

CHAMPLAIN VALLEY CROP, SOIL & PASTURE TEAM



THE UNIVERSITY OF VERMONT

EXTENSION

FALL/WINTER 2020

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FOCUS ON AGRICULTURE

By Kirsten Workman, Agronomy Specialist

As they always do, the seasons change. I write this as fall harvest season is wrapping up, but you will likely read it as we head into winter. 2020 has definitely been a year like no other, and it will have many of us reflecting on it for years to come. For my part, I have been thinking a lot lately about how “business as usual” will never look the same. Whether this has meant transitioning much of your in-person interactions to virtual connections, adjusting to your kids’ remote learning situations, or adapting your farm business in the midst of a pandemic and a drought, one thing is for sure, we will all operate differently in the future. And while change is often difficult, especially changes that come as a result of an unwanted situation, sometimes change is exactly what we need.

I like to think of the silver lining that times like these present us with. One silver lining of this year’s cropping season is that with the relatively early harvest, I am seeing so many cover cropped fields. A departure from the wet and dismal weather we had last fall, which delayed crop harvest and made planting cover crops almost impossible, this year’s early planting window shows us just how good a cover crop can look when planted in late September. This will not only give us a positive message for the public driving by all these green fields, but our soils and water will be the better for it come spring.

In this newsletter, you’ll see some ways your fellow farmers are changing their businesses. Some changes are small, like switching our focus (even for just a moment) away from phosphorus and towards nitrogen. Some changes mean taking a closer look at how we manage or mitigate all kinds of risk on our farms – production, marketing, financial, legal and even human risk. Some changes are big. For some, it might mean out-of-the-box thinking, for example changing your production model to transition from conventional production to putting grazing as the centerpiece of forage production. For us, changes include a continued by-appointment-only office policy, including for NMP updates. And in lieu of our annual symposium, we are coordinating with the Northeast Cover Crop Council, who will be offering an online conference. (See pages 2-3 for more details on these topics).

As I often say, we are no strangers to change in agriculture. If we resisted change, we wouldn’t be in the business of farming. So, let’s take a moment to embrace the changes that will propel us forward in the future and learn as many lessons as we can from surviving 2020.



Audy Farm (New Haven, Vt.) shows what a winter wheat cover crop can look like on the normal planting date deadline of October 15, when planted on September 20. This cover crop was planted using UVM Extension’s newest no-till drill after corn silage harvest.

NEWS, EVENTS & INFO YOU SHOULD KNOW

Our Current and Ongoing Office Policy

We take the health and safety of our visitors and staff seriously. The Middlebury Extension office is open by appointment only. Please plan ahead and give us at least two days' notice to make arrangements for your appointment by calling 802-388-4969. This way we will be able to meet your needs. When visiting, please note the following:

- Face masks are required upon your arrival at the office.
- Sign in at the front desk for contact tracing.
- Use the hand sanitizer provided.
- Maintain a 6-foot distance between yourself and others.

If you do not feel comfortable coming to our office, please call 802-388-4969, leave a phone message, and we will return your call within one business day. We will do our best to provide you with the service you need.

Adaptions to Our Nutrient Management Planning (NMP) Update Meetings

Given the realities we face, this winter's NMP Update meetings will be on a one-on-one appointment basis only. We will be contacting folks in the New Year to remind you. For folks who have computer video capabilities, we are encouraging personal video chats, where we can walk you through the process of updates. We are happy to also help folks set up a video chat if you are unfamiliar with it. We also encourage everyone to do as much work ahead of any meetings as possible, including gathering records. UVM Extension is currently working on pulling together resources to help you get through the NMP update process. Materials and information can be found at go.uvm.edu/nmpupdates as they are developed. You can also give us a call to schedule an in-person appointment; all office protocols described above will be followed.

Financial Opportunities

New Farm Management Team (FMT). This concept is a team-based, problem-solving management strategy for Vermont farms and is offered at no cost to the producer. Participating producers select their own team of professionals, including a meeting facilitator, and the group collectively develops recommendations and potential solutions to address management priorities identified by the farmer. Find more information on the UVM Agricultural Risk Management website go.uvm.edu/ag-risk or contact Jake Jacobs at jake.jacobs@uvm.edu. This program is funded by a USDA/NIFA/NERME grant.

