UVM EXTENSION
CENTER FOR SUSTAINABLE AGRICULTURE

Annual Report for Fiscal Year 2016

UVM Extension Center for Sustainable Agriculture Staff

Linda Berlin, Director
(802) 656-0669, linda.berlin@uvm.edu

Juan Alvez, Pasture Program Technical Coordinator
(802)656-6116, jalvez@uvm.edu

Jennifer Brown, Budget Manager
(802) 656-3437,
jennifer.brown@uvm.edu

Jennifer Colby, Pasture Program Coordinator
(802) 656-0858, jcolby@uvm.edu

Joshua Faulkner,
Farming & Climate Change Coordinator
(802)656-3495,
Joshua.faulkner@uvm.edu

Michelle Graziosi
ECO Americorps (through August 2016)

Kimberly Hagen, Grazing Specialist
(802) 656-3834,
kimberly.hagen@uvm.edu

Cheryl Herrick,
Outreach Support & Communications
(802) 656-5459, cheryl.herrick@uvm.edu

Suzy Hodgson, Special Projects
(802)656-4457, suzy.hodgson@uvm.edu

Liz Kenton, Youth Ag IDA Program Coordinator
(802) 656-9139, ekenton@uvm.edu

Ginger Nickerson,
GAPs & Produce Safety Coordinator
(through October 2016)

Ben Waterman, Land Access, New Farmer & New American Farmer Coordinator
(802) 656-9142,
ben.waterman@uvm.edu

From the Director

Farming and food are so central to our lives that it seems they should be simple. But as soon as we start to ask even the most basic questions about where our food comes from, why we eat the foods we do, and what the environmental and social implications of food production are, a rich and complex picture emerges.

That complexity is where the UVM Extension Center for Sustainable Agriculture comes in. For over 20 years, thanks to support within UVM, through Extension funding, and with the generosity of endowed gifts, foundations, business sponsors, and individuals, we have been here to delve into deep questions about linkages between different elements of Vermont's food and farm sector.

The questions we research, and the practices we support, are those that get at how and why critical parts of our regional food system are and aren't working - and many times these important questions resonate throughout the region, the nation and international communities as well.

We start with the understanding that every element of food and farming is part of a whole system of interactions, relationships and values. We conduct research and engage in outreach, and ground our work in the natural and social sciences. Our intent is to help protect our region's soil and water, support producer livelihood, and work in collaboration with farmers and those who support them. We believe that all should have access to good, healthy food.

Please join us on these pages for a look into these questions that represent our work in the 2015-2016 fiscal year, and our engagement in and exploration of the links between our natural, built, human and policy environments. We thank you for your support, your partnership, and your shared passion for a for a food system that's vibrant, healthy and just.

And, as always, let us know what you think!

Cover image: A picture of the Long Island Sound in September 2011, after Tropical Storm Irene's floods washed large tracts of New England farmland down the Connecticut River. See information at right about how we're working with farmers to protect thise region's critical farmland and water resources. .Credit: NASA

Water Quality in the Connecticut River Watershed & Long Island Sound

Agricultural runoff along the Connecticut River is impacting water quality in the Long Island Sound estuary. Drinking water, ocean life and economic viability of this high-population area are all affected. The Connecticut River that runs along Vermont's entire eastern border is the source for many of the contaminants, and has tremendous potential to improve. Luckily, improving water quality often goes hand in hand with improved economic viability and soil health for northern New England farmers.

Our approach

The Center's Pasture Program and other UVM Extension personnel are part of the project team focusing on private working lands to manage soil nutrient loss, protect forest habitat, biodiversity, and drinking water sources, reduce erosion, and - through these efforts - to improve resiliency on working lands in Vermont and New Hampshire.

The Center's strategy is to connect with individual farmers within the Connecticut River watershed to help them address the issues they've identified on their farms. The obvious issue and the underlying problems don't always seem connected. But the same solutions can fix both, Jenn says. "Often, the first time we hear from a farmer it's because their bottom line is being affected negatively by something. But the root cause is often in the soil, so **when we can help balance the soil chemically or add organic matter to improve its health, we help the farm be more productive**, make more money on the same acreage, catch more water, and hold more nutrients."

The team visits a grass-based farm in the Connecticut River Valley. Credit: Jenn Colby

Can we impact a whole watershed's water quality by addressing the production and financial needs of individual farmers?

Addressing Compaction

Compacted soils often result in poor drainage, increased runoff, reduced soil aeration, and decreased root penetration and subsequent plant-access to available soil moisture. These affect plant health and ultimately decrease a farm's profitability and often result in poor drainage, increased runoff, reduced soil aeration, decreased root penetration and access to available soil moisture. The compaction problem is common on many farms— especially in cool, humid regions of the country with a short growing season, like here in Vermont.

