FARM REPORT

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FROM THE PRESIDENT'S DESK: IMPROVING ONBOARDING PRACTICES ON DAIRY FARMS

Onboarding a new employee is an important task for our dairy farms as it improves employee performance and retention. Employee turnover is expensive with the cost of losing and replacing an employee reaching as much as 100 to 150% of the employee's annual wage. So, we need to ensure that each new hire is well-prepared and integrated into our farm. All too often, it is easy to say "Just go follow Joe (or Jose or whomever), he'll show you what to do." We can use a more effective approach that is focused on using a structured onboarding program that incorporates the 4 C's: compliance, clarification, culture, and connection. This has been a focus area for the Agricultural Workforce Development program at Cornell as they have developed methods and tools to assist farms and have conducted research on educational interventions for onboarding.

Compliance involves teaching the new employee the basic rules, policies, and regulations for the farm. For example, we need to ensure that the employee understands how to report hours worked and request time off. We need to provide safety training on day 1 to prevent accidents and ensure a safe working environment so that everyone goes home safely. Also, we need to educate employees about state and federal regulations. Taking the time to do these things will help the new employee avoid mistakes and keep our farms operating safely and legally.

Clarification is making sure a new employee understands his or her role and expectations of the job. This can be done by outlining the duties and responsibilities of the position in a written job description, providing detailed instructions with an SOP on how to perform a task, and setting goals and providing feedback to help the new employee know what is expected. Doing these things should help a new employee feel more confident and lead to better performance and job satisfaction.

Culture encompasses the values, traditions, and social norms of our farms. We need to share our history, mission, and values to create a sense of purpose, belonging, and commitment. We need to encourage an environment where teamwork and collaboration is emphasized, safety for people and animals is prioritized, and employees feel valued. Doing these things should create a positive work environment and promote employee engagement.

Connection is building personal relationships with coworkers and creating a sense of belonging for the new employee. This can be facilitated by introducing the new employee to coworkers and key

See **ONBOARDING**, Page 2

CORN HYBRID SELECTION: DON'T PUT ALL YOUR EGGS IN ONE BASKET

I'm a fan of *Farm Journal* Field Agronomist Ken Ferrie, whose monthly "Boots In the Field Report" is based on his extensive crop experience. In a recent *FJ* article he referred to "one-year hybrid wonders", which are corn hybrids that may have done great in seed university trials or in a farmer's field but didn't stand the test of time. He doesn't think that farmers should plant more than one-third of their corn acreage to a new corn hybrid unless they have a lot of experience with it, something that might be difficult to gain in a short time.

Ferrie doesn't provide specific cases where a hybrid went "from hero to zero" (his term), but I remember two that might qualify though they're from ages ago. One occurred during the 1970s when planting corn for grain in Northern NY was just beginning to increase. Canadian seed companies had several 80-day RM hybrids that did well in Cornell University's corn hybrid trials, and since we're right on the US/Canada border a few farmers in the area started planting them. One of these hybrids put on a good ear but apparently the cob matured "out of sync" with the kernels. The result was that the end one-third of the ear broke off. And by this time the sheath was dry and not tightly adhered to the kernels, so these ear pieces dropped to the ground where they became food for insects, birds and rodents. And the end 1/3 contains 25-30% of the grain on an ear, so this was a significant loss. There was enough cob breakage that this hybrid soon disappeared from NNY corn fields.

And then there was a leafy hybrid promoted as having high stover digestibility, but it also had a relatively small ear. The idea was that the high stover digestibility would more than compensate for the lower grain content. The first year that this hybrid was widely planted in the region was a good one for corn silage quality: No excessive heat or precipitation to challenge fiber digestibility. The result was high yield with good NDF digestibility. Because of its leafy trait this hybrid was also very attractive growing in the field, always a plus for farmers who think they can evaluate a crop from the seat of their pickup truck. The next year was hot and wet, conditions that are good for yield but not for digestibility. And because of the relatively small ear there wasn't enough grain to offset the poor stover digestibility. Not surprisingly, the acreage planted to that hybrid was much lower the following season.