Water Quality Grant Deadlines

Winter Application -- due December 4, 2020

Spring Application -- due March 12, 2021

Funding for these grants is administered through the Vermont Housing Conservation Board (VHCB). The Viability Program provides awards of up to \$40,000 to help Vermont farmers invest in on-farm, water quality-related infrastructure. This program is funded by the State of Vermont. Eligible applicants: any Vermont farm with a gross farm income of \$15,000 or more that is required to comply with Vermont's RAPs. Eligible projects: on-farm capital improvements that also have direct, positive impacts on water quality. For more information and application materials visit go.uvm.edu/wqgrants.

USDA Dairy Margin Protection Coverage Signup Deadline December 11, 2020

DMC is a voluntary risk management program that offers protection to dairy producers when the difference between the all-milk price and the average feed price (the margin) falls below a certain dollar amount selected by the producer. DMC payments triggered for seven months in 2019 and three months so far in 2020. To see the press announcement view go.uvm.edu/dmc2021.

Online Cover Crop Conference, Future 2021 Meetings

We have made the difficult decision to forego our annual in-person No-Till and Cover Crop Symposium in order to comply with COVID safety precautions, and keep folks safe and healthy. But we have some other exciting options in the works. The 2021 event was intended to be a partnership between our conference and the Northeast Cover Crop Council's Annual Conference. The NECC Annual Conference has moved online and will be held on **March 4, 2021**. Save the date and stay tuned for more details including an agenda which will be posted soon on the <http://northeastcovercrops.com/> website. In addition the Champlain Valley Crop, Soil and Pasture and Northwest Crops and Soils Teams are working on bringing the NTCC Symposium "hyper-local" by potentially hosting smaller in-person meetings (with remote participation available) to build on the virtual NECCC meeting and fill the void of the NTCC Symposium. If there are topics you're interested in hearing more about in your locale, reach out to Kirsten at kirsten.workman@uvm.edu and let her know.

WINTER PLANNING FOR 2021 FARM RISK MANAGEMENT

By Jake Jacobs, UVM Crop Insurance Education Coordinator



While tillable acres rest, winter allows for time to turn our attention to other matters. It's a good opportunity to take a look at the farm's business plan and consider changes. An important area to think about is how well your plan covers potential risks to your enterprise, and ask the following questions:

- **Production risks** – What will our crop yields be in 2021? How will weather events and environmental conditions impact production?
- **Marketing risks** – Will we be able to sell what we produce for a fair, sustainable price? What prices will we have to pay for all that is needed to put in our crops?
- **Financial risks** – How can we manage our debt load? What do we do about inflation or other economic variables?
- **Legal and institutional risks** – What are we liable for? What do we do if a worker, customer or visitor gets hurt on the farm? Are there environmental risks we are liable for? How will we address regulations that affect our operation, adjustments in price or income support payments or changes in tax laws?
- **Human or Personal risks** – Who will do the work if I am unable to? How can we find and retain good employees?

A problem in any one of these areas can have devastating results for your farm business. Are you prepared to overcome the potential losses if any of these risks threaten your operation? Carve out some time to consider your farm business plan and set up appointments to talk with consultants and advisors if you need assistance or simply want the benefit of another perspective.

There are some excellent resources available to assist Vermont farm owners and managers in modifying their business plans and providing needed information for decision-making. Here are just a few examples of where you might start:

- UVM Extension agricultural specialists and advisors can help you assess crop or production concerns and plan for the 2021 growing season. The UVM Extension Farm Viability program provides farm owners with business education resources, skills development and one-on-one planning services. go.uvm.edu/agbusiness
- UVM Agricultural Risk Management and Crop Insurance Education program provides information, resources and links for all agricultural producers. This program also manages the Farm Management Team program, which supports a team management approach to solving problems and decision making with a group of advisors selected by the producer. go.uvm.edu/ag-risk

