# FARM REPORT

**In This Issue:**



**https://www.instagram.com/minerinstitute/**

Find us on Facebook

**facebook.com/MinerInstitute**

# FROM THE PRESIDENT'S DESK: WE ARE MONITORING THE SITUATION: HPAI

It has become part of my daily routine to check the USDA APHIS website for updates on the Highly Pathogenic Avian Influenza (HPAI; https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock) for locations of confirmed cases of HPAI in domestic livestock and updated information and guidelines. We are monitoring the situation and are having discussions internally as well as discussions with veterinarians and nutritionists from around the US. Currently, our dairy farm is open to our agri-service providers and visitors that follow our biosecurity practices (https://nationaldairyfarm.com/dairy-farm-standards/farm-biosecurity/). We are faced with balancing the risk of a HPAI infection with providing education and outreach programing on-site with people that come from all over the US and world.

Our long-time herd veterinarian and member of our Institutional Animal Care and Use Committee, Dr. George Palmer (Palmer Veterinary Clinic Plattsburgh, NY) recently shared some of his thoughts on the HPAI H5N1 virus. He said "It is not a matter of if we are going to have to deal with H5N1 in dairy cows in this area it is WHEN. So far, the herds that have this disease have been mostly in the Central Flyway for migratory birds or they have imported cattle from infected herds in this area. The only herd on the east coast (North Carolina) affected did get cattle from an infected herd in the Midwest. The Atlantic Flyway will eventually get infected migratory birds. Whether it is this fall, next spring or in 2026 or later remains to be seen." Our farm is only a few miles from Lake Champlain, which is part of the Atlantic Flyway – a migratory corridor for approximately 40,000 ducks, geese, and other migratory waterfowl during their annual migrations to and from summer habitat.

Control of our local bird population at the farm is top of mind. Guidance on wild bird control can be found at USDA-APHIS-WS or by contacting Dan Inserillo at daniel.r.inserillo@usda.gov. Interestingly, Dr. Palmer indicated that "actions to reduce the birds, pigeons, starlings, and blackbirds, will not be protective. The [local] birds die as a result of the virus which is introduced by the migratory birds." He suggested that dead birds be tested when that occurs and be aware that cats can be a sentinel animal for this virus. Sentinel animals are used to monitor a given environment for infectious disease.

Dr. Palmer said that "dairy cattle seem to be the most obvious target of this HPAI genome." However, he wondered if "it is

See **HPAI**, Page 11

# NEW RESEARCH INTERN

Hi, my name is Charles Williamson, and I'm excited to join the nutrient management group at Miner Institute as a Research Intern with Laura Klaiber and Stephen Kramer. I recently graduated from Clemson University with an MS in Plant and Environmental Science where I worked as a laboratory assistant in a soil health lab at an off-campus research station. Even though the climate and geography feel vastly different from the coastal plain of South Carolina, the mission of research for the benefit of the agricultural community and our natural resources feels familiar to me.

Not only did I complete my master's research in South Carolina, but it's also where I grew up. My family's farming background is in tobacco, but our objective has shifted to longleaf pine restoration forestry. I've been able to stay involved in my family's land management by doing prescription burning to support native legumes and forages for native wildlife as our main land management objective. My family's business motivated me to earn my bachelor's degree in forestry at Warren-Wilson College, where I was also able to complete a Minor in English Literature. While there I worked 15 hours/week on their forestry and logging crew, splitting our time between a functional lumberyard/sawmill, and implementing the management plan for our campus forest.

Upon graduating I went to work on several types of livestock farms across the country, and even in a different part of the world for a time. In 2015 I was able to work in New Zealand on two different sheep farms, one conventionally managed and the other organic. When I got back from NZ, I worked at a beef and hog farm in Western North Carolina. Around this time my wife, Hannah, was accepted to Vermont Law School. After I finished at the beef and hog farm I joined her in the Upper Valley of Central Vermont. My first few jobs in Vermont were of the seasonal variety, working as a ski/snowboard instructor in the winter and a farm hand for an organic vegetable farm in the summer.

