfa weevil populations have been effectively controlled for many years now by a combination of parasitic wasps and an endemic fungal disease, both which affect alfalfa weevils but not beneficial insects. Late one spring in the early 1970s I met a small plane at the Malone, NY airport that had departed from Ithaca with paper containers bearing hundreds of pupae of two species of parasitic wasps. Over the next few days I spread these pupae in a number of alfalfa fields in Northeastern NY where the participating farmers had agreed not to apply any insecticides. These efforts were wildly successful and soon led to additional pupae releases. We confirmed this by collecting hundreds of alfalfa weevil larvae from the fields where I'd distributed the wasp pupae as

well as from nearby alfalfa fields, then shipping the larvae to Cornell where entomologists confirmed that some were being killed by the parasitic wasps which lay eggs in the weevil larvae. The egg hatches and the wasp emerges, in the process killing the larvae. Soon I was catching fewer alfalfa larvae in my sweep net but an increasing number of the tiny but easily identifiable parasitic wasps. Within a couple years this was providing economic control of alfalfa weevil throughout the region, a classic case of successful biological control.

There are still outbreaks of damaging levels of alfalfa weevils requiring insecticide applications, but these are mostly isolated. Farmers in Northern NY can still use pyrethroid insecticides but should use them only when economically justified.

— *Ev Thomas*  
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# GLYPHOSATE

Not all glyphosate is the Roundup brand since the patent on this herbicide expired way back in 2000, so other companies have been able to legally produce and sell glyphosate-based herbicides. The herbicides bearing the Roundup label currently sold in garden centers and building supply stores no longer contain glyphosate, but I was able to find glyphosate (not the Roundup brand) in a hardware store. The only way to find out what's in the container is to read the label — always recommended, of course.

Fortunately, for the foreseeable future

it appears that farmers will still be able to buy and use glyphosate, either as Roundup (first marketed in 1974) or another brand. My experience with glyphosate dates to the early 1970s when it was an experimental product identified by a code number, and I was working for Cornell University as a regional agronomist. I first applied it to some very healthy quackgrass using a backpack sprayer and was very much impressed at the excellent control. Miner Institute used Roundup extensively during my 28 years as agronomist there, and with considerable success — a highly reliable product. Herbicide chemists

have been trying for decades to produce an herbicide with similar properties to glyphosate, but with no apparent success. There is glyphosate, and there is everything else. I know of no other herbicide that will translocate in the weeds, killing them from the roots up, and then permit the planting of almost any crop. Glyphosate has been a controversial herbicide due to claims of health risks, but from a farming perspective it's been the most valuable and widely used herbicide since the development of 2,4-D in 1946, a weed killer we're still using 80 years later.

— *E.T.*

# WARDING OFF WEANING WOES

Weaning is ubiquitous in the dairy industry and is not exclusive to only heifer calves but also beef crosses and bulls. In that context it's a transition period of great importance for all these animals. We can either get it right and continue the projected path set in the preweaning period for growth and health, or weaning can be a challenge to these animals and can go off the rails.

This transition from a non-ruminant to a ruminant in a relatively short period of time is certainly a big feat. We push this transition by weaning several months earlier than would "naturally" occur if the calf was suckling from the cow, therefore speeding up the timetable to develop the gastrointestinal tract.

The gastrointestinal tract goes from 6-7% of the body when the calf is fed milk and small amounts of starter to over 15% when the calf is weaned and consuming solid feed. This change in gut contents alone can account for 0.5-0.7 lb/d (0.2 to 0.3 kg/d) alone and isn't captured in empty body weight gain of this animal. This can add up to 25 to 30% of average daily gain for a 10-week-old animal. In the preweaning period the rumen can represent 1.3-1.8% of empty body weight (body without the digesta in the gastrointestinal tract). However, after weaning it can be 15-23%.

There's obviously a critical need for solid feed consumption in the preweaning calf to make it successfully through the weaning and postweaning period. While size of the gastrointestinal tract is a consideration, the function and ability to utilize the nutrients consumed from solid feed is most

important for developing the gastrointestinal tract and allowing the animal to use nutrients consumed to support maintenance and growth requirements during this transition.