- Farm First provides resources, support and counseling to help farmers resolve issues that cause stress. Any farm owner and their family members have automatic and immediate access to confidential help with any personal or work-related issue. www.farmfirst.org
- Vermont Agency of Agriculture, Food and Markets is the department in our state that provides information and resources, and administers and oversees agricultural programs and regulations. agriculture.vermont.gov
- USDA Risk Management Agency (RMA) administers the Federal crop insurance program. An insurance agent licensed to sell crop insurance in your state can provide specific details for your farm and enroll you in any of the Federal crop insurance programs. To find an agent, go to the RMA website www.rma.usda.gov and click on the "Agent Locator". Additional information is available through the UVM Ag Risk Management program.
- USDA Farm Service Agency (FSA, <https://www.fsa.usda.gov/state-offices/Vermont/index>) and Natural Resources Conservation Service (NRCS, <https://www.nrcs.usda.gov/wps/portal/nrcs/site/vt/home/>) provide a wide array of programs and services. In most offices, both agencies are located in the same USDA Service Center location. FSA offers a number of programs to help address risk management, such as coverage for disaster assistance.
- USDA has some special programs and provided some policy flexibility specifically in response to COVID-19 impacts. For more information, go to www.farmers.gov/coronavirus.
- Your suppliers, service providers and financial lenders may be able to offer you input to help anticipate availability and costs as well as forecasting markets and trends.

The key to sound planning is getting the information you need so you can make informed decisions.

If you are interested in learning more about crop insurance and other risk management options for your operation, you can contact Jake Jacobs, Outreach Education Coordinator for the UVM Agricultural Risk Management Education Program at jake.jacobs@uvm.edu. You will find additional information online on the UVM program website at go.uvm.edu/ag-risk and this site also has links to a host of programs, agencies and agricultural organizations.



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NITROGEN: AN OVERLOOKED MACRONUTRIENT

By Kirsten Workman, Agronomy Specialist



In the Champlain Valley, we spend a lot of time and effort managing phosphorus (P). Rightfully so, as it is the pollutant behind algae blooms in Lake Champlain. Our clay soils often bind to it tightly, making it less available to plants when they need it most, and it isn't perfectly balanced with crop needs in our manure applications. All of this makes it a tricky nutrient to manage. However, we have taken our eye off another primary macronutrient as a result.

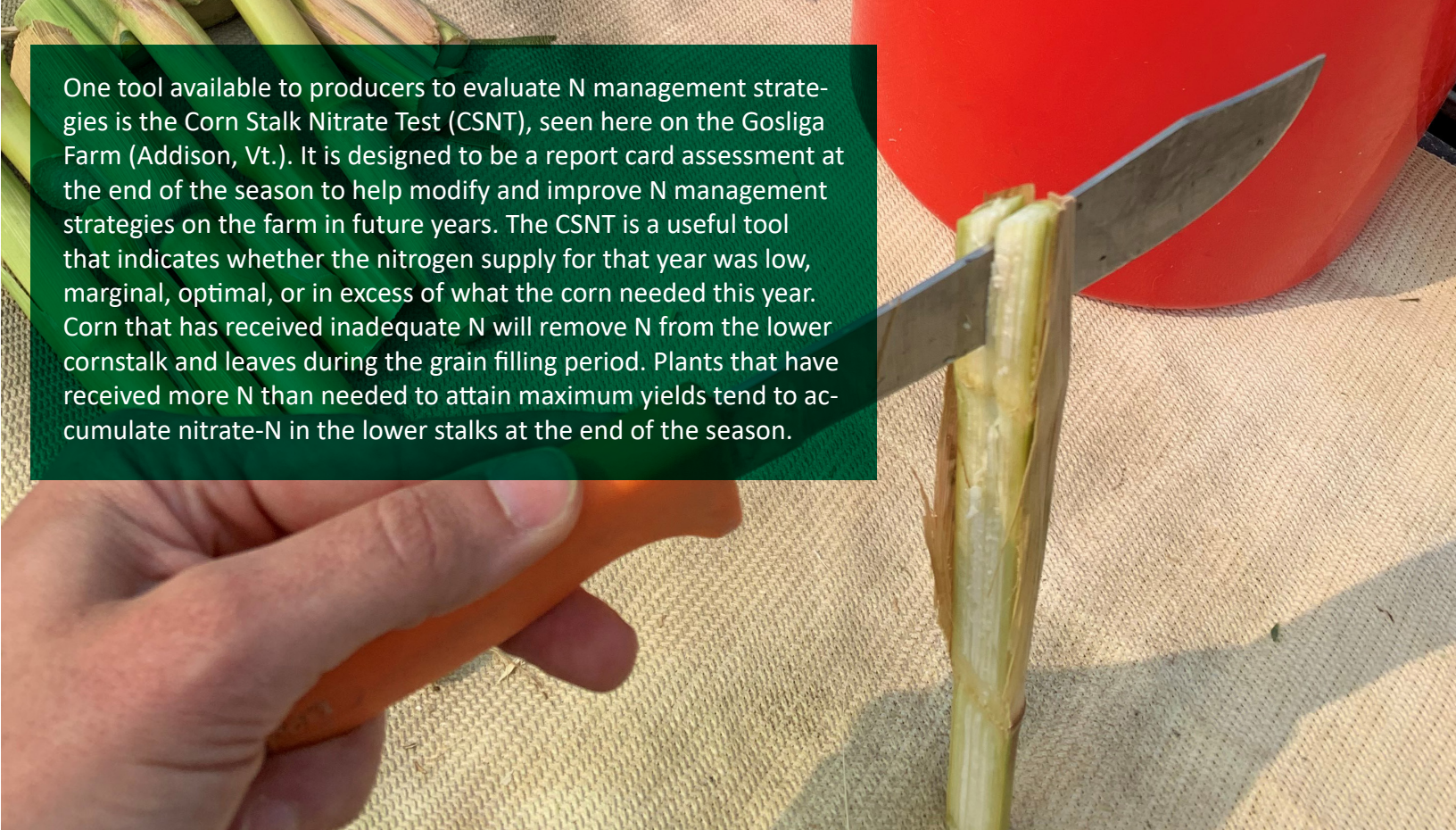
Nitrogen (N)