In addition to the seasonal jobs, I worked full-time at a hardware store in South Royalton, where Vermont Law School is located. During this time I also attended night classes at Community College of Vermont and Vermont Technical College, as I prepared to apply to graduate school to study soil science. I was accepted into a research group at the Pee Dee Research Station at Clemson University, and so in 2021, I returned to my home state of SC.

My research in graduate school focused on the short-term soil health impacts of various combinations of cover cropping, manure, and tillage methods.

I chose soil science as a research focus because it was the common ground between forestry and farming that my education and professional background had prepared me for. Upon completing my degree in December of 2022, I returned to Vermont where I worked as an academic tutor and Classroom instructor for the Habitat for Humanity YouthBuild program in Burlington. I am thrilled to continue my pursuit of knowledge and gain further experience in agricultural research and dairy farming at Miner Institute.

*— Charles Williamson*
*cwilliamson@whminer.com*

# NOTABLE QUOTES

- The only function of economic forecasting is to make astrology look respectable.
  John Kenneth Galbraith, economist
- The older I get, the more clearly I remember things that never happened.
  Mark Twain
- A good speech should be like a woman's skirt: Long enough to cover the subject while short enough to be interesting.
  Winston Churchill
- The most exciting phrase to hear in science, the one that heralds new discoveries, is not "Eureka! I found it!" but "That's funny…"
  Isaac Asimov

# WHAT'S HAPPENING ON THE FARM

Its June! Happy National Dairy Month! We've been keeping busy on the farm both in the barns and in the fields. Our cropping season is off to a good start as sunny and dry weather has allowed the first cutting of grass hay to commence. We have our first haylage bunk covered and the others soon to follow.

Mid-May we welcomed our summer students to the farm. This year we have four students joining us in the dairy barn for the Summer Experience in Farm Management. We are excited and looking forward to working with a great group of students.

Summer Experience in Farm Management Interns from left to right: Brittany Martin, Julia Melcher, Riley Ballard, and Anna Constantinides.

Brittany Martin is from Sheldon, New York and attends Cornell University majoring in Animal Science with a concentration in Dairy Herd Management. She grew up on her family's dairy farm, and showed dairy and beef animals through 4-H. After graduation she plans to further her career in the dairy industry as a herd manager. This summer, she hopes to learn more about herdsmanship and calf management.

Julia Melcher is from the Bridgewater area of Massachusetts. She is a rising senior attending the University of New Hampshire where she is studying Animal Science with a Dairy Management concentration. After graduation she hopes to become a dairy herdsman along with the possibility of attending graduate school to complete a Masters Degree in Dairy Nutrition. Julia has experience with dairy, working on the 100-cow Fairchild Dairy at UNH. She is most excited to learn how a larger dairy operates day to day. She is also excited to gain more hands-on experience with herd health duties including administering vaccines, individual health checks, moving cows around the barn as they progress in lactation and more!


Summer students with herdsmen Mackenzie and Rebecca after covering the bunk with first cut haylage.

Riley Ballard is from Connecticut, and she just recently graduated from the University of Vermont with a Bachelor's degree in Animal Science. Riley is undecided in her future plans but hopes to pursue a career in the Dairy Industry. Riley is most excited for the opportunity to show her heifer and connect with the community at the Clinton County Fair later this summer.

Anna Constantinides is from Long Island New York and is a recent graduate from UMass Amherst with a degree in Pre-Veterinary Science. Growing up in urban and suburban neighborhoods, Anna never worked with large animals until college but fell in love with it, ultimately inspiring her to pursue a career in large animal medicine. This summer Anna hopes to learn more about the dairy industry and better understand a producer's perspective to aid her abilities as a veterinarian.

*— Mackenzie Abbati*
*mabbati@whminer.com*

# SNAPSHOTS VS. MOTION PICTURES

Imagine that you're hiking up a mountain and meet a guy standing in the middle of the trail. Is he heading up the trail, or down? You can't tell since he's standing still. And since you haven't hiked up this mountain before it sure would be nice to know if he's hiking up or down so you'd know how far it is to the top.