— Ev Thomas
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ONBOARDING, Continued from Page 1

personnel on the farm, organizing a welcome event, providing a farm tour, and identifying a mentor. Building connections helps the new employee feel accepted.

The Agricultural Workforce Development program conducted a project reported recently in the *Journal of Dairy Science* that involved 36 dairy farms, with 17 providing complete data for analysis. Onboarding advisors, including educators and consultants, worked closely with farm managers, offering templates, examples, and hands-on facilitation to help them adopt effective onboarding practices based on the 4 C's. The benefits of improved onboarding after the educational intervention were clear. Farm managers reported significant increases in their use of onboarding practices, particularly in the areas of compliance and clarity leading to new employees that were better informed about farm policies and their roles and responsibilities. Managers tripled their use of mission statements, first day safety training, and job descriptions. Also, managers were more aware of state and federal employment regulations and the need to stay compliant while being more satisfied overall with the onboarding process. By adopting best practices and utilizing available resources, managers were able to create a more welcoming and productive environment for new employees.

Investing in a comprehensive onboarding program is a smart move for any of our farms as we look to build a strong, committed team.

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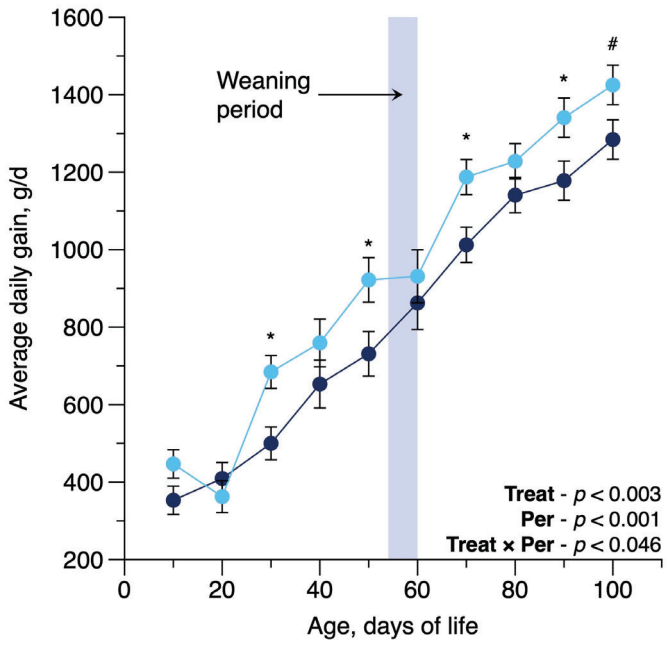
BOOSTING CALF PERFORMANCE: WASTE MILK OR MILK REPLACER?

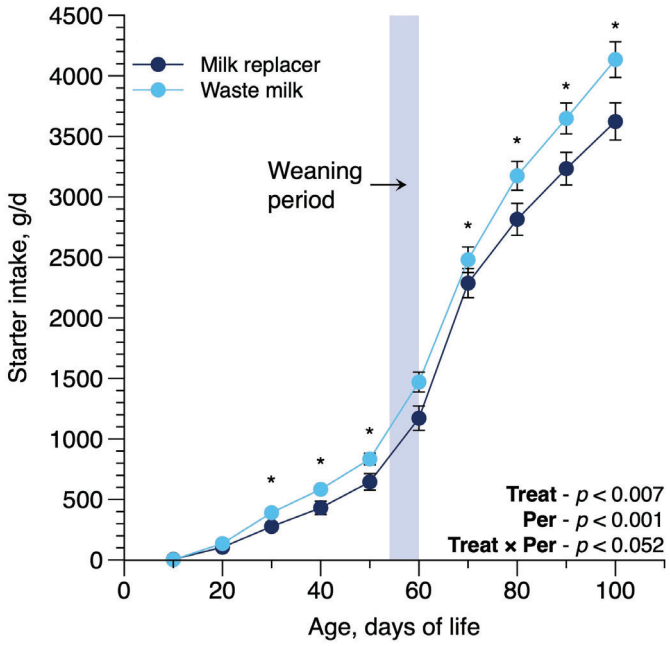
Raising healthy calves is the foundation of any successful dairy operation, and decisions during the pre-weaning phase can significantly influence their growth and future productivity. One critical question many farmers face is: Should you feed your calves pasteurized waste milk (WM) or milk replacer (MR)? Recent research sheds light on this debate, comparing these two feeding strategies head-to-head.

