

CHAMPLAIN VALLEY CROP, SOIL & PASTURE TEAM



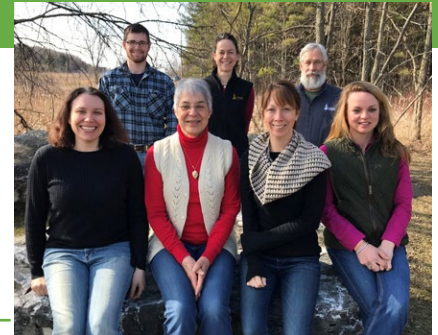
THE UNIVERSITY OF VERMONT

EXTENSION

SUMMER 2018

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FOCUS ON AGRICULTURE

By Jeff Carter, UVM Extension Agronomist

Consider using our Haybuster no-till grain drills for summer seedings of grass, clover and alfalfa. This is a great choice for fields that didn't take so well this spring. Refreshing pastures with improved seed - including clovers, trefoil and chicory - would certainly boost livestock gains next spring. We have been moving the two drills all over the region for spring seedings of clover, grass seed, barley and sorghum. While no planting should be done right now, with the arrival of summer heat, it's a good time to get set for August if you want to put in a summer seeding. Also, think ahead to fall if you plan to put in a winter cover crop after corn harvest; that should be starting in mid-September. Just call ahead right now so that we can get the paperwork done with UVM before using the equipment. There is a \$12 per-acre fee which is necessary to keep up with repairs on tires, hoses, disc openers and all those moving parts. The plantings have gone pretty well this spring and now we are looking forward to a great fall.

Manure injection is always a hot topic for reducing nitrogen losses to increase crop yield response from applied manure. Broadcasting manure on cut hayfields in July is sure to waste nitrogen as volatilized ammonia gasses (and smells). Our new Veenhuis injector is attached to a dragline manure system and does a great job of tucking manure into the soil just enough to save precious nitrogen (N) for the hay crop. A bonus is the reduction of soluble phosphorus (P) that can leave the field with rain runoff as well as the extra crop regrowth from the 10 to 20 percent extra N value. This will take up even more P from the manure to improve crop yield without any additional inputs. I was standing in a field that had just been spread, the odor reduction was well, let's just say the roses were much better smelling with that manure tucked away under an inch of soil. Another plus! Hopefully you saw it in action at the field day in Bridport. Kirsten is seeking to expand the use of this equipment in the East Creek and McKenzie Brook watersheds if you are interested. There will also be a tank-mounted version used in the Lake Carmi watershed

MANURE INJECTION IS ALWAYS A HOT TOPIC

this fall. This new method will help local farmers grow better crops while protecting water in the lakes.

Expect to see a few new faces this summer as Rachel Orr, Merritt Gleason and Jonas Hastings join our team to help farmers find solutions through research trials and demonstrations. We received funding for a new walk-behind soil amendment spreader and have established several replicated trials at a number of farms. These trials evaluate crop and soil responses to several sources of gypsum, along with humates, St. George Black and mycorrhizae. We are testing whether gypsum changes soil chemistry and increases soil aggregation, whether humates improve soil health and whether St. George Black with mycorrhizae stabilize and release soluble P for better crop uptake and growth. With Kirsten and Kristin leading the field team, sampling of crops and soils in these many different situations will help us all understand the possibilities for improving crops grown on this clay soil.

Don't forget to catch up on your field records now during the hot days of summer. Take a lemonade, sit down for a minute in the shade, and write some records down in a book. Enjoy the summer, and we'll see you at Addison County Fair and Field Days. Remember to bring in your corn, beans or hay entries by noon on Monday, August 6 for folks to see at this year's Crop Exhibit.

Have a question for Jeff Carter?

802-388-4969 ext. 332 jeff.carter@uvm.edu



NEWS, EVENTS & INFO YOU SHOULD KNOW

2018 Annual Crops & Soils Field Day **July 26 – Borderview Farm, Alburgh, Vt.**

Join Heather Darby's crew to learn about the many research projects going on behind the scenes at Borderview Farm. For more information visit go.uvm.edu/nwcropsoil or contact Susan Brouillette, 802-524-6501 ext. 432 or susan.brouillette@uvm.edu.

