Champlain Valley Crop, Soil & Pasture Team

THE UNIVERSITY OF VERMONT EXTENSION

Spring 2020

In This Issue

Focus on Agriculture

By Jeff Carter, UVM Extension Agronomist

Recently, I was straightening some nails I found in my barn, and realized that most people don't do that anymore. I still do, even though there are hardware stores all over the place. New England thrift, good preparation, or am I just cheap? You decide.

Survival basics and shift-on-the-go are tactics farmers use all the time. Unpredictable weather and economics have honed skills of all farm owners who have to change plans quickly as unexpected things unfold. Stay on top of decisions that you know are right.

Crop production basics will also serve you well this year. Your normal work has to get done to keep food products reaching the table.

Save money on your crops because liquid manure has a nutrient value in excess of $60 per acre when spread on grass hay at normal rates. No incorporation on a hot day reduces that value to less than $10 per acre. Mix, inject, poke or wash that manure into the ground – however you can do it based on your timing and application method, you will retain more of the nutrient value when you choose some form of incorporation. Direct injecting manure into hay or mixing it into crop soils is always the best, while manure sprayed in the air on a hot day is not.

Grass hay quality is reduced just by a small harvest delay - not just for the first cut, but for the whole season. UVM research trials by Allen Wilder showed a 5% overall reduction in stored forage quality caused by a delay of just 5 days for each harvest. So when is the best day to harvest? You know.

Good pasture grazing is, in effect, direct hay harvest with lower cost and higher quality. It makes sense for many farms to move this direction because you can achieve the highest quality forage at the least cost. Managing that system is not for everyone, but it sure is helping those who use it. Read page 3 for information on financial opportunities to make this transition more practical.

UVM Campus News

Two longtime friends of Vermont agriculture at UVM are retiring from the Plant and Soil Science Department. I have known Sid Bosworth and Don Ross for over 30 years and I sure gained a lot of knowledge working with them both as they balanced teaching students, conducting field research, and helping farmers through Extension (see page 5).

Don Ross will hand over the reins of the UVM Soil Test Lab (Agricultural and Environmental Testing Lab) after many years of service to farmers, businesses and homeowners providing testing of forages and soils, and numerous other items such as testing stored feeds for mycotoxins.

Sid has grown more grasses than anyone I know, tested them on farms throughout Vermont, and spoken all around the Northeast on forage species selection and management for high quality livestock forage. Yet, he will probably benefit most from all those turf management classes (think putting greens!) he taught on campus.

I am personally taking a six-month sabbatical leave this year for an in-depth study of whitetail deer management and wildlife food plots. Good forage production, improving soil health, understanding plant nutrients and forage quality are fundamentals for all landowners.

Jeff

NEWS, EVENTS & INFO YOU SHOULD KNOW

STAY CONNECTED WHILE WE SOCIALLY DISTANCE

Assistance Available for Learning Remote Technology

If you are a farmer, you are no stranger to being “stuck at home." Perhaps you need help navigating the virtual meeting world? If you need assistance, we can walk you through the process of using virtual meeting technology. Reach out and leave a message, 802-388-4969.

Online Agronomy Resources

Although we aren’t able to offer our normal spring field workshops, there are online resources you can access. The Northwest Crops and Soils Team has put together a listing of ongoing webinars and trainings. Many are already recorded (or will be) for on-demand access. Visit *go.uvm.edu/agonlineresources*. Topics include: organic dairy; custom manure applicator training; Vt. Required Ag Practices (RAPs) and nutrient planning for small farms; crops and conservation; no-till training for ag service providers; no-till and cover crop; and tile drainage.

The best way to stay connected is by subscribing to our email updates. If you receive this newsletter by mail, there are notices you might miss. Email is more frequent and affordable for us to get out regularly. Subscribe at *uvm.edu/extension/cvcrops.* See our blog post for a list of online resources related to Covid-19: *blog.uvm.edu/cvcrops/.*

Ag Business Assistance

If your farm, forest or maple business is under pressure to plan for COVID-19 disruption, UVM Extension educators are available for **business coaching** and assistance with locating resources. They can help with critical business decision-making, assessing changes to markets, financial planning and other issues. Call 802-476-2003 ext. 207 or see the Extension Ag Business blog for ongoing updates and a list of contacts: *blog.uvm.edu/farmvia/.* **Business advising** is also available through Farm and Forest Viability at Vermont Housing and Conservation Board (VHCB). Visit *www.vhcb.org/viability* or call 802-828-1098. **Farm First** is here to help -- and it’s okay to ask for it. Farm First is your connection to free and confidential support for farmers and their families. Visit *www.farmfirst.org/* or call 877-493-6216 and we will get back to you.