In a study with pre-weaned Holstein calves, feeding WM delivered several advantages over MR. Calves on WM showed better growth rates, increased body weight, and improved skeletal development compared to those fed MR. This performance boost was linked to higher nutrient intake, particularly fat and metabolizable energy, found in WM.

WM, a common byproduct of dairy farms, offers not only a cost advantage but also valuable nutrients and bioactive compounds that support calf health. In contrast, MR often contains more lactose and less fat, which may result in higher milk intake but lower energy efficiency. The study found that calves fed WM consumed more starter feed, suggesting a quicker transition to solid feed and enhanced rumen development.

However, it's important to note that the results of MR are largely dependent on the quality of the product. Many studies have shown no significant differences in performance or health between calves fed high-quality MR and those fed WM.





Additionally, MR often provides more labor efficiency and ease of handling compared to WM. These practical advantages can save time and effort on farms, particularly those with large herds or limited labor availability.

Health benefits were another key finding for WM. Calves on WM had fewer days with diarrhea and pneumonia, reducing the need for veterinary treatments. This could be attributed to the bioactive components in WM, which help bolster immune function and gut health. Additionally, the higher fat content in WM contributes to better digestion and feed efficiency. Of course, using WM requires careful management. Pasteurization is essential to eliminate harmful pathogens, and monitoring for antibiotic residues ensures compliance with regulations. These steps help maintain calf health and support the production of high-quality dairy products.

Farmers should carefully evaluate their specific circumstances, including herd size, labor availability, and product quality, to determine the best option for their operations. While MR provides consistency and convenience, WM offers a nutrient-rich, economical alternative when managed effectively.

Investing in the right feeding strategy during the critical pre-weaning phase can set your calves — and your dairy operation — on a path to long-term success. If you're feeding WM, remember that proper pasteurization and monitoring are key to unlocking its full potential.

Further information on this study can be found at https://doi.org/10.1371/journal.pone.0317405

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WHAT'S HAPPENING ON THE FARM

The Advanced Dairy Management program is underway! The students are taking courses and soon they'll join us in the barn to get some hands-on work with the cows. Working with new students that are passionate and willing to learn about the industry is very exciting for all our staff at the farm.

We've been making it a priority not to get behind on some housekeeping activities such as collar maintenance. Since we are milking nearly 560 cows we use the SenseHub SCR Activity collars to help us keep an eye on the health and wellbeing of the cows. Once pregnant heifers join the close-up pack, they receive an SCR collar and a leg-logger. After three or four days the transponders build up a good baseline and begin reading. The most helpful tools of the program for our operations are the monitoring of rumination minutes and heat spikes.

The collars come equipped with the strap, a weight to limit shifting of the collar, and the transponder. Sometimes the collars need to be replaced which can happen for a few reasons:

1. The transponder is old and battery life inhibits reading.
2. Collars can fall off. Either the straps get stuck in a headlock or old straps wear down and rip off as a result.
3. The transponder can be damaged, either in a headlock or from another cow.

The easiest way to replace the collars is by setting the headlocks for a brief amount of time and spreading some hay on top of the TMR to entice the cows to lock in. Once the old collar is taken off we put an 'X' on the transponder so it's not used on another cow, and the code gets sent off to the company.

The second technological tool we use are leg transponders. These transponders go on the front left foot of every milking animal and connect to the BouMatic Smart Dairy system. The transponder allows milk weights to be recorded into the DairyComp 305 system to allow monitoring of the lactation. Although these are less likely to fall off or break than the collars, it's still important to monitor the milking reports and make sure every cow has a working transponder.

Although the technology is helpful, it doesn't replace the eye of a good herdsman. Keeping up with the housekeeping activities helps us maintain the health and well-being of the herd, and keep the cows milking at over 100 pounds per day!

