

CHAMPLAIN VALLEY CROP, SOIL & PASTURE TEAM

SUMMER 2017

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FOCUS ON AGRICULTURE IN THE CHAMPLAIN VALLEY AND BEYOND

By Jeff Carter, Agronomy Specialist, Champlain Valley Crop, Soil & Pasture Team

Corn fields look a lot different this year and many people are taking notice of the changes. Yet the weather seems to repeat itself in Addison County; early warm, then too wet, and then too dry. This reminds me of two years ago, when we experienced extensive prevented plantings and over-mature hay, followed by a good old drought for two months. I sure hope you are working closely with crop insurance agents and FSA to protect your business from the financial risk of weather extremes that we are seeing this year. This season has been a roller coaster as the early spring turned sour, and we are almost a month behind schedule for corn planting and hay harvest.

Just taking a ride around the Champlain Valley, you see the difference in fields, with so much more cover crop activity and no-tillage taking place. I know that the rye cover crop can seem way out of control but think again, because this is a new way to farm (thanks, Robert Rodale.) The tall rye can be a blessing for farmers who have jumped into no-till corn and use the rye to their advantage. Most of the early corn planted in May was planted no-till straight into standing

winter rye, while many of the fall-plowed fields had delayed or prevented plantings. Harrowing-in a tall rye crop can be a nightmare that delays conventional planting and ties up nitrogen. However, leaving the tall rye standing can shade the new corn plants too much, even when killed. We want cover crops to benefit, not hurt, the corn crop. A few local farmers are now knocking down tall winter rye with a roller-crimper as they plant corn. (Read more about this technique on page 4.) This looks very different, and may be a bit scary, compared to a bare soil field that was plowed and harrowed multiple times.

The rye provides a nice mulch to conserve soil moisture for a dry August and saves soil. Like other practices, it takes a new mind-set to adapt and succeed when working with these fine-textured clay soils since cover crops influence the dynamics of insect and weed pressure on the crop. Let's see how this turns out. We have seen some great success with no-till on clay and we have also seen some disasters. *Cautious, yet steady, is how you need to adopt these new farming practices for success.*

We are also moving into a new set of projects this year and stretching our limits with agronomy - "the science and technology of producing and using plants for food, fuel, fiber, and land reclamation." In coordination with partners, we are looking at the economics of no-till and cover crop systems; soil amendments such as humates, mycorrhizae, gypsum and liming materials for soil productivity; testing manure slot-injection with a drag hose into hay fields; testing P levels in streams and tile outlets; developing pasture planning and grazing classes; and evaluating a new P-Index for Vermont. We are here to help, let us know how these new farming ideas work for you.



"GOT RYE? WE DO!"
ROLLING-CRIMPING WINTER RYE
OVER 5 FEET TALL!

Have a question for Jeff Carter?
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RMA UPDATE: FORAGE SEEDING

By Jake Jacobs, Crop Insurance Education Coordinator

Extreme weather can put a farmer out of business, and anyone involved in production and agricultural business knows this very well. Given the variability of weather conditions in Vermont, it is somewhat common to experience excess water early in growing season, as is the case with this spring. This is in stark contrast to last summer's drought, which caused different problems for area farmers. One tool to deal with this variability is insurance. Forage seeding is insurable if:

1. It is alfalfa, or forage mixture containing at least 50 percent alfalfa, clover, birdsfoot trefoil or any other locally recognized and approved forage legume species (by weight); or
2. It is planted during the current crop year to establish a normal stand of forage.

This policy does not cover any acreage that is grown with the intent to be grazed, or grazed at any time during the insurance period; or interplanted with another crop (except nurse crops).

VERMONT CROP INSURANCE DEADLINES:

Fall-Seeded Forage 2017

- Sales Closing Date: July 31
- Final Planting Date: August 31
- Acreage Report Date: November 15

Spring-Seeded Forage 2018

- Sales Closing Date: March 15
- Acreage Report Date: May 15
- Final Planting Date: May 10

More info:

Fact Sheet on Forage Seeding (USDA RMA):

www.rma.usda.gov/fields/nc_rso/2018/2018forageseed.pdf

Talk with a Vermont-licensed crop insurance agent:

www.rma.usda.gov/tools/agent

NOTE: Deadlines vary by state.