UPCOMING DEADLINES FOR FARM AGRONOMIC PRACTICES APPLICATIONS

Funding opportunities for practices such as grazing, cover crops, no-till, and manure injection include Farm Agronomic Practices (FAP) through the Vermont Agency of Agriculture, Food and Markets along with the Pasture and Surface Water Fencing Program (PSWF), see the following pages for more information. **2020 application deadlines are June 15 for Rotational Grazing, and August 1 for Cover Crop.**

No-Till Cover Crop Symposium Success

UVM Extension held the 7th annual No-Till & Cover Crop Symposium on February 26, 2020 in Burlington, Vermont and welcomed 133 participants from Vermont, New York, Massachusetts, Maine and Quebec. Farmers and service providers came together to learn and share techniques to improve upon the successes farmers have had making no-till and cover cropping widespread and effective here in the Northeast. Keynote speaker David Brandt shared his 40-plus years of success with no-till and cover cropping. Jeff Sanders from UVM Extension led a fantastic farmer panel with local soil innovators George Foster and Mark Anderson. Scott Magnan shared insights on precision ag for efficiency and profitability. Jeff Carter and Heather Darby updated folks on the latest UVM Extension efforts in soil health, no-till and cover cropping. If you missed the conference, **read the proceedings and presentations here**: *https://go.uvm.edu/ntccs.*

Mark your calendars for the 2021 No-Till & Cover Crop Symposium AND Northeast Cover Crop Council Annual Meeting: March 4-5, 2021

We’re joining forces with the Northeast Cover Crop Council to bring you a full day and a half of information related to no-till and cover cropping. This will be an exciting opportunity to gather with folks from across the region focused on sustainable agriculture practices. Bringing top-notch researchers and farmers together is sure to be a powerful opportunity for learning! Stay tuned for more details, but the agenda is going to be FANTASTIC! Visit *northeastcovercrops.com.*

GRAZING FUNDING OPPORTUNITIES

By Cheryl Cesario, Grazing Outreach Professional

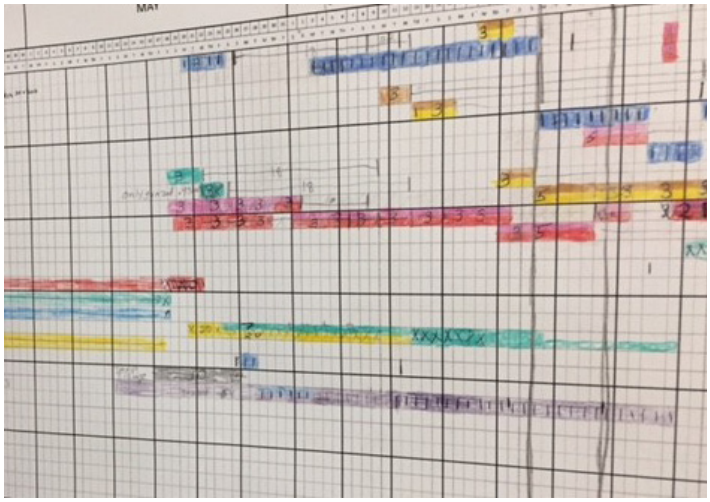
The **Farm Agronomic Practices (FAP) Program** offered by the Vermont Agency of Agriculture, Farm and Markets (VAAFM) utilizes state funding to help Vermont farms implement soil-based agronomic practices to improve soil quality, increase crop production, and reduce erosion and agricultural waste discharges. In 2019, rotational grazing was added as an eligible practice, paying farmers $25/acre for managing pastures to prevent overgrazing. This practice is again included in the 2020 FAP program. Farmers may apply for grazing as a standalone practice or in combination with other agronomic practices such as cover cropping and reduce tillage. Payments are capped at a total of $8,000 per farm.