Some critical things to focus on the ward off weaning woes-

1. **Starter quality.** Starter is critical to rumen development and facilitation of weaning. It should provide fermentable carbohydrates to produce volatile fatty acids (propionate and butyrate) which drive ruminal epithelium development. The first quality control is if the calf consumes it. Some of the most palatable ingredients are wheat meal, sorghum meal, barley meal, and corn meal for cereals and soybean meal and distillers grains for protein sources. Physical form may play a role in degradation rates with texturized starters promoting a higher rumen pH than pelleted or ground starters. Starch should range 22-38%, protein from 20-25%, neutral detergent fiber > 15%, sugar 10-15% (molasses limited to <7.5% of the formula), and fat <5%.

2. **Weaning age.** Surprisingly, calves can be quite resilient to different weaning ages. What might make or break success of a weaning age is linked to starter intake prior to weaning. During and after weaning a calf needs to consume an adequate amount and quality of starter to maintain growth realized in the preweaning period. Cumulative non-forage carbohydrate intake prior to weaning should be >33 lb (15 kg) or total dry matter intake >60 lb (28 kg). The milk allowance

and weaning schedule will largely dictate if calves reach this target at a specific weaning age.

3. **Weaning duration.** Weaning duration is very closely linked to both milk allowance and observed starter intake. Often a 10-day weaning period is optimal on higher milk allowances to facilitate more consumption of starter. A starting point could be to decrease high milk or milk replacer allowances by steps of 25% per week until weaning to increase starter intake consumption.

4. **Forage.** There is a balance of how much forage to include in the diets of weaning calves. There is limited nutritional value realized from most forages for animals at this age, however there could be several benefits in terms of ruminal health and function with the addition of a forage. Ideally, forage intake should be limited to 10% of less. There have been benefits noted when grass hay or straw has been proved in terms of starter intake and average daily gain. Alfalfa is generally poorly utilized by these animals and often displaces starter intake and consumption of digestible nutrients.

Weaning is one of the most important transitions for young ruminant animals on our farms. Adjusting strategies to optimize this transition is important for maintaining growth during this time. Focus combining starter quality, weaning age, weaning duration and forage so that we set these animals up for success and ward off any weaning woes.

— Sarah Morrison  
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# WHAT'S HAPPENING ON THE FARM

Summer has officially arrived, bringing with it the intense heat and challenges that come with seasonal weather changes. Despite the stress caused by a recent heatwave, our cows have continued to perform exceptionally well. In fact, for several weeks in mid-June, our herd was averaging an impressive 105 pounds of milk per cow per day which is a testament to both the health of our animals and the hard work of our team here at Miner Institute. While the high temperatures have since taken a slight toll, causing production to dip to 102 pounds, we still view this as a remarkable achievement. Maintaining this level of output under such demanding conditions reflects the resilience of our herd and the consistent care they receive. We're proud of these numbers and remain optimistic about continuing strong production throughout the rest of the season.

There's always something new happening around the farm, and lately, we've been focusing on a few exciting improvements to keep both our cows and our equipment in top shape. One of our recent upgrades has been the installation of brand-new rotating cow brushes in several of

our pens. These brushes are a favorite among our cows. Not only do they help keep them clean, but they also provide a form of enrichment that promotes comfort and relaxation. Our maintenance team has been hard at work replacing outdated brushes and adding new ones in areas where there weren't any before. It's been great to see the cows lining up to use them almost as soon as they're installed! In addition to those comfort-focused improvements, we've also made some major upgrades in the milking parlor. We recently replaced all of our milking claw clusters, inflations, pulsators, and tubing with brand-new equipment. These changes are helping to improve milking efficiency, ensure better hygiene, and enhance udder health across the herd. It's a significant investment, but one that we know will make a big difference in both cow comfort and milk quality.