*(below) Birdsfoot trefoil.
Photo: King's Creek Farm.*

NEWS, EVENTS AND INFORMATION YOU SHOULD KNOW

Self-Certification of Small Farm Operators (CSFO) triggered by the Required Agricultural Practices (RAPs) is now ongoing. Info and forms for small farmers now required to certify at: agriculture.vermont.gov/sfo

One big change is the number of farms now falling under the requirement to have a nutrient management plan (NMP). "Vermont Agency of Agriculture, Food & Markets (VAAF) understands that few Certified Small Farm Operations will have a complete Nutrient Management Plan (NMP) for 2017, but that farmers should be actively working towards NMP completion by taking modified Morgan extractant soil samples and applying manure at agronomic rates." If you have questions about CSFOs, taking samples, getting your NMP or other RAPs regulations, we can help you navigate this transition. Stop by our Extension office or give us a call!

August 7, 8 a.m.-noon – Drop off crop entries to participate in our FIELD CROP EXHIBIT. Addison County Fair and Field Days August 8-12: We are looking forward to your entries. This is one way we connect with the public, describe the importance of agriculture, and how farming has changed over the years. From corn and hay to wheat and soybeans, help us show and tell everybody about the great crops you grow - then use your prize winnings on fair treats for the family! See complete Contest Rules at blog.uvm.edu/cvcrops or call our office and ask Karen for details.

**UPDATES ON EVENTS & MORE
SIGN UP FOR OUR E-NEWSLETTER AT
WWW.UVM.EDU/EXTENSION/CVCROPS**

Champlain Valley Farmer Coalition's monthly meetings and field day events are a great way for farmers to connect on water quality issues that go hand-in-hand with farm profitability. When faced with changing regulations and public views, we are stronger together. Come to a CVFC meeting or field day: discover and join this progressive, exciting group of farmers and supporting business members. Schedule at: www.champlainvalleyfarmercoalition.com



FARM ECONOMICS AND THE RAPs

By Kristin Williams, Agronomy Outreach Professional

It should not be news that the new Required Agricultural Practices (RAPs) are coming into effect this month. While some farms may have to make relatively small adjustments to their production systems, others may have to make drastic changes to fully comply with the law.

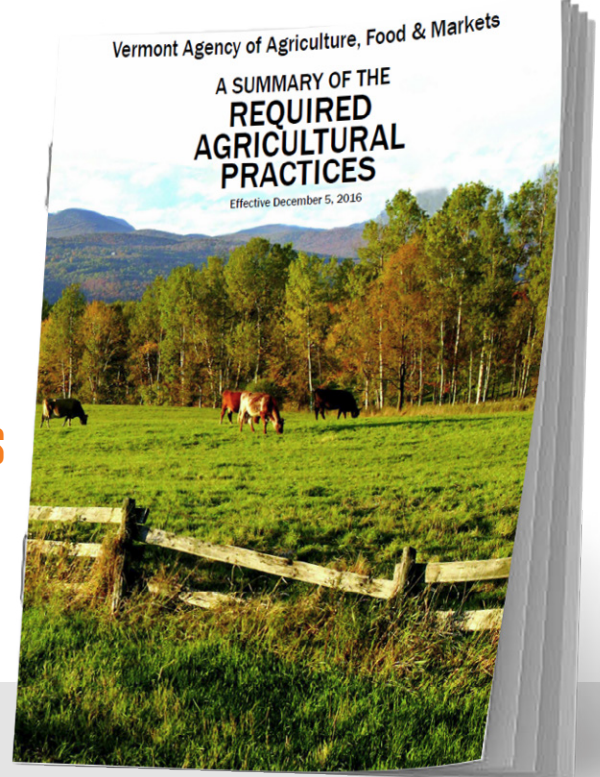
In economic terms, this law is an attempt to “internalize” some “externalities” of farming. That is, the costs of compliance will be borne by the farmer. In many cases, most notably “conventional” dairy production, these internalized costs are not easily pushed up the chain from farmer to processor to consumer.

**[AS A RESULT OF NEW RAPs],
FARMERS WITHOUT A
COMPREHENSIVE BUSINESS
PLAN AND ECONOMIC ANALYSIS
MAY NEED TO TAKE
AN HONEST LOOK
AT WHERE THEY STAND.**

As farmers are acutely aware, fluid milk prices are low. With the exception of the incentive program through Caring Dairy, milk payments to farmers are generally not connected to adoption of these practices. Therefore, farmers have to navigate how these practices, minor or major, play into their farm’s economic viability. Farmers without a comprehensive business plan or economic analysis may now need to take an honest look at where they stand.

In addition, major fixes to farmstead structural projects can cost hundreds of thousands of dollars and take substantial amounts of time and effort to implement. Experts working in the fields of regulation and farmer outreach need to be asking the question: “What is the phosphorus reduction in comparison to the costs of a given project, and how can both conservation and farm viability be met?”