Breakfast on the Farm **July 28 - Kayhart Brothers Farm,** **West Addison, Vt.**

Join us and a host of event volunteers for an exciting free breakfast and tour of the Kayhart Brothers Farm. Steven and Tim operate 1,800 acres of farmland in the heart of Addison County. The Kayharts are also members of the Champlain Valley Farmer Coalition. Breakfast on the Farm is in its fourth year, offering the public a unique opportunity to tour state-of-the-art facilities, meet farmers, pet cows (maybe even see one giving birth!), learn about conservation initiatives, and enjoy a free breakfast made with local dairy products. Tickets are required so get yours now online! Volunteers are also needed. Check out the website and spread the word:
www.vermontbreakfastonthefarm.com.

Innovation in Crop and Nutrient Management Field Day **August 3 – Location TBD**

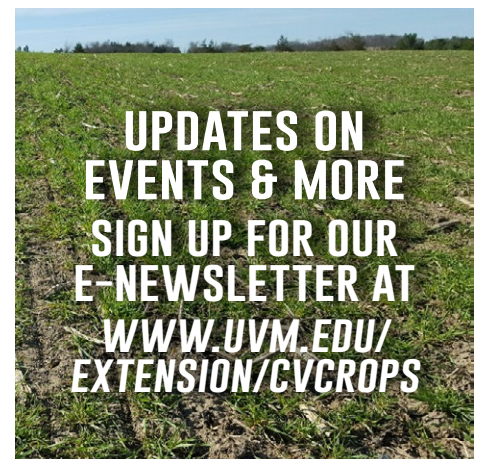
Join us to learn about new and exciting ways to manage crops and nutrients on farms. Hear from regional and international speakers about innovative practices and equipment that can improve farm economics and natural resources. There will even be a live equipment demo after lunch! Contact Nate Severy for more information, 802-388-4969 ext. 348 or nathaniel.severy@uvm.edu.

Addison County Fair and Field Days **August 7-11 – 1790 Field Days Road,** **Vergennes, Vt.**

We can't believe it's already that time of year again! Grab your maple creemee, come watch a hand mowing competition, see the latest 4-H projects, and be sure to visit our crop display located in the southeast corner of the 4-H Exhibit Hall. Our team spends the whole week at the fair in rotating shifts. We will show off our new grassland manure injector, the NRCS rainfall simulator and loads of info on our projects. AND of course, we will be displaying your crops! Farmers, we NEED your entries to make our display a success! Contact our office (802-388-4969) with entry questions and drop off entries at the fairgrounds by noon Monday, August 6.

Agricultural Water Quality Business Help **Ongoing through September**

We know these are tough times to be in business, and the UVM Extension Agriculture Business Program is still offering financial reviews and cash flow analysis on projects related to compliance with the RAPs water quality regulations. This grant-funded assistance will end in the fall and if you are thinking of contacting them, do so before the funding ends! See page 5 for more information on this program or contact Tony Kitsos, 802-524-6501 ext. 440, tony.kitsos@uvm.edu.



WELCOME JONAS AND MERRITT!

We've added two new summer members to our team! Merritt Gleason was a productive intern last fall and we welcome him back for the summer. Jonas Hastings is new to our team and will also be working with Sid Bosworth this summer. You may see Merritt or Jonas out and about helping us with no-till drills, sampling soils and forage, and assisting data collection. Here they introduce themselves:

Hello all, I am Jonas Hastings and I am a native of Bridport, Vermont. I have been working on dairy farms for the better part a decade, on small and large, organic and conventional herds. I am a graduate of the 2+2 Program. In this program, I received my associate's degree in Dairy Farm Management through Vermont Technical College (VTC), attended the Advanced Dairy Management program through The Miner Institute, and pursued my Bachelor's in Animal Science at UVM. Being a ninth generation Vermonter, I have a passion for our state, including but not limited to just agriculture. I have a deep interest in the inner workings of farms especially in relation to labor issues and am excited to work with farmers to ease the implementation and improvement of best management practices, while focusing on the needs of the farmer in these tough financial times. My excitement to work with farmers grows by the day as I see more and more of the wonderful things agriculture does for our state.