That's about where you are if you're relying on a single soil analysis on a field. Assuming that the sample was properly taken (and that's a whole other topic), the results report current fertility (or what fertility was the day the sample was taken). But what a single analysis won't indicate is whether soil fertility — particularly P and K, also pH — is increasing, decreasing or stable. And in crop fertilization that's important information because it shows the results of your past nutrient applications. The only way for soil analyses to provide a moving picture (vs. a snapshot) is to choose a reliable soil test lab and then use that same lab every time. That's because a soil test lab uses one of several soil extractants, and you can't reliably compare year-to-year results generated from different extractants. Even if two labs use the same extractant it's better to use the same testing lab each year to eliminate any differences due to lab equipment calibrations.

Some farmers test every field on the farm at the same time, while others spread the workload by testing one-third of their fields each year (which is what we did when I managed the Miner Institute crop operation). CAFO regulations require soil testing each field at least once every three years, though this may not be often enough for very high crop yields or if you're trying to make big changes in soil fertility.

Long-time *Farm Report* readers know that this isn't the first time we've covered this topic. We're doing so again for the benefit of new readers of this newsletter, also for the hard-headed and Slow Learners. (You know who you are.) Also because over the past few years the increase in milk prices hasn't come close to compensating for the increase in fertilizer prices, so you need to make the most of every dollar spent on fertilizer.

By the way, one of our eagle-eyed readers noticed an error in the May *Farm Report* when I referred to *Fusarium* as a "common soil bacteria". My bad; *Fusarium* is a genus of fungi.

*— Ev Thomas*
*ethomas@oakpointny.com*

---

# IT'S AN ILL WIND…

*…that blows no good.* This proverb was included in John Heywood's 16th century collection of proverbs. Back then it probably referred to sailing conditions, but it's come to refer to the fact that even a bad situation for one group of people can result in benefits for others. Such is the case with global warming, as mentioned in an editorial ("Climate Change and the Crop Twist") in the May 2024 Crop Life magazine. Some climate models predict that the combination of heat and drought will cause crop yields to continue to fall across the Great Plains, Texas and the Southern U.S., but yields in regions on both sides of the Canadian border will steadily increase. The forecast is that over the next 25 years crop yields will rise by about 12% in the upper Midwest and Northern NY, and will continue to rise.

This is quite believable because we've been experiencing the regional benefits of global warming for many years. Soybean yields have increased tremendously over the past 25 years or so, and the growing season is both longer and warmer enough that the Relative Maturity (RM) of the corn hybrids we plant in Northern NY has increased by about 10 days RM. Certain people (notably my good friend Tom Kilcer) used to kiddingly refer to Northern NY as "the subtundra of New York" among other witty comments including the local mastodon population. Tom has relocated to Tennessee, a state that in early May had three tornadoes. I wonder who's laughing now…

*— Ev Thomas*

# FUNGI IN THE CORN FIELD – FRIEND OR FOE?

When I'm talking about a fungus as an agronomist it's typically related to some type of plant disease. This usually makes for a somber conversation filled with frightening words like mycotoxins, blight, or mildew. But fungi are not always the villains of the story. In fact, most fungal organisms present in an average field aren't plant pathogens at all.

Most fungi in the soil function as decomposers, breaking down crop residue over time and eventually releasing those nutrients to crops. Fungi exist in the soil as thin strands of cells called hyphae that grow around soil particles and whatever the fungus is using as a food source. Much like plant roots, these hyphae serve to acquire nutrients and support whatever fruiting body the fungus makes to reproduce.

Cover crops typically get most of the attention when it comes to improving soil structure, but hyphae from a soil-dwelling fungus can actually serve a similar function. Research has shown that fungal hyphae improve the aggregate stability of soil, which translates to reduced compaction and improved drainage for most agricultural soils.

But wait, do we really want a bunch of extra organisms growing in our fields along with our crops? The answer is a confident "maybe." Most crop farmers are well aware of the negative impact weeds have on crop growth. While it is theoretically possible that soil fungi could tie up plant available nutrients, this potential detriment would only be transitory and wouldn't be expected to even come close to the competitive effect of weeds since fungi don't compete for light and pull little water out of the soil. In fact, some fungi can actually help plants access water.