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DAIRY PROMOTION TIPS

Our Advanced Dairy Management students and Miner Institute staff recently participated in Customized Communication Coaching training by American Dairy Association Northeast Industry Relations Specialist Kelsey O'Shea. Through this training we covered the three key points that are important for consumers to know: dairy farmers care for their cows, are dedicated to environmental sustainability, and produce high-quality nutritious dairy products. We discussed how and why these key messages resonate with consumers while also showing how they are effective. Finally, Kelsey provided real-life examples of how to relate on-farm management practices back to the key areas consumers care about.

This training was great for identifying some consumer-tested messages and allowing our students and staff to hone their dairy communication skills. We had fun during the high-energy presentation with a bit of role-playing in a variety of situations. These ranged from communicating with emojis and how those can be quick and effective or easily misunderstood by the sender and the receiver. Students participated in a scenario where they practiced how to engage with others about food choices without being confrontational. Additionally, Kelsey provided guidance on how to respond to questions that may come up during a farm tour or other community event. Effective communication with consumers is necessary to combat misinformation that exists online and on social media. Kelsey also offered tips to consider when doing interviews or podcasts, and reminded us to be prepared! We look forward to continuing to utilize the resources offered by the American Dairy Association Northeast for dairy producers in our area through our checkoff dollars. If you wish to engage in similar activities, visit https://www.americandairy.com/dairy-farms/for-farmers/customized-communications-coaching/

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A DAIRY FARM'S DESIGNATED SURVIVORS

If you tuned into President Donald Trump's Inauguration or kept up with any news surrounding the inauguration, you may have noticed that while security efforts were high, no one was named as the designated survivor.

The U.S. has a tradition of naming a designated survivor, typically someone in the president's cabinet, who remains in a secure location during a large event (like the inauguration) to ensure that person is available to take over the presidency in case of a catastrophic event. While I imagine choosing a designated survivor is difficult, there are general principles that are used to make the selection. In a similar fashion, dairy farmers follow general principles when deciding which cows stay in the herd, or which cows are the "designated survivors".

For farmers, deciding which cows stay in the herd is a management decision largely based on economics. The "designated survivors" on a farm are the cows that are most profitable, the cows that are high producing, have good health, and reproduce successfully. These are typically the older, mature cows. Thus, one way to improve the profitability of a herd is by improving productive life.

Productive life is defined as the time from first calving, when the cow begins producing milk, to when the cow is culled. The average lactation number can be used as an alternative for productive life, so the more lactations a cow completes, the longer her productive life. If we break down a farm's milk production by lactation, it is the healthy, mature cows that have the highest production. Dr. Albert De Vries from the University of Florida created a model published in the Journal of Dairy Science in 2020 that demonstrated the key factors that influence the optimal productive lifespan from an economic perspective. De Vries's model used total herd structure costs that consider replacement cost, lack of maturity cost, aged cow cost, genetic opportunity cost, and calf value opportunity cost. Considering these 5 costs, De Vries concluded that the optimal productive lifespan is 5 years or 5 lactations. However, according to Dr. Gavin Staley with Diamond V, the average productive life for dairy cows is actually much shorter than that. For many dairy herds, the average is 2.6 lactations.

To improve productive life, Dr. Staley suggests focusing on creating "platinum" heifers that turn into mature and healthy "golden girls". Any successful dairy program begins with a successful heifer management program. Heifers that are well-grown are the ones that turn into high-producing cows. It's important that heifer growth is not rushed. Weighing heifers at regular intervals is important to ensure that heifers are achieving acceptable average daily gain, 1.7 to 2.2 lb/d, and that they reach the goal breeding weight in a reasonable amount of time. The Dairy Calf and Heifer Association recommends breeding heifers for the first time when they reach 55% of their mature body weight, and after calving heifers should be 85% of their mature body weight. The average mature body weight will vary between herds but can be determined by finding the average weight of cows in their third or fourth lactation in your herd when they are at peak lactation.