My name is Merritt Gleason, and I was born and raised on a small organic grain farm in Bridport, Vermont. From a young age, I worked with my parents growing wheat and milling flour on our 100 acres, as well as helping to run our homestead, until we sold to the Land Trust in May 2018. I am a recent graduate from UVM, where I studied Food Systems, and developed a passion for ecological agriculture and developing agricultural practices which are less taxing on both the environment and the farmer's wallet. I have a particular interest in improving soil health and diversified farming practices including perennial crops. While working with Extension, I hope to acquire a greater understanding of the problems facing farmers and the agriculture system so we can work as a community to make the necessary changes. I'm grateful for this opportunity to work with local farms and am excited to be working with such a great team of resourceful, motivated people!

(left) Jonas Hastings and (right) Merritt Gleason.

NCIS CROP INSURANCE INFORMATION

By Jake Jacobs, Agricultural Risk Management & Crop Insurance Educator

The severe dust storms that occurred during “The Dust Bowl” in the 1930’s caused catastrophic damage to the American and Canadian plains ecology. In response to the devastating agricultural losses caused by those drought conditions, Congress established the first Federal Crop Insurance Program. The early crop insurance efforts were not very successful, and the programs have evolved greatly over the decades.



Visit the National Crop Insurance Services (NCIS) website where you can find a great deal of information about the “hows” and “whys” of all the federally supported crop insurance programs. They report that more than 90 percent of insurable farmland in the United States is now protected through the Federal Crop Insurance Corporation (FCIC).

However, Vermont farms are considered to be “underserved” by crop insurance. Farms in Vermont and all the northeastern states are typically different than the farms and ranches in other regions of the country. Many of the enterprises are smaller in total acres and produce more diversified commodities. NCIS indicates that Vermont crops contribute \$889 million to the state’s economy and in 2017, farmers purchased 344 crop insurance policies to cover 70,883 acres, which provided \$24.5 million in liability protection. Farmers paid \$1 million for this insurance coverage and crop insurers paid \$3.5 million to cover crop losses.

The USDA Risk Management Agency (RMA) administers FCIC. A public-private partnership between the U.S. government and private insurance companies combines private sector delivery systems with regulatory and financial support of the federal government. Crop insurance premiums are subsidized by the federal government to make coverage more affordable.

Should YOU have crop insurance coverage? First, consider all of the potential production and marketing risks for your enterprise. Then, meet with an agent licensed to sell crop insurance in your state to learn about all the options available for your operation. Crop insurance may be the right risk management tool for your farm business plan.

For more information:

- Contact Jake Jacobs: 802-656-7356, jake.jacobs@uvm.edu
- NCIS: www.cropinsuranceinamerica.org
- USDA RMA: www.rma.usda.gov

(below) Dust bowl farmer in Oklahoma, 1936. Photo by Arthur Rothstein.



WHAT IS THE BENEFIT OF KNOWING YOUR FARM’S NUTRIENT MASS BALANCE?

By Rachel Orr, Agronomy Outreach



Every animal, ounce of milk and ton of crop contains phosphorus, potassium and nitrogen. No animal is capable of utilizing 100 percent of the nutrients from the feed they consume for bodily growth and milk production. Thus, there are always remaining nutrients. Knowing what nutrients remain on-farm is very beneficial for managing the nutrient needs of your crops, which helps determine the long-term health and sustainability of the business.

So what is a whole farm nutrient mass balance? Calculating nutrient mass balance is a process that takes into account all things utilized on the farm and which leave the farm in one form or another. We use the Cornell Nutrient Management Spear Program Nutrient Mass Balance Calculator software for this purpose. All “imports” such as any fertilizer, feed, sawdust, sand and animals are subtracted from all “exports” which includes milk, animals, feed, manure and compost. The calculation takes into account farm size, number of cows, tillable acres and total farm acres. The final reports give a breakdown of nutrients used in tons per year, annual manure application in pounds per acre and pounds per total tillable acres.