I remember once seeing a ring of mushrooms growing in the lawn of the house I grew up in. I didn't think much of it at the time, but when the summer turned hot and dry, I noticed that all the grass around the ring turned brown, while the grass where the mushrooms had appeared stayed green and kept growing. Scientists have identified numerous strains of soil-dwelling fungi that can form symbiotic associations with plants. These fungi (called mycorrhizae) extend their hyphae in and around the plant roots and in the surrounding soil and supply them with additional water and nutrients in exchange for sugars from the plant. In this case, the fungus is essentially serving as an extension of the root system. Since most plants can form associations with mycorrhizal fungi, inoculants have recently been developed that can be applied to numerous crops – including corn for silage.

So how can we go about encouraging these beneficial fungi to grow in our fields? The answer is to manage for them and potentially even consider inoculation. I recently read a review article which summarized the results of 168 inoculation studies and found that mycorrhizal inoculation in corn resulted in a 13% yield advantage on average. While the actual in-field results may not be quite this impressive, even if the magnitude of the yield response was half that size it may quite easily justify a cheap intervention such as seed inoculation.

In terms of management strategies that might benefit mycorrhizae, the study suggests that soil pH may be a factor. Much better inoculation success was observed when the treated soils had a neutral or acidic pH. Tillage and crop rotation are also management factors known to affect mycorrhizae. The basic idea is that tillage and fallow periods (or rotation to a non-host crop) can over time lead to the loss of mycorrhizae. Thus, conservation practices such as no-till planting and cover cropping may help beneficial fungi in addition to keeping the soil in place. Lastly, don't forget to address soil drainage issues. Just like plant roots, fungi need to breathe, and most cannot hold their breath for very long.

Nasty as their slimy reputation may be, fungi are an important part of the crop-soil agroecosystem. Whether they are facilitating natural processes, such as nutrient cycling, or even linking up with crop roots to extend the root system, it may be worth learning more about these fascinating organisms and the benefits they might have to your crops.

*— Allen Wilder*
*wilder@whminer.com*

## Is there something you'd like to know more about?

**Email article suggestions to dutil@whminer.com**

# ENTERIC METHANE REDUCTION STRATEGIES — THE STATUS QUO & WAY FORWARD

I attended the "State of the Science Summit" on May 21-22 co-hosted by the California Department of Food and Agriculture (CDFA), UC Davis College of Agricultural and Environmental Sciences, UC Davis CLEAR Center, and Spark Climate. The theme this year was "Feed Strategies to Reduce Enteric Emissions." The summit drew attendees from within and outside the US, and from various sectors including academia, industry, and government. There was also a rich array of speakers that shared valuable insights into the subject of enteric methane ($CH_4$) emissions in the dairy and beef industries.

One of the highlights for me was the student poster session which was an avenue to present a part of my research via a poster titled "Assessing Bromoform Residue in Milk Produced from Dairy Cows Fed 1% of Dietary Dry Matter as Processed Seaweed (Saccharina latissima)". This was a preliminary study conducted at Miner Institute and funded by the USDA National Institute of Food and Agriculture (more details at www.coastcowconsumer.com). The results showed that the bromoform levels in each of the milk samples collected over a 3-week period were below the limit of detection (<5 µg/L), and the potential for this processed seaweed to reduce enteric $CH_4$ emissions. The results from the study will be used to make informed decisions for an upcoming study on the effects of processed Saccharina latissima on animal productivity, $CH_4$ emissions, and milk quality (bromoform residues).

Robert Bonnie, the USDA Under Secretary for Farm Production and Conservation, in his presentation on the national perspective on enteric methane stated that the government should create incentives to encourage innovation and investment in climate change initiatives for farmers, supply chains, and the private sector. Also, USDA and FDA need to improve the process of approving $CH_4$ reducing products. In considering ways to reduce greenhouse gas (GHG) emissions, there should be no trade-off for productivity and profitability for producers, and small, medium, and large-scale producers should be involved in the creation of these initiatives. During the panel session with Bonnie and Karen Ross, the CDFA secretary, they emphasized the need for consistent measurement and transparency in ongoing emission reductions strategies to establish trust in the products that are being developed. They concluded that product development should not be a competition but a collaboration to save the planet.