Investing in heifer growth will increase the likelihood of your animals making it past the breakeven point, which is when they have brought the farm enough income to cover the cost of their heifer rearing. For most cows, this breakeven point doesn't occur until their second lactation. These cows that make it to their second lactation and greater are what Dr. Staley refers to as the "golden girls". To be most profitable, these golden girls should make up a large percentage of cows in your herd. According to Dr. Staley, the demographics of a herd by parity should look like a Christmas tree, or a "lactree". The top of this lactree is where you find cows in their fifth and sixth lactations. To establish an extended productive life model in a herd, these cows must make up 12 to 15% of your herd demographic. Overall, to implement the productive life model farmers should strive for about 45% of their herd to be made up of cows in their third lactation or greater. While it may be tempting to cull older cows as they may experience more lameness or health challenges, or because you want to make more room for incoming heifers with greater genetic potential, these are the cows that produce the most milk and bring in the most money for the farm. Implementing proactive preventative management strategies can aid in avoiding premature culling and keep more "golden girls" on the farm.

While on a dairy farm we would never choose just one designated survivor like the U.S. government does, the ultimate goal is to raise our animals to all be worthy of being a designated survivor. We want to grow strong and healthy heifers so the decision of what cows need to leave the herd is a difficult one. The best-producing herds are the ones that have a majority of their cows in their third lactation or greater, and this stems from a successful heifer rearing program. Extending productive life can be difficult to accomplish and takes time, but in the end, it results in herds that are profitable, sustainable, and worthy of your investment as designated survivors.

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COLOMBIA DAIRY

In the past couple of weeks (depending on when you are reading this) there have been several headlines and articles about agricultural imports from Colombia. While I won't delve into the politics around the headlines, I did find it interesting to have very recent context for where some of the coffee and other agricultural imports originated. Our LeadNY Agricultural Leadership program class had recently returned from our international trip, to no other than Colombia! It was an extraordinary trip, with some jam-packed days.

The highlight for me was seeing the diversity of agriculture that the country has to offer. We had several speakers on one of our first days there who represented the coffee, cocoa, and dairy industries. We also hit the road and were able to tour farms including dairy, carnations, pork, sugarcane, coffee, equine, cocoa, and avocado.

Alejandro Gomez, co-founder of Dibuffala, came to speak to our group. Dibuffala is a company that produces buffalo milk mozzarella, BUF mozzarella, which can be found in Wegmans stores in the United States. The female buffalo are a byproduct of the palm oil industry, where they use the males as draft animals. It struck me how this paradigm contrasted with the dairy industry where females are sought first for milk and the males are often the byproduct. Nonetheless, this company has found a way to add value to the milk produced and has found a way into the US market. It was also striking to hear about their work culture. They have a human, friendly, and open-door work environment. They strive to be the best of the best, seeking out experts and competitions to gain feedback on what works and tastes the best. Alejandro says they obsess over deliciousness. Unfortunately we didn't get to see a buffalo dairy while we were there other than passing by some in a pasture from the bus.

We also heard from the Alpina group which is a large dairy company that is in Colombia, Ecuador, and Venezuela. In Colombia there are around 700,000 farmers with a total production of 18 million liters per day. Approximately 82% of the farms are small, with less than 50 cows. They have low production with an average of 5 liters per cow per day. The average consumption per person is 142 liters per year per person, while the recommendation is 170 liters. Alpina has 550 direct farms and 1,200 indirect farms (across 32 associations). Some of the challenges faced by farmers in Colombia include labor and transportation. Much of the labor force in Colombia is very informal so many farms have a lot of turnover. The other challenge is the terrain. Most products are trucked as opposed to any extensive railroad system because of the challenges of several veins of the Andes running through the country.

On another day we visited a dairy farm outside of Bogotá. The farm milked around 75 Holstein cows on 45 hectares. The cows were rotationally grazed with a cycle of approximately 45 days. The 6-stall parlor was brought to the cows out on pasture twice a day with a draft horse and powered with a generator. During milking each cow was allocated different amounts of grain based on production level. The milk was transferred into cans, after which the cans were carted to the milk house by the horse and moved to a bulk tank through a suction hose. This farm had good production compared

See **COLOMBIA**, Page 7

SUMMER EXPERIENCES AT MINER INSTITUTE!

Miner Institute is now seeking applications for our summer experience programs!