Our summer students have been hard at work preparing their heifers for one of the highlights of their summer—the Clinton County Fair. Each morning the students take a break from their regular farm rotations to take time to care for their show animals. They can be found walking their heifers around

the farm, giving them baths, brushing their coats, and spending quality time socializing them which are all important steps in building trust and preparing them for the show ring. This routine not only strengthens the bond between the students and animals but also helps ensure that the heifers are calm, confident, and well-behaved in a busy fair environment. As the fair approaches, the students will soon shift their focus to fitting by learning skills such as clipping and styling their heifers' topline to showcase them at their very best. The time and energy our students are investing in their animals go beyond a daily chore, it's a full commitment. During fair week, they stayed overnight at the fairgrounds, continuing to care for their heifers around the clock while representing Miner Institute. We're proud of their hard work and accomplishments in the ring. The Clinton County Fair ran from July 7th to 12th, and we enjoyed all the visitors who stopped by to meet our summer interns and say hello to the heifers, and see firsthand the results of weeks of dedication and care.

— Ella Shamus-Udicious  
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## NOTABLE QUOTES: BEN FRANKLIN EDITION

- A man wrapped up in himself makes a very small bundle.
- We were all born ignorant, but one must work hard to remain stupid.
- Democracy is two wolves and a lamb voting on what to have for lunch. Liberty is a well-armed lamb contesting the vote.
- Keep your eyes wide open before marriage, half shut afterwards.

# MINER INSTITUTE: HOW WE GOT HERE

Readers of the Farm Report should have a fair idea of what's happening at the Institute, in part because of the regular short articles titled "What's Happening on the Farm". But recent subscribers (and some long-term ones) may not know how we got here. Following is a summary of the past 100+ years of agricultural activity at what is now the William H. Miner Agricultural Research Institute.

William Miner was orphaned at an early age and was raised by his aunt and uncle on their 144-acre Chazy, NY farm. He moved to Chicago as a young man, and in 1891 invented and patented a greatly improved shock absorber for rail cars. He started his own business in Chicago in 1897, and soon became quite wealthy. (There were no income taxes in the U.S. until 1913.) In 1903 William Miner moved back to the family farm in Chazy, and over the next ten years built Heart's Delight Farm.

Heart's Delight Farm was huge and diversified, with 15,000 acres, 300

structures and 800 employees (not a misprint!). It was a very modern farm and had electric lights in the barns before there was electricity in the New York Governor's mansion, with the power supplied by a series of hydroelectric dams that Miner built. Heart's Delight Farm included a dairy herd as well as a wide variety of crops and farm animals including several fish farms, also a herd of American bison. The farm shipped items such as ham, sausage, eggs and other produce to restaurants and hotels in Chicago and New York City. The farm operated under William Miner's guidance until his death in 1930, then continued on a somewhat reduced scale after his passing though there were dairy cows on the farm until the 1950s.

In 1961 Cornell University began a field crops research and demonstration project at Miner Institute, using 40 acres of centrally located tile-drained land. This project continues to this day, with financial support from the Institute. In 1970 Miner Institute and Cornell signed

a 10-year cooperative agreement which included the construction of a 160-cow free-stall dairy barn on the Miner Institute farmstead. This program continued under the management of Cornell University until the summer of 1979, when the operation of the dairy and crops programs was transferred to Miner Institute.

Since the late 1960s Miner Institute's dairy and field crops enterprises have grown considerably, now over 500 dairy cows in modern free-stall barns with sufficient cropland to support the milking herd and young stock. The Institute's agricultural research program has grown from essentially nothing in the early 1970s to encompass a wide variety of dairy- and crops-oriented projects with the professional staff needed to carry out this research. In the past half-century Miner Institute has evolved the support of Cornell University research at the Institute to having its own diversified and practically-based research program.

— Ev Thomas  
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## NOISE, Continued from Page 1

- 130 dB: jackhammer, plane takeoff

Prolonged exposure to 85+ dB can cause hearing damage in people. Thankfully, our barns generally stay below that threshold. Still, our team uses hearing protection ( earmuffs or ear plugs) when operating loud machinery or tools.

Noise that is 80 to 100 dB or greater can negatively affect cattle, too. In the Acoustics article, it was noted that loud noise is a stressor for cattle and can affect their health and productivity through changes in heart rate, respiration rate, metabolism, digestion, immune function, and feeding behavior. Milk production can

be decreased with just 3 hours a day of exposure to 80 to 100 dB.