Looking at whole farm nutrient balancing helps identify opportunities for improvement both financially and environmentally. Farms that have a high balance can save money by managing their imports and reducing the

SO WHAT IS A WHOLE FARM NUTRIENT MASS BALANCE?

loss of nutrients to the environment. Farms with a negative balance need to manage and import more nutrients to improve long-term sustainability and productivity. Knowing the health of your farm’s nutrient cycle is very important especially in hard times when milk and beef prices are low. Understanding how to economically handle and plan nutrients for farm applications will pay off in the long-term viability and sustainability of your farm.

I am currently conducting whole-farm nutrient mass balance on local farms. If you would like to know your farm’s nutrient mass balance, please contact us at 802-388-4969! Learn more about Cornell’s Nutrient Management Spear Program: nmsp.cals.cornell.edu/projects/curriculum.html.

GRAZING ADJUSTMENTS AT ISLANDACRES FARM

By Cheryl Cesario, Grazing Outreach Professional

Adopting a new management practice on the farm can be a daunting and stressful endeavor. Change is difficult, especially when those changes come with financial risks. When farmers consider grazing as a new management practice, or want to change or improve their existing system, there is often a lot of planning work. And even the best-laid plans need continual adjustment and improvement.

Steve and Kelly Robinson of Islandacres Farm in South Hero are experiencing this first hand, as they move into the second year of grazing on their dairy farm. The Robinsons run the farm with their sons, Patrick and Anthony, and milk a herd of 75 Holstein and Jersey cows. Steve saw grazing as a way to mitigate the risk of annual crops. After two years of poor corn yields, Steve called me in 2013 and said, “Okay, what do I need to do to start grazing these cows?”

After working with Extension to develop a grazing plan, the Robinsons received an NRCS EQIP (Natural Resources Conservation Service Environmental Quality Incentives Program) contract to install fence, water pipeline and animal laneways as part of their grazing system. Additionally, one of the most critical contract items was seeding down approximately 60 acres of corn land that had been in annual crops for over 20 years.

**OKAY, WHAT DO I
NEED TO DO
TO START GRAZING
THESE COWS?**

For a larger grazing contract, the implementation period can take several years. Sometimes delayed implementation is due to unforeseen circumstances. In this case, pasture grasses and clovers that were initially planted in 2014 were almost entirely winter-killed going into the next season and had to be replanted, setting the project back a year. All fencing went in over a two-year period and laneways started, but the Robinsons were then sidelined by a larger farm project when they had a complete breakdown of their gutter cleaner and manure transfer system in May 2017. This coincided with the start of their first grazing season. The one upside was that cows were now spending more time out of the barn, which

reduced the burden of keeping the gutters clean. Overall, the first season on grass was a success, with milk production maintaining and a slight decrease in grain costs. Pastures looked nice late in the season with little to no sign of overgrazing.

By fall 2017, the manure handling situation was fixed and we started looking ahead to grazing system changes we could make in 2018. The previous year, cows moved through fixed paddocks with their water source in the barnyard. One issue with having paddocks that stay the same size all season is that it is a “one size fits all” strategy that is

not always the right size. Depending on the pasture growth, a fixed paddock is either too big early on or too small later in the season. Also, having a water source a greater distance from the grazing animals promotes herd mentality; when one decides to go get a drink all the other animals decide to go with their friends and before you know it, there they are standing around and huddled up around the tub instead of doing what they should be doing – grazing.

The 2018 strategy is focused on variable paddock sizes based on estimated dry matter yields in the field and coupled with variable recovery periods before the animals grazed those areas again. The essential idea is breaking up those fixed elements in order to account for the daily variability that makes up a complex and dynamic system. Steve is now setting up a new paddock each day based on how much feed the cows need for a given grazing period. He is also incrementally cutting back on stored feeds in the bunk so they are going out to pasture each morning hungrier and doing a better job grazing down what is in front of them. Pasture quality is looking great with a diversity of high quality grasses and clovers making for a dense stand.

