

CHAMPLAIN VALLEY CROP, SOIL & PASTURE TEAM

THE UNIVERSITY OF VERMONT
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FOCUS ON AGRICULTURE

By Jeff Carter, UVM Extension Agronomist

Consider the “4 R System” in the New Year

You’ve probably heard of the “4 R” approach to manure and fertilizer application for environmental stewardship: the (1) **Right Source**, (2) **Right Rate**, (3) **Right Time** and (4) **Right Place**. Promoted by The Fertilizer Institute, and agribusiness nationally, these ideas are used by farmers to meet the water quality goals of the Required Agricultural Practices (RAPs) here in Vermont.

Even if you don’t think of it that way, you probably are already using this concept as you make important management decisions on the farm. Each day, you decide the **right thing** to do, at the **right amount**, at the **right time**, and focused on the **right place** where you need it for your business. This is easier said than done when so many decisions can overwhelm you and your business checkbook.

As we start another new year, I hope that we can continue do this with our Extension programs and field research, so we can continue to provide you with the right information and ideas that help you succeed in farming.

Most of our funding to work with farmers is through grant agreements with a variety of partners. Their partnership and support is very important to our continued success. Thank you to these organizations for financial support for our Extension programs to help farmers:

- **USDA NRCS** - United States Department of Agriculture Natural Resources Conservation Service
- **VAAF** - Vermont Agency of Agriculture, Food and Markets
- **VTDEC** - Vermont Department of Environmental Conservation
- **NE-SARE** - Northeast Sustainable Agriculture Research and Education

Thank you to our farmer and business partners who believe that we are actually making a positive difference in their lives:

- **Champlain Valley Farmer Coalition**
- **Agriculture service providers and businesses**

2018 Project Highlight for This Past Year: ACAP’s 7th Year

Agronomy Conservation Assistance Program (ACAP) staffs from both Middlebury and St. Albans helped 144 individual farmers in the Lake Champlain watershed on planning and installation of 221 new field conservation practices to reduce soil and nutrient runoff from 17,154 acres of cropland. Farmer assistance was provided in the Lake Champlain, Otter Creek, and Missisquoi, Lamoille, Winoski, and Mettawee River watersheds.

Conservation practices included 9,963 acres of nutrient management plan development and updates for 71 farms; 2,834 acres of no-till planting on 66 farms; 3,367 acres of cover crops on 35 farms; and 431 acres of improved grazing management on 20 farms.

Farmers collaborated with us on 10 different field trials and demonstrations including soil amendments for soil health, cover crops for winter soil conservation, and tile drain water sampling. During this year we provided 146 educational meetings, workshops and outreach events with a total of 4,677 educational contacts. Education included 1,816 farmer, 303 agribusiness, 486 state and federal agency, 462 youth, 1,180 public and 72 legislative direct contacts.

The overall impact of the ACAP program from 2011 to 2018 has been direct technical assistance for 437 individual farms who implemented 718 field conservation practices on 77,997 acres to protect soil and water quality. In 2019, the funding for the Agronomy Conservation Assistance Program (ACAP) program moves from Lake Champlain Basin Program and Vermont Department of Environmental Conservation to the Vermont Clean Water Funds provided through the Agency of Agriculture, Food and Markets.

I hope we have a good year in 2019, and we sure hope you do, too!



Have a question for Jeff Carter?
802-388-4969 ext. 332 jeff.carter@uvm.edu

NEWS, EVENTS & INFO YOU SHOULD KNOW

Crop Signals: A New Monthly Workshop Series Starting January 2019

The Champlain Valley Farmer Coalition (CVFC) and Champlain Crop, Soil and Pasture Team are teaming up to host guest speakers from around the region and cover topics on crop production, fertility and sustainability for Vermont farmers.



When: The Third Wednesday of Every Month
January 16 – 2019 Planning, Financial and Field Management
February 20 – Organic Crop and Pasture Fertility Management
March 20 – Manure Management Certification Workshop
April 17 – Spring Cover Crop Workshop

The series will start at the UVM Extension Office in Middlebury and transition to the field when it gets warmer. These events are free but RSVP is required so we can prepare lunch. Call 802-388-4969 or email nsevery@uvm.edu to RSVP. Keep a look out for the workshop flyers and we hope to see you there!