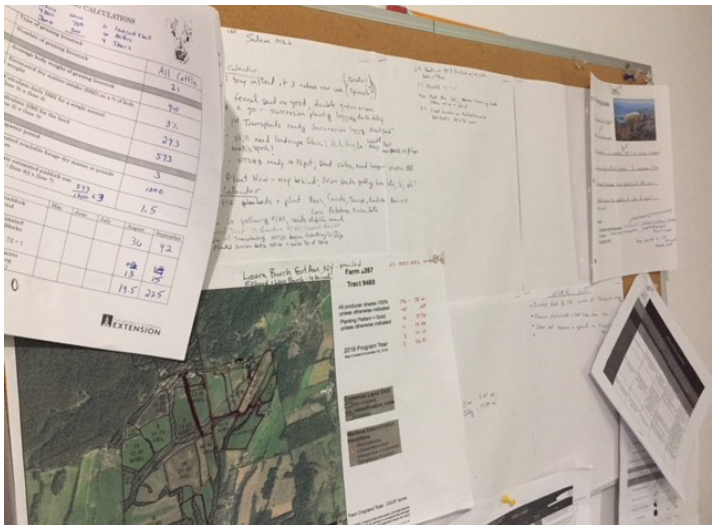
To apply, producers must submit the application along with a current grazing plan and maps. Producers must be in good standing with the State of Vermont and sign a grant agreement. Farms cannot receive FAP grazing payments for practices on acreage already being applied through USDA Natural Resource Conservation Service (NRCS), meaning farmers cannot be paid twice for the same practice on the same acreage.

If you do not have an existing grazing plan to submit, I can assist you with writing up a short narrative about your management. Alternatively, a plan template is available from VAAFM for farmers to complete. Before payments are made, a representative from VAAFM will conduct a site visit to verify pastures are managed in a way that prevents overgrazing damage. This will be accomplished through a field inspection and a records review. For more information and to apply to the FAP program visit *agriculture.vermont.gov/fap.* ***2020 application deadlines are June 15 for Rotational Grazing, and August 1 for Cover Crop.***

The **Pasture and Surface Water Fencing (PSWF) Program** is another state opportunity which can help producers with grazing technical and financial assistance. Producers can apply to install fence, water systems, laneways and other pasture improvements. The PSWF program can be an alternative to NRCS EQIP funding, when those funds are not available. This program provides 90% cost share for improvements that impact water quality, and will continue to run through 2020. For more information and to apply visit *agriculture.vermont.gov/pswf.*

Our popular record keeping tool, the **year-at-a-glance planned grazing charts**, will again be available this year. These charts are a very user-friendly way to document your management and can meet the requirements for record keeping by NRCS, the state FAP program, and organic certification. If you would like to receive a chart for your grazing record keeping, please email me at *Cheryl.Cesario@uvm.edu,* or call 802-388-4969 ext. 346 (please leave a message).





A set of grazing management tools, including a grazing chart, maps, math sheets, and goals developed during our grazing class. Posting in a farm office provides easy access when making grazing decisions.

Grassland Manure Injection: By the Numbers

By *Kirsten Workman, Agronomy Specialist*

We recently wrapped up a two-year grant project bringing new manure injection technology to Addison County hay fields and pastures. Perennial forages are the largest crop by acreage in the state, providing important livestock forage for cows and other livestock. Perennial crops are typically at low risk for erosion as they have deep roots with permanent coverage of grass, legume and forb plants which protect the soil surface and do not undergo tillage while in hay. However, they pose unique risk in comparison to annually cropped fields (like corn and soybeans) because all of the nutrients are usually applied on the surface, leaving them vulnerable to dissolved runoff – nutrients going into solution with water. This is of concern for phosphorus (P) and Lake Champlain, as the dissolved form of phosphorus is a more potent food source for algae that blooms in the lake.

Over the years, farmers and custom manure applicators have fine-tuned the ability to inject liquid dairy manure in fields where we grow corn and soybeans, making manure less susceptible to runoff. For these annual crops, applying manure outside of the crop production window means the field has some capacity to withstand soil disturbance and not impact the main crop. However, in the past we did not have an ideal piece of equipment to accomplish the same results on hay fields and pastures. Previous attempts either left too much of the manure on the surface or caused too much damage to the hay crop through soil and root disturbance.