The Robinsons are seeing the results in the bulk tank as well, with production early in the grazing season going up a couple hundred pounds per day. After some fine-





tuning on the ration, Steve sent me a text with a photo that showed a perfectly grazed down paddock. His caption? “Yeah, maybe there is something to this pasture thing.”

This summer their goal is to complete the water system and laneways, while continuing to monitor paddock sizes and recovery periods. The Robinsons keep a grazing chart in the barn so everyone sees exactly where the cows are grazing and where they have been. The chart also readily shows if the rotation starts to get too fast for the pasture growth, allowing the farmers to make a decision on whether they should take the animals off pasture for a period so it can recover and not be overgrazed.

Islandacres is a well-managed farm that has won quality milk awards for over 30 years from their buyer, St. Albans Co-Op. Recently the farm also became a member of the Ben & Jerry’s Caring Dairy program. Caring Dairy

provides additional premiums for farmers who achieve designated “sustainability indicators” such as energy efficiency, animal care, water quality and soil health improvements. Steve sees grazing as a way to alleviate cropping risk but also ensure

that the farm can continue with the next generation - another important component of sustainability.

Most successful grazing systems develop from farmer involvement in the planning process. Another helpful component is to have ongoing assistance from a service provider or another farmer who can answer

questions and share ideas. Last fall, as part of a Northeast Sustainable Agriculture Research and Education (SARE) grant, we began offering a four-part grazing management course for farmers to learn about the benefits and challenges of grazing from both economic and environmental perspectives. Each farmer developed a plan specific to their own operation based on their farm goals, and each participant received a copy of Sarah Flack’s book *The Art and Science of Grazing* as a course textbook and helpful future reference. Outside of the class, the ongoing one-on-one farm visits provide additional support as new practices and strategies are implemented on the ground.

Contact Cheryl with your grazing questions: 802-388-4969 ext. 346 or cheryl.cesario@uvm.edu.

Fall/Winter 2018 Grazing Classes

Middlebury: October 18, 25, November 1, 8
Poultney: November 27, December 4, 11, 18

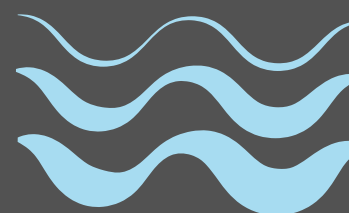
Classes cover a range of topics on plant, soil and animal health and include planning and record keeping techniques. Individuals will develop a grazing plan that could be used as a basis for NRCS funding and farm planning. This class is designed for farmers who already own livestock, who would like to or are considering a transition to grazing, or are trying to improve their current grazing system to optimize pasture production and quality.

Info & Registration: \$40 includes Sarah Flack’s book *The Art and Science of Grazing*. blog.uvm.edu/cvcrops/grazing-class

WATER QUALITY FINANCIAL ANALYSIS

This program helps Vermont farms assess financial capacity and budget for infrastructure projects. From manure pits, barnyard projects, milk house waste and silage leachate; capture systems to dairy improvement grant and water quality grant-writing assistance, our consultants can help to analyze your cash flow and make recommendations on funding your project. Last year over 30 farms sought assistance, with some using management teams to develop strategic plans around their projects. Others sought help with farm transition and exit planning, as well as sale of land parcels to area conservation districts.

If you are interested in this program, contact Tony Kitsos in St. Albans, 802-524-6501 ext. 440 or tony.kitsos@uvm.edu.



PUTTING A PUBLIC FACE ON THE PURSUITS OF FARMING

By Kirsten Workman, Agronomy Outreach Professional

Farming is often a solitary pursuit. While it takes a team to make a farm succeed, daily activities often happen in solitude. Whether it is in the milk house, greenhouse, fields, tractor, shop or office, very few people will ever “see” you at work. While that is often viewed as a positive, it also leads to a disconnect between farmers and neighbors.

Why does this matter? Try to remember the last negative interaction with someone outside the farming industry. Was this a result of lack of knowledge and understanding? Misinformation? Perhaps partially your responsibility for not considering how farming endeavors

impact a neighbor? Regardless, I have found that when the farming community opens up to the non-farming community, the results can be powerful.