Our approach

We are working side by side with farmers as they learn about their own soils through user-friendly and inexpensive monitoring tools. At the same time, our team is measuring what's happening in the soil under different management strategies including keyline plowing, cover cropping, and tillage radish. By combining the data that farmers receive with the metrics that our research yields, farmers can decide about which practices can help remediate and prevent compaction by improving overall soil health. Over time, this project will empower farmers to most effectively address soil health, structure, available water capacity and ability to transmit water. And **with that knowledge, farmers can choose the right interventions for their particular situation while protecting natural resources and their farm's bottom line.**

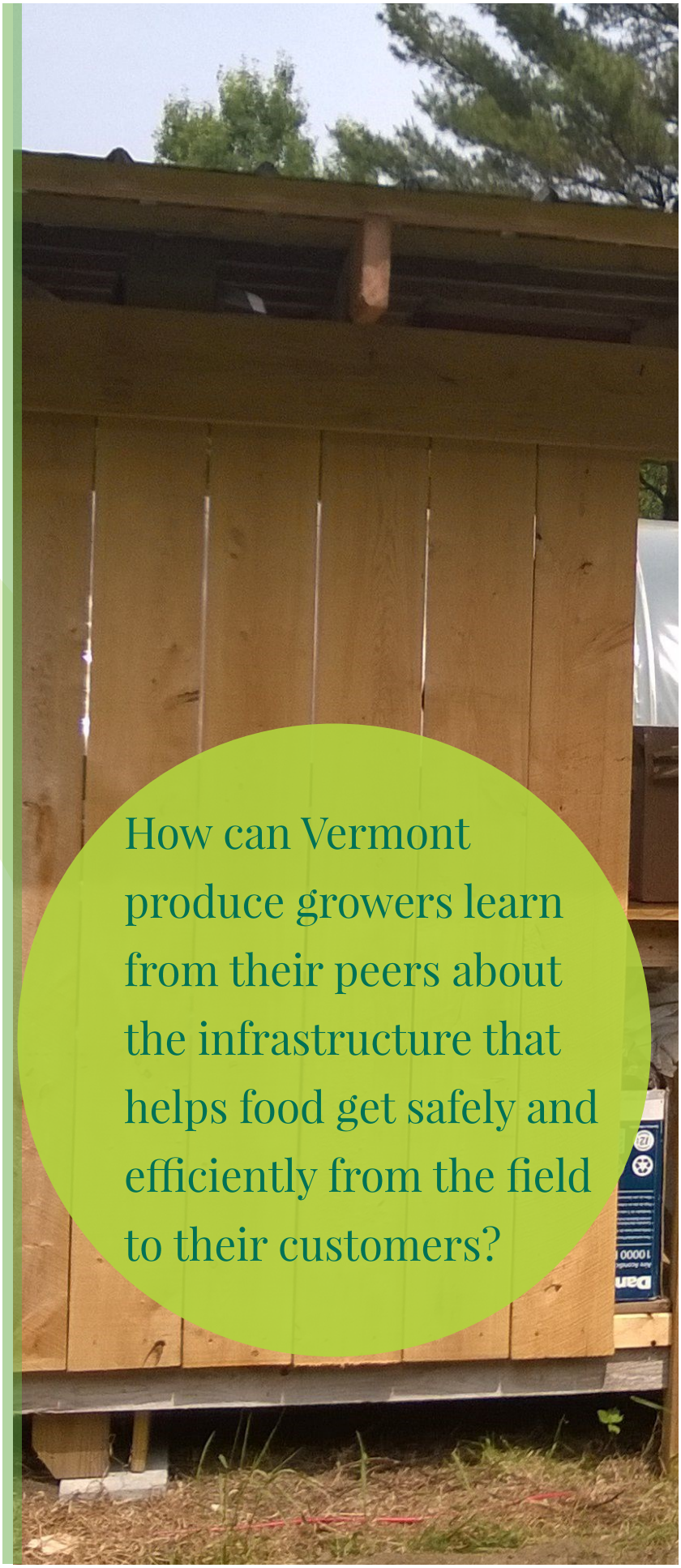
Pasture Technical Coordinator Juan Alvez shows a group of international visitors farm soil. Credit: Jennifer Brown

Pack Shed Videos

Every fruit or vegetable farmer seeks to provide produce that is delicious, safe and lasts as long as possible. *How* the harvest gets from the field to the customer is a critical part in assuring that that happens. That's why the design and function of the washing and packing areas on the farm have an enormous impact on food safety and on a farm's profitability, A well-designed, brightly lit, well-ventilated and easy to clean area is one that will be safer for farm employees, improve produce safety and extend product shelf life.