Grazing Management Planning Course

March 5, 12, 19, and 26, 2019
Rutland Extension Office, Rutland, Vt.

Develop a grazing plan, learn strategies to maximize pasture yield, improve soil health, and get the most from your pastures. Additional one-on-one time will allow each farmer to develop a personalized grazing plan to fit their needs, including potential NRCS funding opportunities.

Registration and information at blog.uvm.edu/cvcrops/grazing-class or contact Cheryl Cesario, cheryl.cesario@uvm.edu or 802-388-4969 ext. 346.

Vermont Dairy Grazing Apprenticeship Program

In fall 2018, UVM Extension and the Center for Sustainable Agriculture hired Mary Ellen Franklin to oversee this new program, which offers individuals with a high school degree (or equivalent) the opportunity to embark on a two-year apprenticeship with a local dairy farm to learn about grazing management through hands-on learning. For more information about this program visit go.uvm.edu/dairy-apprentice.

Organic Bedded Pack Resources and Research

The Center for Sustainable Agriculture has developed a comprehensive website (go.uvm.edu/beddedpack) with in-depth information on bedded pack, including spreadsheet calculations and presentation resources. Mastitis is one of the costliest health issues for dairy cows, and a team of UVM researchers is working to address it by exploring the risks and benefits of common bedding strategies used by Vermont organic farmers. The team is requesting that farmers take the very quick survey posted online at go.uvm.edu/nqamj. They are seeking input from all organic dairy farms, regardless of whether or not they have bedded pack. For more information visit go.uvm.edu/beddedpack-research.

IT'S CONFERENCE SEASON AGAIN!

2019 Annual No-Till and Cover Crop Symposium February 28, 2019 DoubleTree by Hilton, Burlington, Vt.

Join both the Champlain Valley Crop, Soil and Pasture AND Northwest Crops and Soils Teams for our annual discussion on no-till and cover crop progress.

From dry to wet conditions, come discuss with local farmers how adopting cover crops and no-till is helping them save fuel and money, and improving crop yield. Talk with ag dealers, learn about funding programs, get updated on the latest research and approaches across the country, and help lead the soil health movement. Whether you are just learning about soil health farming, or you've been using no-till for years, there is something for you to learn and share. We know that soil health practices are a system – it's not simply ditching the plow that is important. Take your system to the next level.

More information and registration at go.uvm.edu/ntcc. The sponsor deadline is February 14, 2019; see the website for an application, or call our office (802-388-4969) and speak with Karen Gallott.

Upcoming Conferences Hosted by the Northwest Crops and Soils Team:

Vermont Organic Dairy Conference -- March 14, 2019

Vermont Grain Growers Conference -- March 28, 2019

For information on these conferences, as well as hops and hemp conferences, visit go.uvm.edu/nwcropssoil.

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

NEW REVENUE PROTECTION FOR DAIRY PRODUCERS

By Jake Jacobs, UVM Crop Insurance Education Coordinator



The Risk Management Agency’s new Dairy Revenue Protection (Dairy-RP) is designed to insure against unexpected declines in the quarterly revenue from milk sales relative to a guaranteed coverage level. The expected revenue is based on futures prices for milk and dairy commodities and the amount of covered milk production elected by the dairy producer. The covered milk production is indexed to the state or region where the dairy producer is located. There are two pricing options:

- Class Price – the Classified Milk Price uses a combination of Class III and Class IV milk prices as a basis for determining coverage and indemnities
- Component – this uses a combination of butterfat, protein and other milk solids values; you may select the butterfat test percentage and protein test percentage to establish your insured milk price.