Many neighbors have no idea what you do and may be too uncomfortable to ask. I have been at public farm tours where neighbors came into a dairy barn and said,

“I drive by here every day and never knew there were cows in these buildings.” People who drive by your farm often think bunker silos are compost bins. Gone are the days when everyone’s grandparents or aunts and uncles were farmers. Folks no longer spend summer weekends helping family or neighbor bring in hay or crops. Seeing a tractor in front of them on a state highway only makes them think about being late to an impor-

tant appointment. Landlords who own your rented fields don’t always understand that manure is an organic fertilizer which makes their hay field greener, replenishes nutrients, and builds soil health. Herbicides and insecticides, regardless of their form, are as taboo a topic as politics or religion.

It is difficult to make time to share farming information and justify the hours away from “productive” pursuits. However, I argue that putting a face on farming is a worthwhile endeavor. It isn’t always comfortable or easy. Without a personal connection to a farm it is easy to lump you in with all the negative press and assume all farms are the problem. However, when these folks are invited to visit your farm, they learn just how much goes into your daily farming pursuits and hopefully that will have a lasting effect.



LOOKING FOR WAYS TO ENGAGE THE PUBLIC?

HERE ARE A FEW IDEAS:

1. **Involve an ‘expert’** - Invite your agronomist, nutritionist, veterinarian, Extension agent or co-op representative to help.
2. **Join an existing event** such as Open Farm Week, Cabot Open Farm Sunday, Tour deFarms or Breakfast on the Farm.
3. **Use social media** - Facebook, Twitter and Instagram can all be effective, low-impact ways to highlight your farm and farming in general. Be sure and get it outside your normal circle of friends to have the most impact.
4. **Volunteer!** The next time your friendly Extension professional, crop consultant, feed consultant or politician asks if you’ll host a group at your farm ... just say YES!
5. **Get creative!** Host a dinner, a fun run, a summer camp, you name it. Pick something that fits your personality and your farm’s strengths and go with it.

A well-executed effort can have an important impact on your farm business. For more ideas on this topic, including links:

blog.uvm.edu/cvcrops/putting-a-public-face-on-the-pursuits-of-farming

SOIL DEPTH AND NUTRIENT ACCUMULATION

By Kristin Williams, Agronomy Outreach Professional

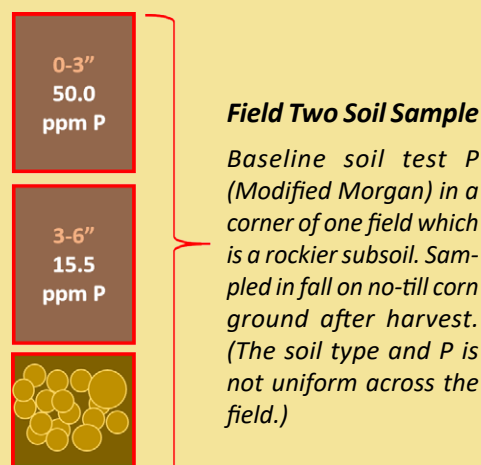
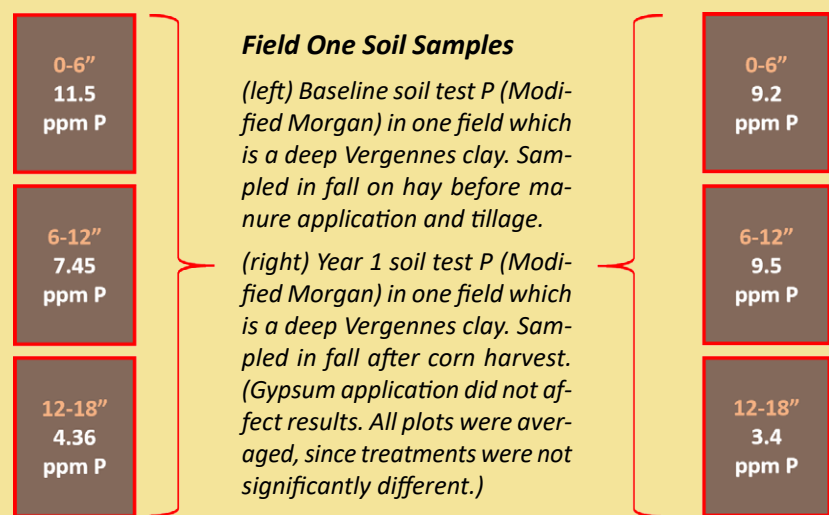
In the last newsletter, I wrote about how during our research we stumbled upon what should be an obvious phenomenon – fields are not really one soil test level. Fields that come back as overly high in phosphorus (P) may not actually be universally high in P. What if you were limited in manure applications on that field, while in reality, only one-third of the field was actually above optimum? Also, if you've observed noticeable differences in your yields that aren't easily attributable to drainage across a field, field history or soil type may be affecting your soil test's available P.