Nitrogen is the dominant macronutrient in agriculture. While it hasn't had top billing here lately, it is probably the most important and studied nutrient from a crop production standpoint. Without adequate nitrogen, yield and quality can be compromised. Nitrogen drives vegetative growth and protein content, having a direct correlation with forage value in livestock systems and nutrition in food crops. In watersheds where the receiving surface waters are marine (e.g., the Connecticut River which drains to Long Island Sound, or the Mississippi River which drains into the Gulf of Mexico), nitrogen causes water quality issues like eutrophication and algae blooms - the same problems that phosphorus causes in Lake Champlain. Generally, N is much more mobile than P in soil. Because of this, it is often prone to loss. The primary pathways for N loss are:

- **Volatilization** - N turns into ammonia gas and dissipates into the atmosphere.
(Applying nitrogen when temperatures are cool, a light rain is expected to facilitate incorporation, or by physically mixing it with the soil can reduce volatilization risk. Nitrogen stabilizers can also inhibit this reaction.)
- **Denitrification** - Occurs in saturated soil conditions when nitrate turns into N_2 and N_2O gas.
(Good soil drainage, high soil organic matter and proper pH, split N applications and nitrogen stabilizers can help prevent excessive denitrification.)
- **Runoff** - Carries nitrogen from manure, fertilizer and eroded soil off the field into ditches, creeks, rivers and streams.
(Field buffers, reducing erosion, properly timed nutrient applications can reduce N runoff.)
- **Leaching** - When N can't attach to soil particles or be taken up by plants, it easily leaches downward with soil water toward groundwater and even out tile drain outlets. This is much more common in sandier soils that do not have the water holding capacity of heavier soils like clay and loam.
(Applying manure and nitrogen fertilizer during the growing season, proper nutrient management, avoiding fall-killed sod, and utilizing cover crops to increase nutrient uptake can decrease the amount of N leaching.)



Kirsten collects samples for a Corn Stalk Nitrate Test right before harvest of a corn silage crop at Gosliga Farm (Addison, VT)

A close-up photograph showing a person's hand holding a corn stalk. A sharp knife is being used to cut into the lower part of the stalk, demonstrating the Corn Stalk Nitrate Test (CSNT). The background is a textured, light-colored surface, possibly a tarp or burlap. A red container is partially visible in the upper right corner.

One tool available to producers to evaluate N management strategies is the Corn Stalk Nitrate Test (CSNT), seen here on the Gosliga Farm (Addison, Vt.). It is designed to be a report card assessment at the end of the season to help modify and improve N management strategies on the farm in future years. The CSNT is a useful tool that indicates whether the nitrogen supply for that year was low, marginal, optimal, or in excess of what the corn needed this year. Corn that has received inadequate N will remove N from the lower cornstalk and leaves during the grain filling period. Plants that have received more N than needed to attain maximum yields tend to accumulate nitrate-N in the lower stalks at the end of the season.