In 2017 we found a fantastic alternative – a shallow slot grassland manure injector. With funding from VAAFM's Clean Water Fund and the help of Ken and Debbie Hicks at Hicks Equipment, we purchased the right equipment from the Netherlands. With the expertise of Eric Severy of Matthew's Trucking to operate it, we began demonstrating the utility of this system. Shallow slot grassland manure injection gets liquid dairy manure just two inches below the soil where it is protected from runoff during rain events while still well within the root zone where the plants will use it. We purchased a 40-foot wide Veenhuis Euroject slurry injector and outfitted it to attach to a draghose manure system. We utilized a portion of the grant money to pay for the cost of injecting manure for farms willing to use the equipment.

After two summers of use, the situations that worked the best with the injector were immediately after harvesting hay (or grazing), during dry weather to maximize infiltration and increase nitrogen retention, and with thinner manure that is more prone to runoff losses. We look forward to finding more and better ways to use this equipment on Vermont farms. There is still a lot of work to be done investigating the impacts on nutrient runoff, crop yields and quality, and how to best utilize this technology, stay tuned.

2018 & 2019 Cropping Seasons:

- **10 farms utilized equipment**
- **239 fields**
- **4,704 acres**
- **33,584,330 gallons of liquid dairy manure applied**
- **20 average acres/field**
- **7,139 average gallons/acre**
- **8 workshops for 195 attendees to learn about and demonstrate the equipment**
- **25-point average reduction in phosphorus index ratings on fields using the injector, reducing the indices from high or medium to low risk for phosphorus loss**
- **70% of reductions came from reductions lowered risk of surface P losses from fields**

Want to inject manure on hayland or pasture?

Matthew's Trucking LLC operates 40-foot drag hose unit for hire, call 802-462-2998.

If you farm in the Lake Carmi watershed, the St. Albans Extension office has a new 25-foot tank-mounted injector. Call Jeff Sanders at 802-524-6501 for more information.

VAAFM has cost-share incentives available through the Farm Agronomic Practices program; $25/acre for injecting liquid manure ($8,000/farm cap). Visit *https://agriculture.vermont.gov/fap* or call 802-828-2431.

USDA-Natural Resource Conservation Service can pay incentives for manure injection as part of their Nutrient Management (590) implementation practice. Call your local NRCS office for eligibility and current payment rates.

TWO BEDROCK PROFESSORS RETIRING: WILL BE MISSED IN JEFFORDS HALL AND BEYOND

Sid Bosworth, Department of Plant and Soil Science UVM Extension Professor: Agronomy Specialist

Sid is retiring this summer after three decades of carrying out statewide Extension education programs in agronomy and soils. He has focused primarily on forage and pasture management for dairy and livestock; forage quality, crop and soil nutrient management; pest management for crops and turf; organic wheat production; and agricultural biomass energy production. He is well-known for his breadth of agronomic knowledge, respect and appreciation for agriculture, and ability to listen and respond with practical solutions in an open and friendly manner.

Sid earned his degree in Crop Science from Auburn University, served as Extension Forage Specialist with Pennsylvania State University, and then joined the University of Vermont in 1989. His Extension programs in Vermont included workshops and in-service trainings, field demonstrations and meetings; publications, newsletter articles, webinars, one-on-one consultations, television media, and extensive website content.

As a member of the UVM Plant and Soil Department, Sid generously donated time to advance the mission of the University and the success of our agricultural community, having served on 28 University committees and 14 local/regional agricultural boards and committees. Sid enthusiastically taught college courses every year and mentored dozens of graduate students, including Jeff and Kirsten, as they completed research and studies in the field of forage agronomy. Thanks Sid!

Don Ross, Department of Plant and Soil Science Gund Affiliate, Research Professor, UVM Environmental Science Director

Don Ross is also retiring after a 40-plus-year career in teaching, research and scholarship. He has been a Research Professor in the Department of Plant and Soil Science with extensive research in soil chemistry. His publications span a range of topics including acid rain impacts on forest soils, interactions between soil development and hydrology (hydropedology), mercury accumulation in high elevation soils, carbon retention in Vermont's managed forests, and phosphorus behavior in near-stream soils of Vermont's Lake Champlain basin. Teaching classes about the chemistry of soil and water, movement and remediation of soil and water pollution, has provided students with the background knowledge necessary to address these very current and important issues.

Don has also been the Director of the Environmental Sciences major for the College of Agriculture and Life Sciences and co-taught one of the core cross-college courses. In addition, he directed UVM's Agricultural and Environmental Testing Laboratory, which provides analysis to the University community, and soil testing to Vermont farmers and gardeners. Don has taught and advised many students, including Kristin. His calm demeanor in the labs and willingness to answer all our pesky questions will be missed!