Our approach

Produce Safety Coordinator Ginger Nickerson was frequently providing assistance in designing, updating and using pack sheds. So many that she realized that we needed to have some helpful content on the web that would show growers how other similar operations had addressed their needs. Thanks to funding from the Working Lands Enterprise Board, Ginger was able to create a short document and a series of videos addressing the most common challenges and situations that growers face. These videos, made with farmers operating at small and at large scales, with and without livestock, and with different levels of financial resources available all in mind, now live on the Center's public YouTube page, where they've been watched many hundreds of times. **Now Vermont farmers have another resource for relevant information that's easily accessed by anyone with Internet, whenever they might consider new approaches.**



A pack shed on a vegetable farm featured in the project Credit: Ginger Nickerson

Access to Support & Funding for New American Farmers

When farmers in the US need help, they usually know that there are university Extension and federal US Department of Agriculture (USDA) programs available to help them. But for new Americans, these resources may not be on their radar at all. And – especially when combined with the reality of learning a new language and a new culture – that can mean missing out on access to critically important tools for a successful, sustainable farm business.

Our approach

Thanks to funding from the USDA Outreach and Assistance for Socially Disadvantaged and Veteran Farmers and Ranchers program, Ben Waterman, coordinator of the New American Farmer Project, was able to put together a team to address the need of access to services for new American farmers. They have just released a series of videos in different languages to give new American farmers an introduction to USDA Farm Service Agency and Natural Resources Conservation Service., Cooperative Extension services, and approaches to local marketing.

Ben says, "We approached this very differently than other outreach projects … We couldn't just create the usual print or web-based informational resources and expect to be successful in reaching people… **What works is fostering equitable access, in this case meaning that we seek to provide educational resources in different languages, to think differently about how service providers can invest their time and their skills, and recognize that it is not always that our service-users need to adapt to us** - but that we can adapt to meet the needs of the people we serve. We find ourselves not just being educators but also all-around facilitators, cultural liaisons and trusted friends, and that can make a world of difference."

Janine is a farmer specializing in African eggplants who has accessed USDA and Extension services. Credit: Jennifer Brown

Understanding Food Security among Resettled Refugees

Center Director Linda Berlin, whose research focuses on food access, found herself suspecting that US researchers were not getting an accurate picture of the food security status of recent arrivals in America. Now she and a team of UVM students from the Food Systems graduate program and the Masters of Science in Dietetics program are testing a new model, based on the idea that people from different cultures, and with widely different life experiences, might define food security very differently.

Our approach

Part of the work involves delving into the complexity of how people make food choices. For instance: what happens when people who are still learning English have to read labels? What is it like when the things that were very expensive at home (like canned items) are cheap here in the US, but items that were affordable at home (like vegetables) are prohibitively expensive here? How does having a newly arrived child eating food at school affect family preferences and choices?

Dr. Berlin says, "The right tool for measuring matters not just because of any humanitarian obligation, and not only because we think it is the right thing for us to address hunger among our newer neighbors, but there's a very practical outcome. **With better information we can make sure that we're delivering the right programs, in the ways they're actually needed. This will both help us be more effective in addressing hunger and food insecurity, and more cost-effective in the funding we devote to the effort."**

Do people from other cultures think about access to food the same way the USDA does?

Linda Berlin with Food Systems graduate and Masters of Science in Dietetics programs. Credit: Jennifer Brown

Climate Change Adaptation

In the spring of 2015, the Center embarked on a partnership with the USDA Northeast Climate Hub to engage, learn from and share information with organic farmers within the region by creating the Farming & Climate Change Adaptation blog. The Climate Hub, which is composed of a variety of government agencies and the land grant universities in the region, works '…to develop and deliver the science-based, region-specific information and technologies that farmers, foresters and land managers need now to better respond to and adapt to increasingly unpredictable weather and climate.'

Our approach

As part of Extension—and with working relationships with many organic farmers—we felt especially well-positioned to connect and to share. We know that farmers are frequently the first and best observers of climate's effects—and highly motivated to find practical ways to adapt to them.