A primary reason nitrogen is analyzed so much, is that farms can often see immediate impacts from over or underutilizing nitrogen. In addition, good N management can also save a farm a significant amount of money in fertilizer savings. This often gets overlooked when N prices are low (as they have been recently), and farms are prone to “insurance applications” of N to make sure they aren’t shorting their crops. With prices averaging between \$0.28 to \$0.41 per pound of N¹ (depending on the type of fertilizer), it can seem like a cheap way to ensure good yields and quality. However, in a time of tight margins and increasing environmental regulation this can be an unsustainable way to operate. And if you are an organic producer, the \$3 to \$5 per pound cost of N fertilizer means you probably already understand the value of farm-produced nitrogen, and being as efficient as possible with those homegrown and purchased sources of N². In 2018, Vermont agricultural producers utilized almost 10,000 tons of nitrogen fertilizer, with another 7,000 tons of multi-nutrient fertilizers that likely had some portion of nitrogen³. In comparison, during this same time period, 15 tons of phosphate fertilizer was sold for agricultural use.

In the coming months, we’ll dig deeper into the world of nitrogen and see where we can do a better job providing our crops with adequate nitrogen without breaking the bank or causing unintended environmental consequences. We will consider:

- Corn and Nitrogen: Managing N in corn silage crops and how do we know if we’ve overdone N applications? A Caring Dairy Prove-It Project case study on Corn and Nitrogen.
- Managing N in hay and pasture crops and letting nature pay your fertilizer bill.
- Manure and N management – how do we make the most of the nitrogen in our manure?
- HomegrowN – taking credit for all the nitrogen on your farm, not just the stuff you purchase outright.

If you have a question about N fertilizer or manure management you can also contact Kirsten at kirsten.workman@uvm.edu.

Citations:

¹ August 2020 (Progressive Farmer by DTN), <https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/08/12/fertilizer-prices-remain-lower-first>

² Organic N price based on estimated costs of bulk sodium nitrate (a.k.a. Chilean nitrate)

³ VAAFM, 2018-2019 Vermont Fertilizer Analysis Report <https://agriculture.vermont.gov/sites/agriculture/files/documents/PHARM/Fertilizer/Annual%20Report%20Fertilizer%202018-2019.pdf>

RESOURCES:

<https://extension.missouri.edu/publications/wq252>

<http://cceonondaga.org/resources/nitrogen-basics-the-nitrogen-cycle>

TRANSITION TO GRAZING: FARMERS THINKING OUTSIDE THE BOX

By Cheryl Cesario, Grazing Outreach Professional



Early in 2020, the Vermont Agency of Agriculture was selected to lead one of three national USDA Dairy Business Innovation Centers. A total of \$6.45 million was awarded to the Agency to fund a variety of projects in six priority areas. One identified area included assistance for farmers who would like to develop grazing as a production strategy.

Through this funding, an opportunity arose for me to work closely with a small group of farmers as part of the grazing initiative. The idea of this project was that farmers would receive direct one-on-one support as well as the opportunity to meet together as a group to sharpen their grazing knowledge and skills. The participating farmers are all considering or actively transitioning to managed grazing as a new production practice.

One of the big motivators for me in applying for this program was the opportunity for each farmer, by participating in this 2-year project, to be eligible for a grant to implement additional grazing-based projects on their farm. In addition, any time there is funding to allow for more follow-up with farmer clients, it results in a closer working relationship.

Thankfully in early June, we were able to get back into the swing of farm visits and I was able to start getting this program off the ground. It's certainly a pretty strange year to launch a program that is built entirely on face-to-face in-person meetings. So far, we've been able to stay on track.

We have an amazing group of dairy producers in this group! Our group includes Scott Cleveland, Wells; Cindy and Brian Kayhart, New Haven; Dave Seward, East Wallingford; Caleb Smith, Danby; and Brad Thomas, Orwell. These farmers are all taking risks to try something new and really thinking creatively.

Our first meeting as a group occurred at the Cleveland Farm at the end of August. This is Scott's first full season grazing his milking herd and he has done an amazing job meeting his herd's forage needs on pasture. Even during the dry summer conditions in July, he was able adjust recovery times between grazing periods while also adjusting stored feeds in the barn to compensate for slower forage growth. Scott's success this year demonstrates what's possible when we put grazing as the centerpiece of the operation, not just the supplement to it.