Reducing the racket....so, what can we do? Here are a few simple things to reduce noise on the farm:

- Maintain equipment regularly: worn out motors or dirty or poorly maintained fans are often louder
- Choose quieter models: when replacing equipment, look for lower-noise options; variable speed fans can be a good option to reduce noise when less air flow is needed
- Be mindful of volume: radios can contribute to the noise

— Heather Dann  
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**Common decibels for dairy ventilation fans are 50 to 70 dB for circulation fans, 65 to 75 dB for low-capacity supply fans (positive pressure tube ventilation), and 70 to 85 dB for high-capacity exhaust fans (tunnel or cross ventilation).  
Source: Ventilation Fan Noise in Dairy Buildings, a Wisconsin extension publication.**

# OVERCOMING BURNOUT: STRATEGIES FOR RESILIENCE & RECOVERY

There are 365 sunrises and sunsets each year and the average farmer sees every one of them. Whether they are up before first light to milk the herd or till the fields, the work never stops. The profession not only wears on farmer's bodies, sometimes leading to chronic injury, but also mental fatigue comes from social isolation and constant fluctuations in weather patterns, market prices, and government policy. These factors have a risk of leading to burnout.

Those experiencing burnout may feel drained and disconnected which can lead to issues including decreased productivity, strained relationships, and increased risk of mental health disorders. Studies have shown that farmers are particularly vulnerable to burnout due to the unique demands and stressors associated with the profession. They are seen in the modern world as entrepreneurs in the ag business rather than food producers. The pressure of this global perspective, combined with the stigma surrounding mental health in rural communities, can worsen the issue, making it harder for farmers to seek support.

Burnout can have devastating consequences, making it essential to

recognize the signs and take action. Whether for yourself or a loved one who may be struggling, understanding how to support and recover from burnout can make all the difference.

Several precautions can be taken to combat the symptoms of burnout. Prioritizing immediate health, whether through physical fitness or mental well-being, is crucial in strengthening overall resilience. Maintaining proper nutrition and engaging in hobbies or interests outside of work can provide a necessary outlet and promote a healthier mindset. In addition to this, taking control of habits such as maintaining a healthy sleep schedule and staying hydrated is essential.

Identifying and reducing sources of stress is a critical step in recovering from burnout. This requires carefully examining daily operations and pinpointing the areas that contribute most to stress. In some cases, difficult decisions may be necessary to alleviate these pressures, such as downsizing, diversifying crop production, or opting to borrow or rent equipment rather than maintaining personal assets.

For those struggling to find ways to manage stress independently, surrounding oneself

with supportive individuals who prioritize mental health can be beneficial. Seeking advice from trusted individuals can provide valuable insights into additional strategies for stress reduction, strengthening communication and connection. Avoiding isolation is key, as withdrawing from those who offer support can further intensify burnout. Ultimately, maintaining a network of people who are encouraging and invested in personal and professional success helps minimize unnecessary stress and promotes overall well-being.

Seeking professional help is one of the most effective ways to combat burnout. Whether through counselors, faith leaders, or trusted friends, having someone willing to listen and offer a new perspective can be invaluable in navigating challenges. Remind each other that no one faces burnout alone. By prioritizing health, managing stress, seeking support, and embracing professional guidance, individuals can effectively navigate burnout and cultivate resilience for a healthier and more sustainable future.

\* References available upon request.

— Sommer Thompson  
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## NYCAC ON LAKE CHAMPLAIN MANAGEMENT

This June, a meeting of the New York Citizens Advisory Committee (NYCAC) on Lake Champlain Management was held at Miner Institute for a discussion of nutrient management and water quality on dairy farms. The NYCAC serves as a voice for the NY public on issues relating to the Lake Champlain Watershed, providing a forum for community members to address concerns and increase awareness and understanding about water resource concerns through invited speakers representing scientists, decision-makers,

and local governments. The committee is composed of local community members who meet monthly, including two members of the research team at Miner Institute, Laura Klaiber (soil scientist) and Steve Kramer (Director of Laboratory Studies).