Practices and engineered structures, by rule, have to meet very specific guidelines in order to meet Natural Resource Conservation Service (NRCS) standards for financial assistance, though it may or may not always be in the best interest of the farm operation for a given structural investment. Farmers navigating these choices should have a clear understanding of their business finances, and what the horizon looks like for their operation.



AGRICULTURAL BUSINESS PROGRAMS: A UNIQUE OPPORTUNITY FOR WATER QUALITY-RELATED BUSINESS PLANNING

Enter Agricultural Business Programs (also known as Farm Viability) at UVM Extension. These programs teach and advise farm owners working to make the best decisions for all aspects of their business. This includes business planning support, financial analysis, research projects and educational training. Right now, the UVM Agriculture Business Team is inviting farms to participate in water quality business analysis. This is in addition to their foundational “farm viability” program that is always available for in-depth business planning or transfer/succession planning.

Farms enrolling in Water Quality Business Analysis projects work one-on-one with a business educator. The team facilitates strategic planning and nut-and-bolts financial analysis to ensure positive cash flow as farmers make changes to meet water quality goals. UVM Extension business educators serve in the key coordination role of the planning process when multiple people from state agencies, NRCS and land trusts need to be at the table to see a project move forward.

More Information:

Tony Kitsos, UVM Extension Farm Management Educator

Tony.Kitsos@uvm.edu, (802) 524-6501 or (800) 639-2130 ext. 440

WEB: go.uvm.edu/ag-business-management

BLOG: blog.uvm.edu/farmvia

SPRING BUS TOUR SENSATION; CAN ROLLING-CRIMPING HELP MANAGE COVER CROPS?

By Nate Severy, Agronomy Outreach Professional

On June 13, UVM Extension and the Champlain Valley Farmer Coalition teamed up to host a bus tour to six farms throughout Addison and Chittenden Counties highlighting spring conservation practices. The tour showcased manure injection, cover crop and no-till systems, pasture management, and nutrient management on dairy and vegetable farms. It was a long, information-packed day. One of the most amazing things was that all of the host farms had the same general message: they care about our environment, and are working hard, taking risks, and investing a lot of time and money to try to be the best farmers they can.

FARMERS ARE TAKING A LEADERSHIP ROLE TO PROTECT WATER QUALITY

One tour participant commented that they were flooded with information and hadn't realized just how much farmers are standing up and taking a leadership role to protect water quality. The event was a great example of how farmer organizations and UVM Extension can work together to support the agricultural backbone of Vermont.

One of the demonstration projects on the bus tour was a trial of **rolling-crimping a winter rye cover crop**, using farm-built equipment. Rolling-crimping works best on a more mature cover crop, which may be useful in a spring like this one if winter rye becomes thick and tall because spring rains prevent termination. Rolling-crimping also helps facilitate the mulching effect of the cover crop and, with correct furrow adjustment, should address issues of light penetration to young seedlings.

Separately, Jeff Sanders, from UVM Extension Northwest Crops and Soils, received a grant to purchase and demo a planter-mounted roller-crimper. This is actu-

ally a shield and two disks on the front of each planter unit, as opposed to a single roller-crimper. These attachments are angled to part the cover crop material and roll it away from the furrow where the corn is planted.

We used this technology on two Addison County farms totaling around 50 acres. After 4 hours of adjusting the planter, we were successfully rolling-crimping! One farm field had manure injected several inches below the surface a month before

planting and another field had large-scale cover crop trials. When compared to a regular no-till field, which can look chaotic, there is a very satisfying symmetry when the field is roller-crimped.

However, we had some setbacks while planting. There was so much residue that every few acres we had to stop and clean the closing wheels because at least one would plug with winter rye. Specific closing wheels seemed to be plugging more often, and we will have to investigate that further. We also had issues getting adequate down pressure to crimp the rye stalks properly; this may not be an issue with a heavier corn planter.

We will monitor the fields over the next few months, observing changes in water infiltration/retention and drought stress response, weed and pest levels, nitrogen availability, and corn yield.

Thanks to Jeff Sanders and the participating farmers! We look forward to sharing results and to future trials. Videos of the planter in action at:

champlainvalleyfarmercoalition.com
blog.uvm.edu/cvcrops



(above) No-till corn planted into tall winter rye cover crop in Addison County clay soil using the UVM planter with Dawn roller-crimper attachments on the front of each planter unit.

EXPECT TO APPLY NITROGEN DUE TO THE WET WEATHER

By Rico Balzano, Agronomy Outreach Professional

Spring 2017 started relatively dry, but Mother Nature has certainly made up for it, with above average rainfall in May, and the seventh wettest June in 100 years (National Weather Service, Burlington, VT).