On the international perspectives on livestock $CH_4$, representatives from Brazil (Dr. Bruno Brasil), Ireland (Hazel Costigan), and New Zealand (Dr. John Roche) each shared the current policies and efforts that are being adopted in their respective countries to reduce GHG emissions from animal agriculture. Dr. Aimable Uwizeye from the FAO shared some interesting data in his presentation about the pathways to meeting global climate goals. According to Uwizeye, livestock production contributes 12% to GHG emissions globally, 46% of which is enteric $CH_4$. He also stated that about 80% of $CH_4$ emissions occur in low and middle-income countries compared to high-income countries, and called for international collaborations, finance, and technology transfer to aid in meeting global reduction targets.

Dr. Peter Lund (Aarhus University), Dr. Sara Place (Colorado State University), Dr. Joe McFadden (Cornell University), and Dr. Alex Hristov (The Pennysylvania State University) were the panelists in the panel session on feed additives for $CH_4$ reduction. The points they raised included the need to consider the practical on-farm application and the cost implication when creating feed additives. They also emphasized that long-term studies are required to determine the efficacy of feed additives: Even though universities are unable to carry out such long-term studies, commercial farms can be used for that purpose. There was also a panel discussion on breeding and genetics and a presentation on anti-methane vaccines. The highlight from this is that $CH_4$ production is heritable, and a measurable trait, hence it can be used to make genetic predictions. However, genetic strategies and anti-methane vaccines are long-term strategies and would not be immediately available to meet short-term $CH_4$ reduction targets.

I observed from some of the presentations and my personal interactions with some attendees that bromoform is gaining more attention as an active ingredient to reduce enteric $CH_4$. However, the current unknowns are the mode of action in the rumen, the safety for humans and animals, the stability, and the long-term effects on the animal, among other concerns.

See **METHANE**, Page 9

# THE ROLE OF DAIRY IN REGIONAL FOOD SYSTEMS PLANNING

In early April, I attended the Northeast Dairy Business Innovation Center summit in Albany. In one of the keynote addresses, Holly Fowler from the New England Food Systems Planners Partnership discussed the New England Feeding New England plan, and the role that dairy can play in that plan. The goal of the plan sounds straightforward - to feed 30% of New England with food produced, harvested, or caught in New England, by the year 2030. The execution will be altogether less straightforward. Closing in on halfway through this decade, New England is still largely reliant on the national and global food system for the bulk of foods that people eat. This region can capitalize on value added or boutique foods as a sort of agritourism commodity, but these foods aren't often a significant contribution to food security. The plan involves an analysis of what they call the 'Unchanged diet' and the 'Resilience diet'. In essence, the resilience diet involves reduced consumption of sweeteners, fats and oil, and proteins to some degree. To capitalize on foods that are more commonly grown in New England, the resilience diet includes increased consumption of fruits, vegetables, and some seafood. The foremost opportunity we were presented with was a refocused dedication to the dairy food system in New England, to capitalize on one of the more significant agricultural specialties of New England.

Within this plan, the regional self-reliance coefficient (RSR) describes the relationship between mean production and mean consumption of a food item. Between 2010 and 2019 in New England, 9.3 billion pounds of milk were consumed, out of which 4.1 billion pounds were produced in the region. This means that the dairy food group has an RSR of 44.6%, well over the 30% required for this plan. Fowler explained that our existing reliance on regional dairy production is a cornerstone of this plan. New Englanders who purchase milk and other dairy products for their own home already contribute significantly to their regional economy by doing so – but the home isn't the only place we eat.

An increased use of regional dairy products in full or partial service restaurants could expand the current market in the area, but the plan recognizes the underdeveloped market of anchor institutions. Anchor institutions, often large public organizations like universities and hospitals, feed hundreds of people a day, usually in cafeteria settings. Fowler explained how, even when local anchor institutions display a desire to sell local milk, they struggle with finding the right supplier. Dairy farms in New England tend to be smaller than their counterparts across the country, and if they are processing their milk on farm and selling directly to anchor institutions, they might have less inventory and variety than a national supplier. Grade schools make up a significant portion of the anchor institution list: about one quarter of the total institutions in New England are public K-12 schools. Since 2010, schools have been required to provide low-fat milk in accordance with federal Dietary Guidelines for Americans. Restricted access to whole milk in formative years may impact a child's perception of dairy products for the rest of their life, but this law also makes local procurement of milk for schools a great challenge. It is simply more realistic for a small or medium sized farm processor to make whole milk. The New England Feeding New England team, along with bipartisan support throughout the country are working to overturn the low-fat milk requirements. If local anchor institutions could capitalize on local processors for their milk and other dairy foods, they could supply their patrons with a healthy and delicious product while supporting the regional economy.