The five focus areas for the NYCAC in 2025 are:

- Assess, Mitigate, and Eliminate Chemical Contaminants
- Support Habitat Protection, Connectivity, and Wildlife Corridors

- Invest in Critical Water Infrastructure for Resilience
- Prevent the Spread of Invasive Species
- Reduce Phosphorus Loading

Most meetings now occur virtually, and all are open to the public, so follow us on Facebook (<https://www.facebook.com/LakeChamplainNYCAC>) or at our website for more information, including upcoming meeting times and topics (<https://www.lcbp.org/about-us/how-we-work/citizen-advisory-committees/new-york-cac/>)



# ASSESSING STORM DAMAGE IN CORN

Thunderstorms are the primary source of moisture for our non-irrigated crops in July. While the rain is often needed by our crops this time of year, these powerful convective storms have the potential to do plenty of damage to them under the right conditions.

Storms almost always move in with a large outburst of wind. Even without a tornado or microburst, these winds can be strong enough to snap corn plants off at the base if they are at a vulnerable stage. Then, there is the hail, which can shred both leaves and stalks in addition to giving the hood of your truck a new look.

Whenever a nasty, hail-slinging storm damages a field, the natural response is to go inspect the damage. This is one of the rare times when I advise farmers not to look at their crops. Why? That's because storm damage almost always looks way worse than it really is. Looking at a field right away only serves to dampen your spirit, use up your precious time, and get your boots muddy. If you do need to assess the field for insurance or decision-making purposes, I suggest waiting several days before doing so to get a more accurate picture of what's gone and what's not.

The proper way to estimate



yield loss is to use a hail damage chart. These can be found online through various university and extension sites. Hail charts show the estimated grain loss from both plant population reduction and defoliation of the remaining plants. All you have to do is look at the column corresponding to the proper stage of development and match that with what you observe in the field. For example, a 10% stand loss at the V11 stage corresponds to a 19% yield loss with 65% defoliation.

Corn plants are the most vulnerable to storm damage during the early reproductive phase and the least vulnerable during the early vegetative stages. A plant can be completely defoliated while the growing point is below the ground with less than 10% yield loss if it

survives (which it most likely will). Furthermore, surviving plants can compensate somewhat for missing plants by producing a second ear in some cases. Stand loss in the later stages of development is more of a direct, 1:1 reduction.

Once you know the estimated yield loss, the next question is what are you going to do with that information. It is very rare that estimated yield losses will be justified by re-planting. Re-planting is not only costly, but

it always results in a crop with reduced yield potential due to the shorter growing season – even if you get a perfect stand. Leaving the damaged corn alone is often the best option, although weed and disease pressure will likely be higher under this scenario. On the flip side, defoliated corn represents a great opportunity to try interseeding a cover crop. The additional light in the canopy will allow for excellent establishment of a species like annual ryegrass while having a negligible impact on the remaining crop. It's better to have a cover crop growing between your corn than a bunch of late-emerging weeds.

— Allen Wilder  
wilder@whminer.com

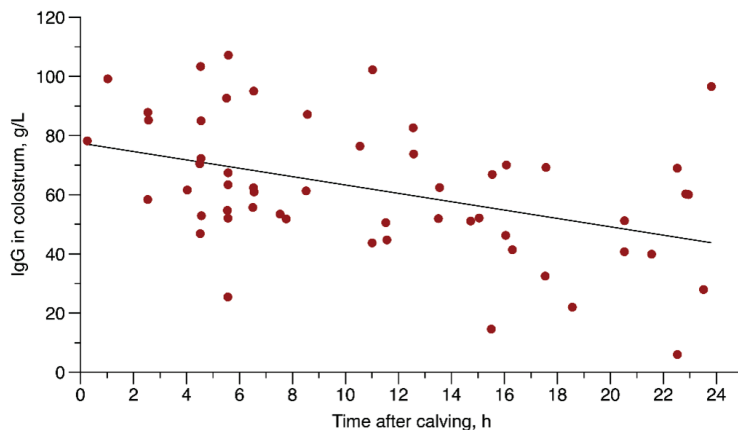
# COLOSTRUM HANDLING & PASSIVE TRANSFER... NOT A PASSIVE REQUIREMENT FOR CALVES

The chain of events following colostrumogenesis in the cow, to collection, storage, and calf consumption of the colostrum is an important process to manage on the farm. The timing of collecting colostrum, as well as the proper handling and storage, play key roles in the quality of colostrum being delivered to the calf. Furthermore, minimizing bacterial contamination from the cow's udder, milking equipment, storage vessels, and feeding equipment will help maintain clean colostrum. Surveys from 2017 found that 89% of large dairy farms in North America store colostrum. Handling colostrum may look different on each farm, but it's critical for maintaining colostrum quality and cleanliness, and giving calves an optimal start to life.