While this spring's rainfall may average out to be normal, the timing of it has caused some problems. Rain started to increase just as corn planting season began, keeping soils cold and postponing planting. Cold soils delayed emergence and slowed growth in planted fields. More to the point, nitrogen fertilizer that was applied pre-plant or at planting time has been extremely susceptible to loss. Nitrogen is lost through denitrification in saturated soils, and is lost through leaching in well-drained soils. Either way, nitrogen is often not there when the corn needs it. This will prompt many farmers to think about applying nitrogen to corn while it is growing, a technique known as sidedressing, which is a more efficient use of nitrogen, especially on soils prone to leaching.

The good news is that the organic nitrogen in manure has been slow to mineralize because of the cool temperatures and will still be there as the season progresses. However, it is safe to say many farms will be sidedressing corn with extra nitrogen this year.

The old, reliable way to predict how much sidedress nitrogen to apply is the pre-sidedress nitrogen test (PSNT). PSNTs are simple and affordable (\$6-8). However, they require effort and only offer a snapshot in time; they do not account for previous activity nor for future nitrogen mineralization.

An alternative way to generate sidedress recommendations is Adapt-N software. Nitrogen is very dynamic in the soil so it is difficult to predict how much will be plant-available. Therefore, it is necessary to have as much information as possible about fertilizer, manure, previous crop and soil type to generate a good recommendation with Adapt-N. You can also assess the nitrogen needs of corn using chlorophyll meters, active sensors and aerial imagery. These can be effective



(above) Applying nitrogen to corn, a process known as side-dressing.

when used properly, and local agricultural consultants can provide these services.

PSNT is recommended for corn fields 2 or more years after a sod, and/or where manure rate is uncertain, or if manure application is not expected to meet corn N requirement. PSNT is not recommended in first-year corn after a grass sod; first-year corn after an alfalfa grass stand is plowed down; or if enough manure was applied to meet corn N requirement. Below are the PSNT sampling guidelines, a link to the UVM sample submission form, and the updated UVM nitrogen recommendations based on PSNT results. Results are usually sent out within 24 hours since the information is time-sensitive.

PSNT Sampling Guidelines:

1. Wait 2-3 days after significant rainfall (due to nitrate leaching).
2. Sample when corn is 6-12" tall and sample to a depth of 12" - deeper than a regular soil test.
3. Take 15-20 cores per field from in between rows to avoid fertilizer bands. Mix sample thoroughly.
4. Air dry samples ASAP to stop further mineralization.
5. Submit samples in small plastic bag (about 1 cup).

Download the PSNT Form: go.uvm.edu/psntform

N Recommendations: go.uvm.edu/nitrogenrecs

More Info: go.uvm.edu/getpsnt



(above) Pre-sidedress nitrogen test samples at the UVM Agricultural and Environmental Testing Lab.

THINK SPRING WHEN PLANTING COVER CROPS

By Kirsten Workman, Agronomy Outreach Professional

Farmers are planting cover crops at a rapidly increasing rate across Vermont - and for good reasons. The water quality and soil health benefits of this farming practice are undeniable. However, a farmer who manages that cover crop in a spring like this one will attest to the added complexity cover crops bring to the challenges of growing annual crops in Vermont.

Through our work with many innovative producers in the Champlain Valley, we identified the need to think about planting cover crops differently. We should not only ask questions about how late we can plant or how to get the most biomass possible, but can we take a more nuanced approach to decision making? In order to use cover crops as a management tool, a farmer should first decide on the goal for that cover crop, and then implement a plan to accomplish that goal.

The main goal is usually to reduce erosion and nutrient loss. However, are you also trying to reduce weed pressure, decrease nitrogen applications for the subsequent crop? Will you be interseeding into a standing crop? Do you want to maximize spring biomass either to harvest it as forage or to use a roller-crimper device? Or, maybe you hope to

minimize spring biomass to ease spring field management without sacrificing erosion control and nutrient retention.

The latter example is one goal we have heard from many producers who value the role cover crops play in reducing soil and nutrient loss in the sensitive fall and early spring seasons, but who don't want so much biomass to deal with in the spring when it's time to plant annual crops, especially on heavier soils.