While working towards the goal of feeding 30% of New England by 2030 may seem like a daunting goal, this initiative could mean a renewed support of the dairy industry from the top down. If policy makers prioritize getting local milk into anchor institutions like schools and hospitals, the potential market for dairies in the area could expand significantly. I will be interested to see how the next 6 years of legislature, farming, and eating within New England look.

*— Bridget Craig*
*bcraig@whminer.com*

# NORTH AMERICAN MANURE EXPO 2024

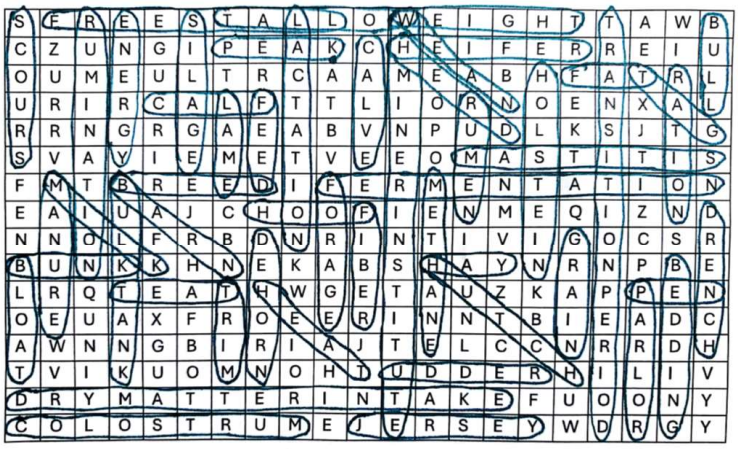
The North American Manure Expo visits the Northeast in 2024. Join us July 17-18 in Cayuga County near Auburn, NY. Experience the thrilling demonstrations and engaging exhibitors of the Expo in the heart of the Finger Lakes region. Tour local facilities to witness the best in manure innovations of the Northeast. See spreaders, agitators, separators and other technology side-by-side – and witness the manure expertise that separates the Manure Expo from every other farm show!

Early bird registration rates end June 15, 2024.

https://www.manureexpo.ca/


# A PICTURE OR A THOUSAND WORDS?
## (puzzle answers)

1. BARN
2. BEDDING
3. BLOAT
4. BREED
5. BULK TANK
6. BULL
7. BUNK
8. CALF
9. CALVE
10. COLOSTRUM
11. DEHORN
12. DRENCH
13. DRY MATTER INTAKE
14. FAT
15. FEED
16. FERMENTATION
17. FIBER
18. FORAGE
19. FREESTALL
20. GRAIN
21. HAY
22. HEAT
23. HEIFER



24. HERD
25. HOLSTEIN
26. HOOF
27. HUTCH
28. JERSEY
29. LACTATION
30. LAME
31. MANURE
32. MASTITIS
33. METHANE
34. MILK
35. PARLOR
36. PEAK
37. PEN
38. RATION
39. RUMEN
40. RUMINATION
41. SCOURS
42. SILAGE
43. TAG
44. TEAT
45. TRANSITION PERIOD
46. TRIM
47. UDDER
48. WEAN
49. WEIGHT
50. WH MINER INSTITUTE
51. Additional words:
    ENERGY, TALLOW

Winners: Amber, Cassie and Henry.

# LIVE YEAST VS. YEAST CULTURE — WHAT ARE THE BENEFITS TO CALVES?

Probiotics are live strains of specific microorganisms that can confer benefits to the host in the appropriate amount such as improvβed health or performance (i.e. intake and growth for young calves). Live yeast is a type of probiotic that's extensively used for farm animals. The most common species is *Saccharomyces cerevisiae*; however, others may be used such as *Saccharomyces cerevisiae boulardii.* A live yeast is typically dried, with about $10 \times 10^9$ live yeast cells per gram. Yeast cultures are also classified as probiotics, made from the production of yeast fermentation and can include the media that was used to grow the organisms. Yeast cultures can also include β-glucans and oligosaccharides which are considered prebiotics. As a result, yeast cultures could be considered a symbiotic feed additive for calves.