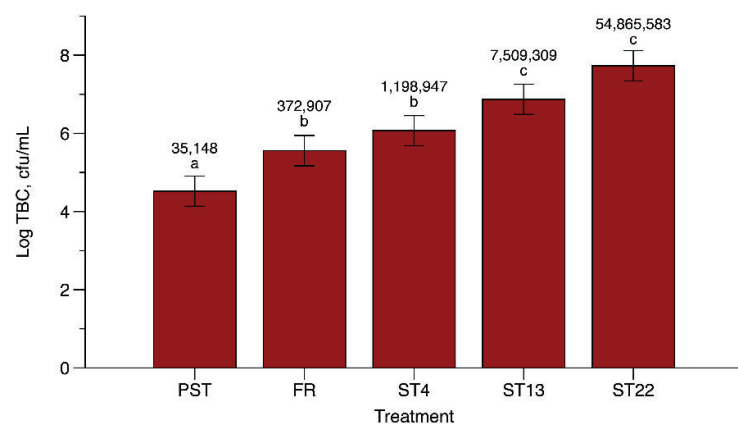
The timing of the first colostrum collection is an important first step. The interval between calving and first milking positively impacts colostrum quality, specifically IgG concentration.

Morin et al. (2010) showed a significantly higher IgG concentration when colostrum is collected within 3 hours of calving, and that delaying first milking leads to a dilution of colostrum due to lactogenesis and increased milk production (Fig. 1).

Once the colostrum has been harvested, proper storage is essential to maintaining high-quality, bacteria-free colostrum. Storage can be divided into short-term and



**Figure 1.** The relationship between concentration of IgG in colostrum and time after calving. , (Adapted from Morin et al., 2010).



**Figure 2.** (1) fresh pasteurized colostrum (pasteurized and fed to calves immediately after collection; PST); (2) fresh colostrum (fed immediately after collection but not pasteurized; FR); (3) colostrum stored at 4°C in a temperature-controlled unit for 2 d before being fed to calves (ST4); (4) colostrum stored at 13°C in a temperature-controlled unit (Binder GmbH, Tuttlingen, Germany) for 2 d before being fed to calves (ST13); and (5) colostrum stored at 22°C in a temperature controlled unit for 2 d before being fed to calves (ST22) (Adapted from Cummins et al., 2017).

long-term strategies. Short-term storage focuses on refrigeration 39°F (4°C) or storing colostrum at room temperature, which can be variable depending on location. Refrigerated colostrum should be used within 1-2 days of being stored. Studies have shown increased bacteria levels and lower calf IgG levels with storage at room temperature. A study conducted by Cummins et al. in 2017 (Fig. 2), showed colostrum stored at room temperature, in this case 71°F (22°C), had

42 times greater bacterial content and 2 times lower serum IgG levels after 2 days compared to refrigerated samples 39°F (4°C).

Long-term storage consists of freezing and thawing colostrum. A scoping review of on-farm colostrum management practices for optimal transfer of immunity in dairy calves by Robbers et al., 2021 showed that thawing by waterbath up to 104°F (40°C) is best and that microwave methods should be avoided because it unevenly heats the colostrum, potentially denaturing proteins. While a single freeze-thaw cycle doesn't reduce IgG levels in colostrum, repeated freezing and thawing has shown significant decreases of 7.8% and 7.7% on the second and third cycles (Morrill et al., 2015).

The size and shape of the container used to store colostrum will affect the method of storage. For instance, Cummins et al., 2017 used sterilized 2 L

bottles, but there are several options available for storage. At Miner Institute we use a 1 gallon (4 L) single-use bag held in a plastic reusable holder, making freezing, storage, and thawing easier.