Adding to this observation, we also found (as research has borne out through decades) that soil test P varies by depth. This isn't all a "bad" thing as we want the nutrients in the top layer of the soil where they are most easily assessable to the plant roots. However, this emphasizes the point that when we lose topsoil, we are losing the most fertile part of the soil.

In the hay years of a rotation - particularly in permanent hay fields - soil P will probably accumulate in the top zero to six inches of the soil. This isn't necessarily bad as many roots are shallow, but

surface applications on top of hay can lead to soluble P loss. We have a new grassland manure injector that is making the rounds in Addison County! In addition to being a best management practice for manure, it might have the potential to increase yields; we will have to wait and see. Another thing folks can do in permanent perennial systems is build root diversity through diverse species. We usually think of taprooted plants bringing nutrients up from below. However, I think it may be more important to think of encouraging growth below the optimal nutrient zone, to reach water during periodic drought stress and maybe actually deepen the nutrient and higher organic matter zone. Deep-rooted cover crops serve a similar purpose in no-till fields, but in order to get a deep taproot the plant has to be established early.

Much more to come from this project as we measure another year of soil and corn silage results from gypsum applications, and expand our trials to some hay/alfalfa/pasture fields, exploring gypsum with and without humates and beneficial mycorrhizae fungi.



Above are illustrations of two different fields that we looked at where the original field soil test was above optimum (>10 ppm P in Modified Morgan). In the figure on the left, you can see the difference between our fall soil samples: taken on hay ground before manure and tillage, and the results taken after corn silage harvest. These results were part of a gypsum trial, but the numbers are averaged since gypsum was not a significant factor. The manure was worked

into the ground and with active roots the P has actually become more uniform, from zero to 12 inches instead of just the top six inches.

In the second illustration, we are only looking at baseline samples. These were from a field added after the first year, so we will have results from that field late this year. This particular field is no-till and this corner of the field is rockier soil. No-till is considered a soil conservation practice because it keeps and builds the "native"

soil structure, which can reduce erosion and provide a stable living habitat for soil biology. There are tradeoffs with all choices, though; even things that we think of as better options. One reason humans ever began tilling was to integrate nutrients into the soil. In this illustration, you can see that soil P is accumulating in the very shallow zero to three-inch depth. Again, manure injection might be a good compromise on otherwise no-till ground, as it puts the nutrients a little deeper down for

roots. However, this particular soil has a rocky substrate that would be less than ideal for injection or even tillage. But we certainly don't want to limit root growth to three inches. In long-term no-till situations, it is a good idea to do a field check at different depths. It should be noted that this field yields quite well in tonnage and in this corner the three- to six-inch depth is still above optimum P, so it probably isn't a yield concern.



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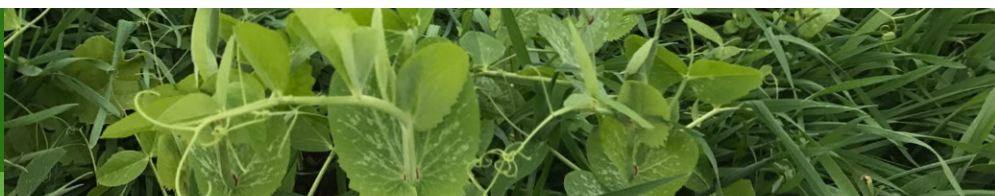
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