Calves can be supplemented either through milk or starter. Depending on the mode of action, where it's incorporated into the diet could have impacts on its efficacy in the calf. As an example, if you expect a feed additive to take effect in the rumen but it's being fed in the milk, you might not observe the expected outcome. The effects of supplementing live yeast or yeast culture on intake and growth are somewhat mixed. A review by Cangiano et al., 2020 (Applied Animal Science; 36:630-651) summarized the responses of calves to live yeast and yeast culture when fed to calves compared to a control. A total of seventeen studies reported dry matter intake. Of those, six studies noted an increase in starter intake, whereas the other eleven showed no difference. Similar conclusions were noted for growth. The range in average daily gain improvements was from 0.1 to 0.8 lb per day (50-350 g/d). Those that saw significant increases in growth were feeding a yeast culture product. Often the largest responses are observed when the animals are in stressful periods. Several studies have fed yeast culture in either starter or milk and observed lesser effects on starter intake and growth when challenged with *Salmonella.* It's thought that the yeast products help stabilize the microbial population in the gut, may help improve rumen pH, and allow for beneficial species to establish in the rumen to aid in rumen development.

Often more consistent health responses are observed when calves are supplemented with live yeast or yeast culture including reduced incidence and severity of diarrhea. Yeast culture supplementation across several studies have shown better fecal and health scores, as well as reduced mortality and number of cases of diarrhea. A recent study that supplemented *Saccharomyces cerevisiae boulardii* noted a tendency for lower antibiotic treatments (Villot et al., 2019). In the intestine it's thought that live yeast and yeast culture can inhibit binding of pathogenic bacteria, either directly or indirectly through promoting mucosal immunity. Furthermore, it may help with maintaining the gut barrier from allowing pathogens and other toxins to pass through.

There could be different benefits for including live yeast or yeast culture in a calf program. Some of the more consistent benefits could be observed in challenged environments (transport, failed transfer of passive immunity etc.), but this would be worth exploring.

*— Sarah Morrison*
*morrison@whminer.com*

# METHANE, Continued from Page 6

My closing thoughts are from the Summit's opening speech by Karen Ross where she stated that no single entity can help solve the enteric $CH_4$ emissions and climate change problem, so there must be collaborations between all parties involved. Secondly, consumers and their perceptions must be considered in the development and deployment of GHG reducing products. I had a really good time networking with other players in the enteric $CH_4$ reduction space, and my only regret was not going with enough business cards. I look forward to next year's summit.

*— Gift Omoruyi*
*gomoruyi@whminer.com*

# OPPORTUNITIES IN AGRICULTURE ARE ENDLESS

When I was a kid entering high school I started thinking seriously about what I wanted to do when I grew up. I knew I was interested in farming. I had a family background in agriculture, with all four of my grandparents raised in the field. As was typical with the baby boomer generation, my parents moved to a city and sought jobs that took them indoors, a source of pride for their generation. I grew up with slightly above average ag literacy – I knew that chocolate milk does not come from brown cows, but I was highly uneducated about what I could do to involve myself in agriculture.

In celebration of Dairy Month I'll travel into the Adirondacks with some coworkers and we'll speak to a few dozen 6th graders about opportunities in agriculture. While this trip will be remembered by most of them as the time they got some free tasty cheese from those ladies at the Miner Institute, I hope that at least a few will remember the lessons that I took so long to learn.

I attended the University of Rhode Island, where I started out as a pre-vet student. I knew I wanted to work with farm animals, and I saw two options for myself: to become a large animal veterinarian, or to become a farmer. Becoming a vet seemed like a more plausible career. Plenty of city girls who read too much Little House on the Prairie had successfully become vets with fulfilling careers, right? College started off okay – I was pretty shy but I enjoyed my classes, and I loved being able to take labs at the university farm. During my freshman year the department had a panel of three vets come to speak to us about their career paths. All three said that they would not recommend going to vet school. They all had varied and understandable reasoning, but their overarching message was that we could find other jobs, still working with animals and agriculture, without needing the DVM title.