Pasteurization of colostrum is a method used to limit the growth of bacteria and pathogens in colostrum to minimize

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# 2025 AMERICAN DAIRY SCIENCE ANNUAL MEETING: OPPORTUNITY TO SHARE, ENGAGE & LEARN

This past June, Miner Institute staff, students and interns attended the annual meeting for the American Dairy Science Association in Louisville, Kentucky. While the meeting is a great venue for sharing research we've conducted over the last year or two, it's also a great opportunity to receive feedback and discuss new ideas from other institutions. Miner Institute presented 10 different abstracts at this meeting with titles presented below. If you are interested in the full abstract of the project, please reach out to me at [ballard@whminer.com](mailto:ballard@whminer.com).

- *Effects of dietary content of undegradable neutral detergent fiber (uNDF) and crude protein (CP) on lactation performance, rumen fermentation, and total tract digestibility (TTD) of Holstein cows.* T. N. Turney, J. Ono, R. J. Grant, S. Y. Morrison, H. M. Dann
- *Evaluation of crude protein content and rumen unprotected protein sources in diets fed to post weaned heifers.* S. Thompson, H. Owada, S. Y. Morrison
- *A survey of colostrum products on the market in the United States and Japan.* H. Owada, A. Ideta, S. Y. Morrison
- *Lactation performance and methane intensity of Holstein cows fed diets containing alfalfa grass silage inoculated with a multi-strain inoculant.* G.O. Omoruyi, C.S. Ballard, J.R. Green, H.M. Dann, A. Barkley, R.A. Scuderi, and S.Y. Morrison
- *Palatability of inoculated and uninoculated corn silage at 0 and 24 h post-defacing when fed to pregnant Holstein heifers.* C.S. Ballard, A.E. Pape, J.R. Green, A. Barkley, R.A. Scuderi, M. Castex
- *The impact of free-choice bicarbonate/trace mineral consumption on performance of Holstein cows at varying stages of lactation during the summer in Northern New York.* R. Matsuda, A.E. Pape, H.M. Gauthier, H.E. Jones, C.S. Ballard.
- *Do light intensity and temperature influence abnormal grouping behavior of Holstein cows during the summer in northern New York?* A.L. Bartlett, A.E. Pape, S.Y. Morrison, C.S. Ballard
- *The effect of abnormal grouping behavior on behavior and performance of Holstein cows during the summer in northern New York.* A. L. Bartlett, A. E. Pape, S. Y. Morrison, C. S. Ballard
- *The effect of interseeding kale or sorghum on the yield and forage quality of corn silage in northern New York.* A. M. Wilder
- *Understanding "exciting opportunities" and "biggest concerns" in the Vermont dairy community.* B. M. Craig, D. S. Conner, and H. M. Dann

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## COLOSTRUM, Continued from Page 10

risk to calf health. Pasteurization temperatures and times can impact the colostrum quality and subsequent calf IgG serum levels. Robbers et al., 2021 surveyed several studies that show that heating <140°F (<60°C) for 30 to 60 minutes did not affect or had minimal effect on colostrum quality, compared to temperatures 140°F (60°C) or greater, which had a significant loss in IgG concentration. Another study showed heating the colostrum at 145°F (63°C) for 30 minutes had no impact on calf IgG serum, as opposed to heating at 168°F (76°C), which showed lower calf serum IgG. While the studies Robbers et al.,

2021 reviewed showed no difference in the IgG content of pasteurized and unpasteurized colostrum, calf IgG values were significantly higher for calves fed pasteurized colostrum.

The industry has started to use the three Q's, Quality, Quantity, and Quickness, as colostrum management guidelines. Occasionally you will also see Quantifying the Transfer of IgG and sQueacky clean added to the list of Q's. While these typically apply to the delivery of colostrum to the calf, they also apply to the harvesting and storage of colostrum. A timely first milking with proper

handling and storage can help your farm capitalize on high-quality colostrum with minimal bacterial growth. While there is no "one size fits all" solution for every farm, there are a multitude of resources to help guide farmers. Regardless of how the individual farm manages colostrum, having protocols in place and training staff on proper colostrum handling will ultimately pay off in a healthier young stock population.

\*References available upon request

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Research Scientist Laura Klaiber talks about water quality research conducted at one of the edge-of-field research sites as part of the NYCAC meeting held at Miner in late June.

## *Closing Comment*

Aliens probably ride past Earth and lock their doors.

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