WE ARE MOVING BEYOND THE BASICS IN VERMONT

Borrowing an idea from one such farm, last fall we planted cover crop plots on nine farms, from Westford to Pawlet, on sandy loam to clay soils. Our goal was to determine the "magic" combination of seeding rates for planting winter rye and spring oats in the fall to maximize fall performance, while minimizing spring biomass. The dry fall and wet spring thwarted some of our efforts, but we were able to collect data at six locations. We don't have the final answer yet, as one year doesn't tell the whole story. However, we found that all combinations did comparably well at providing

at least 30% ground cover to protect from erosion in the fall. With the exception of the all-oat plots, all combinations increased soil cover and biomass from fall to spring.

This trial supported previous observations that winter rye - planted with a grain drill - provides similarly high biomass in the spring at different seeding rates, down to 45 pounds per acre. The two combinations that seemed to maximize fall performance and spring soil coverage while minimizing spring biomass were 30 pounds of rye with 45 pounds of oats, and 15 pounds of rye with 60 pounds of oats. The lowest rate of rye is probably not an advisable rate on steep ground, but it should provide enough soil coverage on flat ground.

Our aim is to help farmers identify the pros and cons of different methods of cover cropping, and evaluate which methods accomplish particular goals. We are moving beyond the basics in Vermont, and it is important to utilize this important conservation tool in a way that benefits not only the watershed, but also your farm.

Cover and biomass for winter rye and oat cover crops.				
	n=3	n=6	n=1	n=6
Seeding Rate (lbs./ac.)†	Fall Cover	Spring Cover	Fall Biomass	Spring Biomass
	Percent soil covered with live plants‡		Pounds of dry matter per acre§	
75 rye	44%	72%	583	1599
60 rye/15 oat	37%	71%	493	1392
45 rye/30 oat	37%	67%	314	1440
30 rye/45 oat	32%	62%	539	1095
15 rye/60 oat	33%	57%	391	731
75 oat	27%	8%	419	0

† drilled after corn silage harvest with Haybuster 107C no-till drill
 ‡ percent of soil surface covered with 'green' plants (Canopeo)
 § multiple quadrats/plot dried and weighed to estimate DM/acre

(above) Winter rye (left) and winter-killed oat (right) cover crop plots at Pouliot Farm in Essex on May 1, 2017.

UPCOMING OPPORTUNITY FOR FARMERS TO DEVELOP GRAZING PLANS

By Cheryl Cesario, Grazing Outreach Professional

When farmers are considering grazing as a new management practice, or want to change or improve an existing system, there are many questions from both the animal perspective and the land perspective: Is this going to work? Will my animals like it? What will this look like? How will I do it?

These are all reasonable questions, which are not easily answered in a one or two-hour farm visit. I find the most successful grazing systems develop when there is farmer involvement in the planning process, and the farmer has a good relationship with a service provider and other farmers who can answer questions and share ideas.

This fall we will start offering a new grazing management course for farmers who want to learn about the benefits and challenges of grazing – from both economic and environmental perspectives. Each farmer will develop a plan specific to their operation which takes into account their farm goals. The class will meet once per week over the course of a month, and each farmer will receive a copy of Sarah Flack's book *The Art and Science of Grazing* as the course textbook and helpful future reference. Outside of class, one-on-one farm visits will provide additional support as new practices and strategies are implemented on the ground.

Here is a sampling of what the class will cover:

- Pasture plant identification of common species, looking at favorable growth conditions and how plants respond to grazing impact.
- Pasture nutrition – how it can affect grazing behavior, overall intake, and animal performance.
- Grazing management concepts such as measuring dry matter availability, determining paddock sizes, stocking rate versus stock density and overall acreage requirements.
- Soil health in pasture systems and the benefits of soil, forage and manure testing to understand nutrient cycling and nutrient management within pasture systems.
- Pasture system design to determine infrastructure needs, and management techniques to avoid overgrazing damage, decreased carrying capacity and other negative impacts.
- Grazing record keeping systems and the benefits of monitoring and documenting activities.

Eligible farmers will be able to use the grazing plan they develop in class to apply for USDA Natural Resources Conservation Service (NRCS) funding opportunities to help cost-share a variety of grazing practices. However, new infrastructure alone will not create improvements. Achieving healthy pasture ecosystems requires an understanding of the relationship between the soil, the plants and livestock grazing behavior. A clear goal and a plan based on plant and animal needs are essential for success.

We anticipate the course will run from mid-October to mid-November, with up to 12 hours of classroom and planning time. **If you are interested in participating, or want to know more, please contact me:**

cheryl.cesario@uvm.edu; (802) 388-4969 x346



Successful grazing plans can include laneways to reduce mud and erosion, as seen in these photos before installation (above left) and after (above right).

(below) Stream crossings and water tubs eliminate animal impact on surface waters.





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