We offer paid summer internships for college undergraduates in dairy farm management; equine management; agricultural research; water quality research; and history. The history intern actually splits their time between Miner Institute and The Alice T. Miner Museum.

Application review will begin on Feb. 15, so apply today! To learn more about the programs and to apply, scan the QR code at left or visit https://www.whminer.org/summer-experiences

"Miner taught me how to organize, prioritize, and delegate. I also learned to work with all kinds of different people which, in today's world, is an invaluable skill."

— student testimonial

COLOMBIA, Continued from Page 6

to the national average. The cows produced 20 liters per cow per day with 10,800 liters per hectare a year. The calves were kept with the cow for a couple of days and then fed twice a day in a pasture where they were kept individually. Cows that were in their 4th lactation and above were bred to beef breeds (Girolando) to minimize the number of replacements and diversified income. The herd was able to maintain fairly good quality measures (130,000 SCC) for their milk and their test was around 3.6% fat and 3.1% protein.

In Bogotá, the average max temperature is around 70° F year-round with lows keeping above 40°F, the elevation is approximately 8500 ft above sea level, and it's close to the equator so daylight is around 12 hours year-round. It was a nice break from the North Country winter. It was fascinating to learn more about Colombian agriculture. There was certainly a diversity of crops that the country produces. Many of the farmers said that we were their first group to tour their farm, and they were excited and proud to host us.

— Sarah Morrison
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SUPPLEMENTING HEAT FOR YOUNG CALVES DURING COLD MONTHS

The start of February means that we are slowly but surely getting through the coldest time of the year. Winter's harsh conditions mean that farmers must take extra care to protect livestock from cold stress which can cause harm to health, growth, and production.

Newborn calves are particularly susceptible to cold stress due to their poor insulation, low surface-mass ratio, and lack of ruminal fermentation, as summarized by Roland et al., (2016). Penn State Extension states that calves less than one month old are most comfortable between 55-70°F (about 13-21°C) and can experience cold stress below 50°F (10°C). In the North Country it's unlikely we will see temperatures consistently above 50°F for the next couple of months. Thus, we are continuously battling cold stress in our youngest calves right now.

Other livestock operations like poultry and swine use heat lamps to supplement heat to young animals. On dairy farms, newborn calves may be placed in clean heated boxes, wrapped in blankets, or washed with warm water. Once they are dry, their primary sources of non-nutritive heat supplementation include deep and dry bedding, calf jackets, and some kind of enclosure.

A recent study by Sonntag et al., (2025) from the Free University of Berlin used heat lamps (HLs) to determine whether calves preferred heated vs non-heated hutches and if their behavior changed when housed in heated hutches. Researchers used 36 calves that were one to six days old. Calves were blocked in pairs by similar age and body condition. One individual was housed in a paddock containing four hutches with zero (HL0), one (HL1), two (HL2), or three (HL3) heat lamps switched on in random order. During this 'preference phase', the calf was allowed to pick whichever hutch she preferred. The other calf experienced a 'control phase' and was housed in a paddock with one non-heated hutch. Calves were housed in this setup for four days, then switched for three days so that their total study period was one week.

Ambient temperature was an average of 41.7°F (5.4°C) throughout the study. The heat lamps influenced hutch temperature; HL0 averaged 43.9°F (6.6°C) and each additional lamp added 3 to 6.5°F (2.6 ± 1.0°C). Calves did not show preference toward warmer hutches, but they tended to prefer the hutches closest to neighboring calves. All calves spent about 90% of their time in hutches and while lying time was not different between treatments, it slightly decreased with age.

This study suggests that calves housed around 40°F didn't express heat seeking behavior and that shelter alone was sufficient to avoid cold stress. An older study by Borderas et. al. (2009) from the University of British Columbia observed that newborn calves (≤ 3 days old) housed in a pen without physical barriers significantly preferred the area of the pen closest to a heat lamp. The average temperature in this barn was 37 to 50°F (6.27 ± 3.12 °C).

It's plausible that calves housed in hutches can withstand colder ambient temperatures and do not need heat lamps. Hutches can provide a great wind break and allow calves to huddle in a smaller space, especially if properly insulated with deep bedding. Conversely, research suggests heat lamps may be a good option for housing newborn calves in more open areas like pens.