Best wishes Sid and Don for very happy retirements!

END OF GYPSUM PROJECT LEAVES US WITH IMPORTANT LESSONS AND QUESTIONS

By Kristin Williams, Agronomy Outreach Professional

Methods: We spread three gypsum (calcium sulfate) products at rates determined by industry recommendations applied in randomly replicated research plots including control plots for growing seasons 2017, 2018 and 2019. Originally there were two farms in the project; one location had to be moved to a different farm and there were prevented plantings at another farm. In 2019, soil health tests were taken at the end of the project at one farm. Soil sampling was done at multiple depths (which differed based on soil type/location). Cover crops were sampled at one farm location, and corn silage yields and forage analysis were performed in all years except with prevented planting.

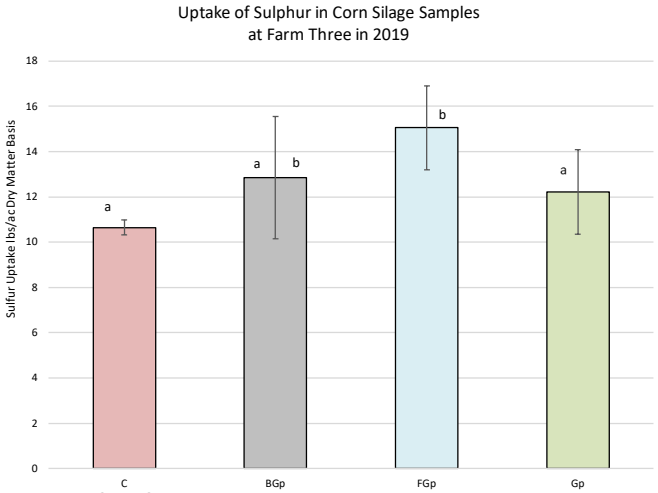
Products Used:

- Fluegas gypsum (scrubbed, pelleted) (FGp) at 3,750 lb/ac (Lawes Agricultural Services)
- Nutrisoft DG gypsum (mined, pelleted) (Gp) at 1,250 lb/ac (Rock Dust Local LLC)
- Humisoft DG "black ag" gypsum (mined with humates) (BGp) at 625 lb/ac (Rock Dust Local LLC)

Major Trends: Unfortunately, there were no significant differences (alpha = 0.1) for most results we were looking at including crop and cover crop yield, available and reserve phosphorus in soil or in uptake, and most soil health parameters. There were some treatment effects on sulfur and calcium in soil and uptake with Fluegas gypsum having greater sulfur accumulation. Sulfur accumulation was not associated with yield increases, so there was no suggestion that sulfur was deficient but there may be other cases where gypsum could be utilized for sulfur deficiency. There were other effects of year and depth, which were not part of the original question, but suggested field management impacted the results. Particularly, as noted in previous articles, stratification of nutrients and pH was observed.

Lessons Learned: As discussed previously, we realized that field variability is an important consideration when choosing site location for research and demonstration trials. This is because available soil test phosphorus can vary substantially based on soil type and manure history. Our trials were complicated by having different rates of the product; while manufacturers might state one as being more effective than another, it would have been useful to do a rate test.

From other related demonstration trials, we realized we may need to look at dissolved P, since our objective is really to identify if less P is leaving the field (recognizing that runoff stations are expensive and outside the scope of this work). With help from Don Ross at UVM, we began looking at water-soluble P, which was the P measured when water was passed through the soil sample. We observed that when soil test P was very high (e.g., above 30 ppm), there was more potential impact of materials at reducing dissolved P.



Uptake of sulfur in corn silage samples on a dry matter basis, for Farm Three in 2019 by treatment. C – Control, BGp- Black Ag Gypsum, FGp – fluegas gypsum, Gp – mined gypsum. Error bars represent ± 1 standard deviation. Letters that do not overlap indicate significant difference based on Tukey post-hoc test.

We did observe increased Ca and reduced Mg in our highest rate application and there is potential for using this product for cation balance. More research is needed on how to measure dissolved/soluble P and continued quantification of farmer observations of soil "workability" from gypsum applications. It is important that we continue the conversation about how to manage potential stratification issues which might arise in long-term no-till fields, and balance this with the benefits of no-till.