The dairy producer must make five decisions:

- Value of milk protected
- Amount of milk to cover
- Level of coverage (70, 75, 80, 85, 90 or 95 percent)
- Which quarterly contracts s/he wishes to purchase (prices are discovered in each of the quarterly contracts)
- Protection Factor – between 1.0 and 1.5 in .05 increments (the selection impacts both premium and indemnity proportionately; may choose a different factor for each type and practice indicated on the quarterly endorsement)

Dairy Revenue Protection Compared with Other Options				
	WFRP	LGM	MPP-Dairy	Dairy-RP
Commodity revenue protection	Yes	No	No	Yes
Margin protection	No	Yes	Yes	No
Works with other feed insurance (e.g., corn, etc.)	Yes	No	N/A	Yes
Regional	N/A	No	No	Yes
Coverage election	Yes	Yes	Yes	Yes
Customizable (components/classes, etc.)	No	Low	No	Yes, High
Via FCIC	Yes	Yes	No	Yes
Price triggers market-based	N/A	Yes	No	Yes
Covers yield/production risk	N/A	No	No	Yes
Basis risk	Low	High	High	Low
Reporting requirements	High	Low	Low	Low
Directly insure milk commodity or indirectly via insuring cash flows from live animal	Indirect	Indirect	Indirect	Direct
Market-based pricing	No	No	No	Yes

This program became available starting October 9, 2018. For more information, contact Jake Jacobs at jake.jacobs@uvm.edu or 802-656-7356 (message phone line), or your crop insurance agent.



EAST CREEK AND MCKENZIE BROOK HIGHLIGHT 2018

By Kristin Williams, Agronomy Outreach Professional

This project focuses on two priority watersheds, McKenzie Brook and East Creek, and the latter is where the Conservation Farmer of the Year* is located. Merritt, Rachel and Jonas have been busy collecting data on farm fields in these watersheds. They began by categorizing agricultural fields by crop, type of corn or hay, and determining whether farmers were using no-till or conservation-till on their fields. They have done their best to accurately reflect what occurs on the landscape and account for all the known farmland, though actual values may vary a little. This information was entered into mapping software so we could determine the percentage of fields under a given practice.

The next step will be to add all of the cover crop acreage to this map, so stay tuned! With Kirsten's help, they have also been certifying practices, including cover crops, to help farmers with the Natural Resource Conservation Service (NRCS) process. This is a continuation of work we were doing in McKenzie Brook under a grant funded by

NRCS. This year, East Creek was added to our focus, and we will continue assisting farmers with conservation efforts in 2019. Although this is the last year for priority funding for McKenzie Brook, East Creek is just getting started.

We have demonstration trials in these watersheds and other grant projects which have overlapped spatially. We've also just wrapped up a two-year project with the Vt. Department of Environmental Conservation (DEC) looking at rainfall, water quality and water flow in McKenzie and the nearby area. We hope to have data on that project this spring or summer, as our partners are currently sifting through a tall dataset. We have had multiple field demonstrations in and near the watersheds looking at soil health amendments, and we continue to look at cover crop species in demonstration, both in and out of the watersheds.



MCKENZIE BROOK WATERSHED STATISTICS, 2018

TOTAL FARMLAND:

14,838 ACRES
~70% OF THE WATERSHED

AMOUNT OF CORN LAND IN CONSERVATION TILLAGE OR NO-TILL:

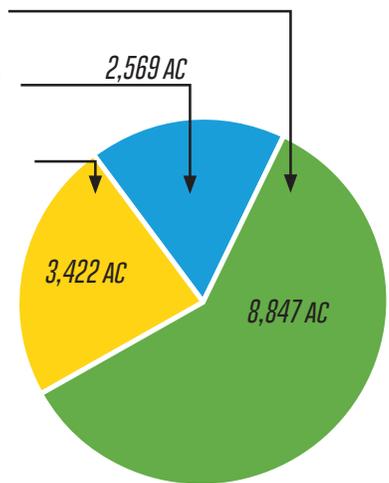
47% (OVER 1,600 ACRES)
26% IN NO-TILL

FARMLAND USE TYPES

60% HAY

17% OTHER

23% CORN



EAST CREEK WATERSHED STATISTICS, 2018



TOTAL FARMLAND:

6,970 ACRES
~34% OF THE WATERSHED

AMOUNT OF CORN LAND IN CONSERVATION TILLAGE OR NO-TILL:

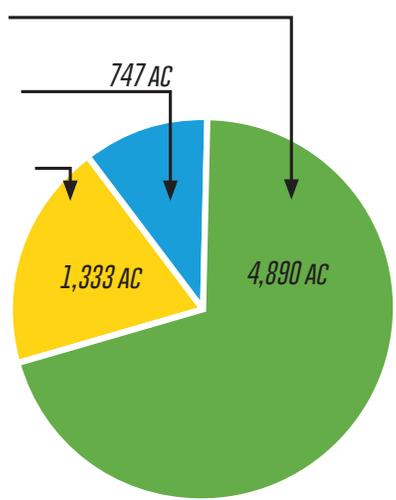
49% (OVER 600 ACRES)
26% IN NO-TILL

FARMLAND USE TYPES

70% HAY

11% OTHER

19% CORN



AC= acres

OTHER: farmland includes farmsteads and other crops.

REDUCING FARM LABOR AND CONSERVING RESOURCES: CONSERVATION FARMER OF THE YEAR USES COVER CROPS AND NO-TILL

Two years ago, Lucas Dairy moved their family farming operation to Orwell, where they currently have 150 milking cows and young stock. Nestled within East Creek Watershed, the farm includes a barn from 1880, testament to the rich farming history of the Champlain Valley. As many farmers in this area will readily admit, farming here is not without its challenges, given the heavy clay soil that predominates the area. As part of an ever-growing number of farmers across the country, and in our valley, Jon has adopted practices to address these challenges in innovative ways which also help his bottom line.

Jon purchased his own no-till corn planter, and planted 300 acres in 2018. He also cover-cropped more than 200 acres. Going no-till was a win-win for him, as it saved on labor and allowed him to complete corn planting himself, while also building soil health. In addition, Jon takes an adaptive approach to farming based on farm and field conditions, and has added sorghum into his rotation as an alternative to corn silage. He hopes to purchase a no-till grain drill in 2019, and has been working with NRCS to make this transition possible. Jon is willing to try something new and knows you won't necessarily get it all right the first time, but he's willing to keep at it.



Before moving to Orwell, Jon's no-till and cover crop practices began 2011 on his previous farm, in Starksboro. He participated in the Farm Agronomics Practices program (FAP) in 2013 and tried no-till alfalfa, working with multiple people in our office. Jon was one of the early farm members of the Champlain Valley Farmer Coalition and most recently participated in the NRCS planning process for East Creek to address water quality issues. Jon is diligent in his approach and willing to engage with the community and service providers to figure out what will work best for his operation.

In his own words:

"If you tried no-till for the first time last year, you were going to have a poor crop whether you implemented no-till or not. You can't walk into it assuming it is pass or fail. There are so many variables that figure into whether a practice will work or not. You have to try it differently, each year. You have to keep adjusting your strategy and talking to other farmers."

Congratulations to Jon, and to his whole family.

Adapted from "Innovative Practices Protect Natural Resources at First-Generation Dairy Farm" (go.uvm.edu/2018-conservation-farmer) and used by permission of USDA-NRCS.

*Conservation Farmer of the Year is a designation from Otter Creek Natural Resources Conservation District, based in Middlebury, Vt.

Jon Lucas (inset photo, on left) receives the 2018 Conservation Farmer of the Year Award from Jonathan Chamberlin, Otter Creek Natural Resources Conservation District Chair. The Lucas Family (below) receives congratulations from Chamberlin during the award presentation.