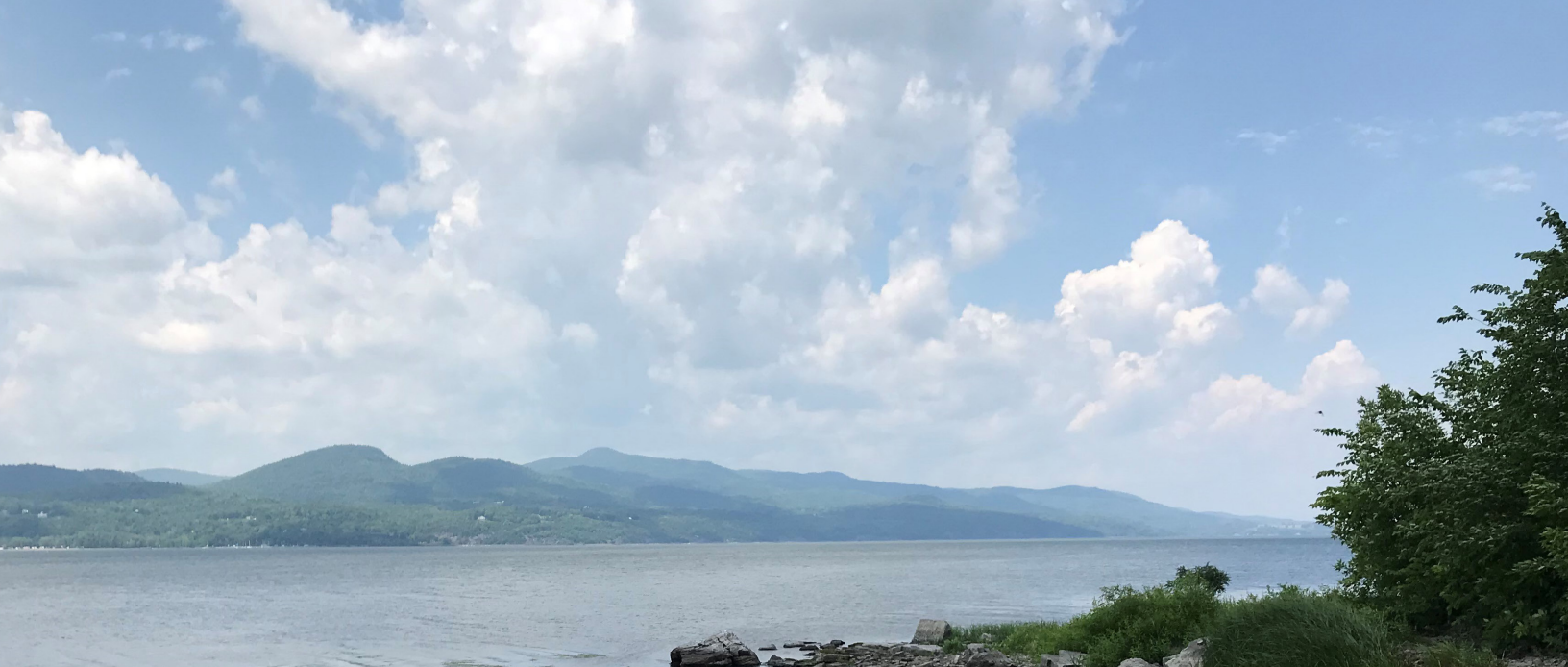
Our second meeting took place at the end of October at Dorset Peak Jerseys in Danby. Invited guest Sarah Flack joined us on a tour of Caleb Smith's farm as we considered how to implement a grazing plan on this farm. Caleb has a new NRCS contract to begin installing the necessary infrastructure he needs to make this transition. However, while managed grazing seems to be a great fit for the land base here, it is still a big leap and there are a lot of logistics to consider. This is one of the benefits of a small group cohort – the ability to brainstorm and bounce ideas back and forth among trusted peers.

During our first group meeting, I gave each farmer a short article called "The Hardest Part of Change is Changing" written by Dave Pratt. In it he cites Jim Hightower, a former Texas agriculture commissioner, who stated that the only things in the middle of the road are yellow stripes and dead armadillos. Dave follows up by stating, "When it comes to building a sustainable business, you will achieve more success faster by determining the right strategy, committing to it, and making the transition as short as possible. The alternative may make you a flattened armadillo."