Either way, it would certainly be interesting to see if calf preference for heated areas is impacted by colder temperatures like what we experience in the Northeast. We know that calves can grow and thrive with calf jackets in hutches over the winter. I've also seen farmers keep calves in an indoor area before moving them to a hutch or board up their hutches in the first days of life. Depending on your facilities, heat lamps may be an effective tool for keeping calves warm.

Do you already use heat lamps on your operation? Have you found them safe, cost effective, and easy to manage day-to-day? Is there a better way to supplement heat, like the use of infrared panels that decrease fire risk? I'm intrigued to hear your thoughts and if you believe this is beneficial to your calves' health and welfare.

— Alexandria Bartlett
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NNY MANURE ROADSHOW

MARCH 4TH & 5TH
9AM-3PM

TWO LOCATIONS:

MARCH 4TH: CLINTON COUNTY
MINER INSTITUTE
586 RIDGE ROAD, CHAZY, NY 12921

MARCH 5TH: JEFFERSON COUNTY
FARM CREDIT EAST OFFICE
25417 NY-12, WATERTOWN, NY 13601

COST:
$20, INCLUDES LUNCH AND MATERIALS

REGISTER HERE:

https://reg.cce.cornell.edu/ManureRoadshow_222

AGENDA INCLUDES: MANURE SAFETY, BEDDED PACKS- ARE THEY RIGHT FOR YOUR FARM, ON-FARM LIVESTOCK MORTALITY MANAGEMENT, AND MANURE APPLICATOR TRAINING (NYS DEC APPROVED)

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2025 FERTILIZER PRICES

Due to what's called "global supply issues", phosphate fertilizer prices have increased since last year and probably won't be going down anytime soon. One reason is that China, usually a big exporter of phosphates, is keeping much more of it for domestic use. Meanwhile, U.S. phosphate production has declined, so farmers are facing a tight market for this nutrient. Grain farmers are particularly affected because phosphate prices are higher at a time when most grain prices are low. Potash prices haven't moved nearly as much, and there may even be a surplus. (Dairy farmers who may have skimped on their potash applications in the past year or two should take note since this might be a good year to do some catching up.) As of this writing I have no idea of the impact of any tariffs on fertilizer imports or on U.S. "farmgate" prices. A high percentage of our muriate of potash is imported from Canada, so I wouldn't be surprised if U.S. fertilizer suppliers are trying to fill their bins with Canadian potash — better safe than sorry.

Nitrogen fertilizer prices haven't increased much, and the most common N sources have the usual relationship, with urea about 4 cents per pound of N cheaper than the price of either 28% or 32% UAN. At those prices I'd still prefer UAN because of its lower volatility and because it contains both ammonium and nitrate forms of N.

You've read this here before, but most dairy farms run a positive phosphorus balance and have been doing so for many years: More P comes onto the farm via feed and fertilizer than leaves the farm as milk and cull livestock. The result is a slow but steady increase in soil P levels. Dairy farms who have improved their soil management and manure handling practices, resulting in less erosion and runoff losses, may find that their soil test P level is increasing at an even faster rate. Any dairy farm that hasn't changed its fertilizer practices in a decade or longer is almost certainly applying more P than is needed for maximum economic crop yield and quality. Don't believe me? Check your current vs. past soil test values for fields that regularly receive manure. Even with moderate manure application rates, in most cases the P removed by the harvested crop will be less than the amount of applied P, so soil test P will have increased.

— E.T.

PREVENTION BEATS THE CURE

The photo accompanying this article is of a horsetail plant (Equisetum arvense) growing through a recently-installed layer of asphalt. I know of no herbicide available to farmers growing corn, soybeans, alfalfa or grass that will kill horsetail, which has been around since the age of the dinosaurs. This weed can spread by wind-borne spores, but the most common method is probably by tubers. Farmers who have horsetail on their farm should try to prevent its spread to other fields by thoroughly cleaning any tillage equipment — especially plows and disk harrows — that have worked an infested field. Once established in a field, each plant can spread horizontally up to two feet. Roots can penetrate to a dept of six feet, so lots of luck trying to kill it by repeated tillage. The depth of the root system is probably why herbicides do such a poor job of controlling horsetail — they may burn off the top but that won't kill the root system.