Working at Miner Institute for these past three years, I've seen this truth reaffirmed over and over again. I've been able to work with research scientists, solving specific dairy nutrition problems. I've met AI technicians who get to travel the area and work with flexibility. I've worked with Extension agents who take their appreciation and knowledge of agriculture and spread their abilities throughout their communities. More importantly, I've come to learn that, in the $1.53 trillion agriculture industry in the United States, there exists boundless combinations of skills to serve every niche. If I were to go back in time, I would tell myself to branch out and take classes in sociology, history, bioinformatics. To learn as much as possible, knowing that I could combine that knowledge with my passion for agriculture and come out even more employable.

For now, these sixth graders don't need that much on their plate. But if my colleagues and I can plant the idea that there's more out there for them than going to vet school, I'll consider it a job well done.

*— Bridget Craig*
*bcraig@whminer.com*

# NOBODY ASKED MY OPINION, BUT…

… just once I'd like the prompt for my username and password to state, "That's close enough."

… while being bilingual is a plus, it's not as important as the ability to keep your mouth shut in any language.

… I'm just not comfortable taking a prescription drug that comes with ten pages of possible side effects.

… the "Forever" on a U.S. postage stamp may refer to how long it can take to get the letter to its destination.

*— E.T.*

# STAFF GRATITUDE


Not quite everyone, but the vast majority of Miner Institute's staff is pictured above. We are so grateful for our team and the work they do day in and day out to carry out William Miner's vision of science in the service of agriculture.
"The way a team plays as a whole determines its success. You may have the greatest bunch of individual stars in the world, but if they don't play together, the club won't be worth a dime." - Babe Ruth

# HPAI, Continued from Page 1

because they [dairy cattle] are monitored more, easier to test, or are housed in more concentrated manner than beef cattle?" He suggested that there is no reason to suspect that it does not affect beef cattle so beef cow-calf operations should be aware of the situation also.

Luckily, the HPAI H5N1 virus is not as highly pathogenic (i.e., deadly) in cattle as it is in chickens and turkeys. Yet it does cause significant illness and production loss and seems to run its course in dairy herds over a 2-to-3-week period according to Dr. Palmer. I am thankful that a Michigan dairy farmer was willing to share his herd experiences with a recent HPAI infection in a case study summarized by Phil Durst with Michigan State Extension. The case study can be found at https://www.canr.msu.edu/news/hpai-dairy-herd-infection-case-report and is well worth taking the couple of minutes to read it. The overall risk to human health appears low with cattle outbreaks of the HPAI H5N1 virus. The CDC is working with states to monitor people with infected animal exposure. So far, 3 people in April and May with exposure to H5N1-infected cows had associated illness (www.cdc.gov/flu/avianflu/avian-flu-summary.htm). Currently, personal protective equipment, such as NIOSH approved particulate respirator (e.g. N95 mask), safety googles, gloves, boots, and coveralls, is recommended for people working with infected or potentially infected animals, along with a 10-day health monitoring period following exposure (www.cdc.gov/flu/avianflu/h5/worker-protection-ppe.htm).

Our agriculture industry leaders in the Northeast and New York, such as NEDPA, NYFB, and Cornell, have been communicating frequently with and providing educational materials for farmers and their employees, veterinarians, and agri-service professionals regarding HPAI resources and updates. Here are some additional resources that I have found to be useful:
https://aabp.org/resources/iav/
www.nmpf.org/resources/hpai/
www.aphis.usda.gov/sites/default/files/tech-notes-clarification-inquiries-rcvd-fo.pdf

*— Heather Dann*
*dann@whminer.com*

The William H. Miner Agricultural Research Institute
1034 Miner Farm Road
P.O. Box 90
Chazy, NY 12921

Change Service Requested

Non-Profit
Organization
U.S. POSTAGE PAID
Chazy N.Y. 12921
Permit No. 8


Drone image of first cutting of grass hay taken by Farm Manager Steve Couture.

## Closing Comment

Light travels faster than sound,
which is why some people appear to be bright until they speak.

**www.whminer.org**
518.846.7121 Office
518.846.8445 Fax