Soil amendments are one approach, and manure injection is another. Soil testing at multiple depths (i.e., 0-3 and 3-6 inches) occasionally will be beneficial in no-till systems. We also have to consider how rooting depth and compaction impact the zone of available nutrients. Reserve test P ranged from 1.5 to almost 10 times greater than the available P that is reported on a regular soil test. This is something farmers should be mindful of when considering that reducing erosion can have a positive impact on the landscape and waterways.

On-field farm trials are complicated by unpredictable factors like hail storms. Researchers seeking to do on-field research need flexibility built into their process, and we continue to learn how to approach on-farm field research. We also continue to value and appreciate the relationships we have with farmers who are willing to try new things and commit to our work for the duration of a project.

USDA-Authorized Flexibilities Help Producers During the Coronavirus Pandemic

By Jake Jacobs, UVM Crop Insurance Education Coordinator

Farmers must always be prepared to manage many risks facing their operations, but the current global pandemic has posed unprecedented challenges. While the end of winter usually brings optimism and hope for the new growing season, producers are dealing with unique obstacles this spring.

USDA has authorized some flexibilities to various crop insurance requirements, reporting deadlines, practices, and claims processing in an effort to better support producers during the coronavirus pandemic.

Electronic reporting: Producers may send notifications and reports electronically for written agreement issues, acreage and production reporting, and upcoming deadlines to buy crop insurance. Notice of the policyholder's election may be provided over the phone with appropriate documentation of the call or using electronic methods followed by their confirmation of such election in writing.

Production reporting date extended: For policyholders insured under the Common Crop Insurance Basic Provisions, and who must report 2019 production by March 15 or later, additional reporting time has been granted. You may submit production reports through the acreage reporting date or 30 days after the published production reporting date, whichever comes first.

Additional time and interest deferred on premium payments: For policyholders with a premium or termination date between March 1 and April 30, 2020, an additional 60 days is allowed for timely payment of premium and administrative fees. Accrued interest on both will also be waived. Approved insurance providers are also authorized to provide the same additional time for Written Agreement payments.

Milk that is dumped: Ensuring that milk producers are not inappropriately penalized if their milk must be dumped because of recent market disruptions caused by the coronavirus pandemic, RMA is allowing dumped milk to be counted as milk marketings for the Dairy Revenue Production (DRP) or actual marketings for the Livestock Gross Margin for Dairy (LGM-Dairy) programs.

Extended inspection deadline: RMA is extending the deadline for some perennial crop Pre-Acceptance Inspection Reports and for some of the Perennial Inspections.

Waived inspection requirements: In certain instances, RMA will waive the 2021 crop year inspection requirements for the Nursery and Nursery Value Select (NVS) programs.

For links to the most current risk management programs and services available to Vermont producers, visit the UVM Ag Risk website: *go.uvm.edu/ag-risk.*

For details about these flexibilities and how they may impact your operation, speak to your crop insurance agent as soon as possible. For the most current USDA updates on available services, visit *farmers.gov/coronavirus.*

Notes on the Wild Side

Take time this summer to enjoy the great Vermont outdoors by yourself or with friends and family!

Remember it is fun to relax, and maybe take a kid fishing. Vermont's Summer Free Fishing Day is Saturday, June 8: *go.uvm.edu/summerfish.*

Take a soil test for your brassica food plots for mid-summer plantings that you may be thinking about. Use crop code 1BE for brassicas like rapeseed, canola, turnips and radish, or any of the brassica deer food plot mixes. For your perennial plantings, use 1CM for maintenance recommendations and keeping your clover plots looking good. More information and forms at go.uvm.edu/soiltests.

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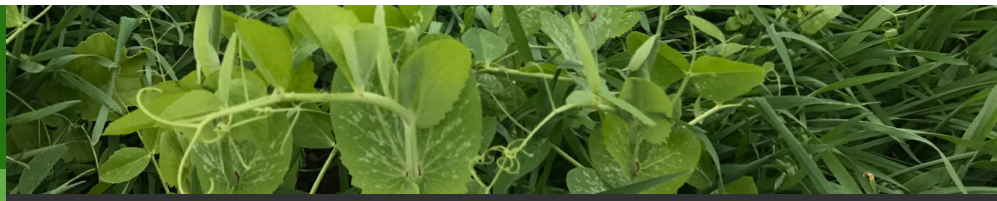

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