Farmers need to be careful of the feedstuffs they bring onto the farm, especially anything that could contain weed seeds and those from unknown sources. Many years ago, following a disastrous crop season in Northern NY, USDA had a program where dairy farmers could purchase feed-grade oats at a greatly reduced cost. Some of these oats had been sitting in bins a great distance from the farm feeding them, and some contained a lot of weed seeds. I remember looking at the bottom of a feed cart after a farmer had fed out most of the oats. There was a layer of shiny black seeds in the bottom of the cart, weed seeds that almost certainly wound up in the farmer's fields after manure spreading. Many weed seeds species will pass through a cow's

See **HORSETAIL**, Page 11

THE CASE FOR NARROW-ROW CORN?

The question of how far apart corn rows should be planted is not a new one. One has only to go to an equipment auction to see how row spacing recommendations have changed over the years. There is a whopping 82% difference in spacing between an old 36 in. planter and a modern unit with 15 in. rows.

But why is there so much variability in row spacing? Well, the fact of the matter is that corn is a very adaptable plant. It doesn't need a specific row spacing to perform well. In fact, research has shown that even corn grown at 60 in. spacing can deliver decent yields if the plant population is maintained. Wide row corn research has mostly been focused on providing a solar corridor for interceded crops, but there has also been a recent resurgence in narrow row corn research and interest.

The theory behind narrow row corn is that, at any given plant population, the plants are more evenly distributed throughout the field and compete with each other a little bit less. This allows the crop to have better access to the total amount of sunlight, water, and nutrients available in the field. While this doesn't necessarily affect forage quality much, in theory, it should mean more yield… and research in the northern latitudes has measured this to be a biomass increase of 0-10% across years and locations (twice as high as for grain). This equates to about a ton of wet forage/acre for most folks. If in-field biomass was worth about $50/ton to you, then you could theoretically get a return of $50,000 in additional corn over the first 1,000 acres of silage corn.

But the benefits of narrow row corn don't end there. Farmers consistently report better weed control (due to faster canopy closure), reduced erosion, and improved standability. If improved standability is not that important to you, there is also the option to use the improved spacing to push for higher plant populations. This is not required, however, to see a yield benefit.

So, what's the catch? Well, most silage growers probably don't have a planter that is set up for 15 in. rows and modern equipment doesn't come cheap. While the price for the extra row units might not be that overwhelming if you already need a new planter, a multi-directional chopper head may also be required. And then, you have to consider the additional wear and tear of maintaining double the row units over time.

My take is that a narrow row corn planter makes a lot of sense for those growing silage on less than ideal agricultural soils… like those we farm here in the North Country. The improved row spacing really seems to shine in cases where root development might be hindered for some reason, such as a big rock beneath the soil. On the flip side, higher plant populations could be planted in heavier soils that have ample water and nutrient reserves. A narrow row planter is also a great tool for those of us who are limited on land base. A 5% increase in yields means 5% more P removal from the soil. You get more forage, higher manure rates, and less of a chance your soil and nutrients are going to wash away on you!

— Allen Wilder
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digestive tract while retaining good germination. And once some of these weeds become established on a farm they may become permanent; for instance, velvetleaf seeds can remain viable in the soil for about 50 years.

It's not just weeds that are of concern: The alfalfa snout beetle, a devastating insect of alfalfa for which there are no (legal) insecticides, is flightless so spreads by walking out of an infested field. This would seem to limit its potential to spread, but this insect can travel long distances by hitching a free ride on field equipment or on baled hay. There's also circumstantial evidence that adult alfalfa snout beetles can be spread by beehives as the hives are transported from one farm or orchard to another. Thanks to research done by Dr. Elson Shields and his staff there's a beneficial nematode that can effectively control alfalfa snout beetles, but it's a lot cheaper to prevent this insect from infesting a farm than it is to try to control it.

— Ev Thomas
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