I try and keep this statement in mind as I work with farmers who are making big changes. Transition is the toughest part of implementing change. How can we work together to make the transition go as smoothly as possible? As this project proceeds throughout 2021, we will be sharing these farmers' experiences and stories as they develop new strategies.

Considering grazing? Wondering if it is a possibility or the right fit for your operation? Email cheryl.cesario@uvm.edu.





GIVING CREDIT WHERE CREDIT IS DUE: FARMER'S PRACTICES MAKE GAINS TOWARD MEETING TMDL

By Kristin Williams, Agronomy Outreach Professional

We talk a lot about this elusive “TMDL” which refers to Total Maximum Daily Load, a measure of the amount of a pollutant or nutrient, entering a given water body, and in this case phosphorus (P) entering Lake Champlain. Scientists use this measure to determine how much loading the Lake can absorb without severe ecological impact. While it is intuitive to see that many conditions including weather can affect the daily loading of phosphorus, the TMDL is actualized over the course of the year.

In the recent Vermont Clean Water Initiative 2019 Performance Report by the Vermont Agency of Natural Resources, both the impressive progress and the large challenge before us are highlighted. They estimated that 16.4 metric tons of phosphorus was prevented from entering the Lake, through state and federal funding programs and water quality regulations. Amazingly, this report suggested a whopping 97% of estimated reductions were attributed to water quality reductions from agricultural stewardship in 2019. Based on their figures, farmers cover cropped 34% of Vermont cropland. Conservation practices have the win-win benefits of improving soil health, and hopefully over time improving farmer viability.

So, that's the great news. The challenge remains however, that this progress must be continued and increased every year to meet the goals set out in the TMDL. Remember, these estimates are based on yearly figures of conservation practices. In addition, as impressive as those reductions have been, they are only about 11% of the total reductions in agricultural P reductions needed. Other sectors, such as roads and urban infrastructure, will also clearly need continued focus and funding to reduce P across the board.

One thing we do know is that farmers continue to apply conservation practices and to innovate. Which is why we want your help in the Champlain Valley watershed by counting conservation prac-

tices not yet accounted for in this process. Practices accounted for are those that are funded through state and federal programs. Other activities that farmers do voluntarily are only captured if farmers choose to share that information so that it can be entered into the Partner Database.

We have resources from the State through Clean Water funding to assist farmers in conservation projects as well as to record that information in the Partner Database. In cooperation with the Conservation Districts and the Champlain Valley Farmer Coalition (CVFC), UVM Extension is collecting data on field adoption. This is information that is voluntarily given about practices farmers are adopting above and beyond what they are being paid for in an NRCS or VAAFM contract.

Practices include cover cropping and nurse cropping, crop to hay rotation or permanent hay/pasture, livestock exclusion, reduced/no-till and filter strips or forested riparian buffers. Other practices such as barnyard renovations are also captured in the report. We are happy to go over what that entails, how data is aggregated, and answer any questions you have. This data is not regulatory in nature and is not accessed by the regulatory side of VAAFM. All of these practices have to be “field verified” to count. We also have overlapping work in the Champlain Valley including both our East Creek/McKenzie Brook work with NRCS and with Joshua Faulkner on the long-term watershed research project through NRCS CEAP (as highlighted in our [Fall 2019 newsletter](#)).

To read the full 2019 report visit https://dec.vermont.gov/sites/dec/files/2020-01-14_CleanWaterPerformanceReport_SFY2019-FINAL.pdf. See page 48 for graphic on P reductions by sector.





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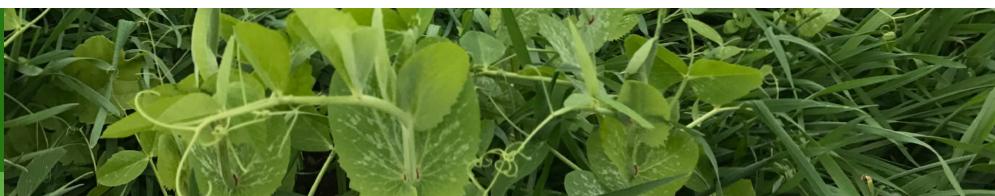
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