(Photo: Kirsten Workman, UVM Extension)





GRASSLAND MANURE INJECTION

By Kirsten Workman, Agronomy Outreach Specialist

The first growing season of our grassland manure injection grant is complete! We demonstrated the Veenhuis injector attached to a dragline manure system on eight farms and over 2,000 acres. In addition, we hosted two educational workshops demonstrating the equipment and collected field data, soil tests and forage samples at two farm demonstration sites. As a result, farms reduced phosphorus indexes, retained valuable nitrogen in a dry growing season, and were able to try out innovative equipment. The goal for year one was 1,500 acres, so we were above our target. For 2019, we hope to use the injector on at least 3,000 acres, with a focus on priority watersheds such as East Creek and McKenzie Brook. Contact Kirsten if you'd like to try it on your farm: kirsten.workman@uvm.edu, 802-399-4969 ext. 347.





TEAM GRANTS AND PROJECTS

Real-World Knowledge-Seeking with On-Farm Research and Demonstration Projects

- Soil amendments for Phosphorus Management and Soil Health: 2019 will be the last year of the gypsum grant. We will share our findings next winter, and have extended the reach of the project with additional trials.
- Subwatershed Monitoring in McKenzie Brook: We wrapped up water sampling this year on this two-year project and data analysis by our partners will be coming in 2019.
- Economic Analysis of Cover Crop and Reduced Tillage Systems: Building on past work and looking at cover crops species and soil health systems, we are developing a financial cost-benefit of these systems. This work will be ongoing in 2019.
- Adapting corn silage systems to accommodate interseeded cover crops
- Phosphorus (P) Indexes and Mass Balance: We're continuing to assist in projects related to whole farm P analysis (everything that comes onto a farm vs. everything that leaves a farm), and a comparison of Vermont P-Index with other similar indices to evaluate BMP implementation.
- Subsurface Tile Drainage Sampling: This is part of a larger Vermont project to develop a solid understanding of nutrient concentrations in tile water and will extend into 2019.
- Haybuster No-Till Grain Drill and Cover Crop Trials: 2018 was the seventh year there were two drills available. Farmers used them on over 9,000 acres. We continue to use them ourselves to demonstrate cover crop plantings, including evaluation of different species and mixes.
- Manure Injection on Hay Ground (see page 6)

Immersive Learning with Educational Conferences, Workshops, Classes

Multiple grant projects support our educational events including ACAP and Clean Water Fund grants work. Annual events include the No-Till and Cover Crop Symposium, nutrient management planning (NMP) classes, grazing planning classes, soil health workshops, and RAP and BMP workshops. In 2019, we are teaming up with the CVFC to offer a monthly crop patrol series.

Farmer Engaged Outreach with On-Farm and Community Based Events

A number of grant projects which support outreach include ACAP, Clean Water Fund, Risk Management Agency (RMA), and McKenzie Brook and East Creek. We provide one-on-one technical assistance to help farmers make agronomy-based decisions. We continue to provide community outreach by tabling each year at Addison County Field Days and the Vermont Farm Show. We distribute regular e-mail updates and blog posts about news and events, coordinate and support the CVFC, and of course send out this quarterly newsletter. We also provide support for local bus tours and other community events like Breakfast on the Farm.

THE DUAL CORE MISSIONS OF OUR TEAM ARE AGRONOMY AND CONSERVATION

We believe that Extension is much more than science, but science is still central to our mission. Our aim is to provide a balance of research and on-farm demonstration, with educational opportunities and one-on-one assistance. We know that farmers believe research and trials that are conducted in actual fields under real farm conditions. It is our belief that the Champlain Valley can become a showcase for Vermont and the Northeast, and hope that we can rise to the challenges put forth by Lake Champlain water quality, market forces and climate change. We know farmers currently face many stressors, that they are resilient and innovative, and that our communities DO want a thriving agricultural community. We recognize that progress is a slow process, and farmers need the continued support of the community to stay in business and to evolve.

We want you to help us get better. Please let us know what we are getting right, and how we can improve. Do you have ideas for future projects? We'd love to hear your feedback!

How do we keep it all going?

Currently, we are fortunate to have 15 ongoing grant projects which enable us to keep supporting Vermont agriculture. We couldn't do this work without the financial contributions from our funders. Farmers reinforce our continued use of the no-till drills with their donations. We invite the community at large to consider supporting our organization for a thriving agricultural community.

If you would like to make a donation to support this publication and our research go to:

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