The Center's Joshua Faulkner, Suzy Hodgson, and Kimberly Hagen worked together on the Farming & Climate Change Adaptation blog, highlighting strategies that regional farmers are using as they confront extreme weather events, and also adapt to "the new normal" of changing trends. The blog reveals how northeastern farmers are coping with a changing climate - whether by moving out of flood plains, changing the crops they're growing, improving soil structure, or moving their pastured animals differently. **As always, our particular interest is in finding the strategies that help farmers maintain or build financial profitability while acting as careful stewards of soil and water resources.** This blog will remain online to support both aims.

Vegetated buffer strips are a low-cost, simple technique for boosting soil health and increasing a farm's resilience to climate change. Credit: Suzy Hodgson

Edge of Field Monitoring

Research shows that agricultural soils are the biggest source of not only carbon, but also nitrous oxide, an even more serious contributor to global climate change. If we want to effectively reduce emissions from agricultural soils, we need to understand what happens under the most common agricultural practices.

Our approach

With all of the important attention being paid to water (and pollutants) that run off the surface of farm fields, Farming & Climate Change Coordinator Joshua Faulkner realized that not much was known about what nutrients are entering soils, and what happens next.

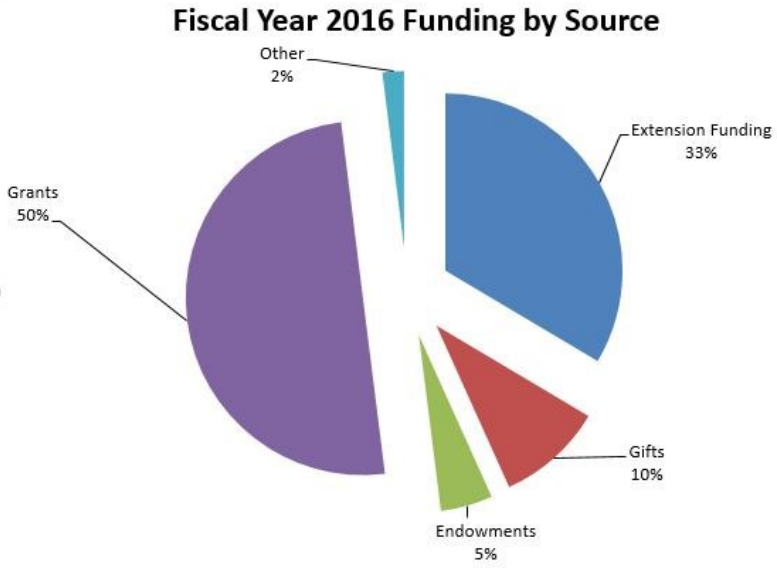
To delve into this, Dr. Faulkner gathered an interdisciplinary team of researchers across UVM, and together they're looking at the most common practices on Vermont dairy farms, comparing how different practices affect the most common types of Vermont farmland. They're measuring how water and phosphorous are penetrating below the root zone of hay, corn, and perennial pasture on dairy farms. **That data will provide important information about what is actually happening in the soil and how that is affected by different farming practices. And that, in turn, is going to help the team understand more about which practices can be used to build soil health and protect water quality**. And, beyond that, also to reduce contributions to climate change and help build resilience to the effects of that change, while protecting farmers' financial sustainability.

A cover crop of buckwheat blossoms in a northern Vermont field. Credit: Jennifer Brown

2016 FUNDING AND EXPENSES

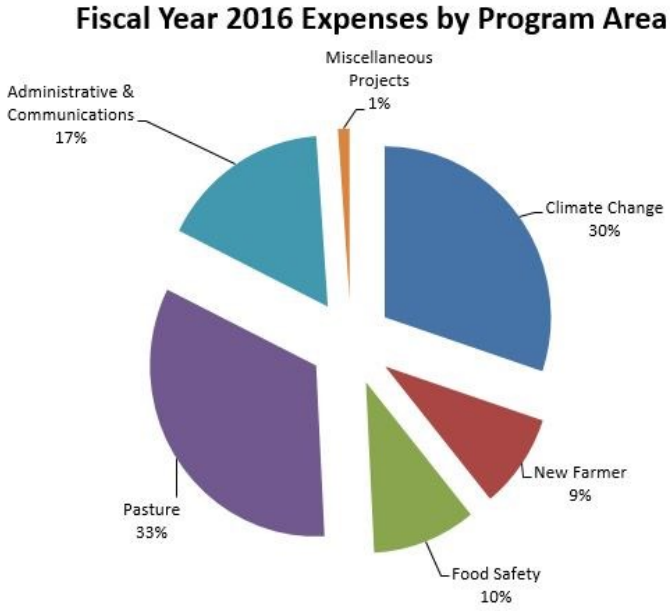
About the Center's Funding

- **Extension Funding** is a combination of federal and state dollars that UVM receives as a Land Grant university.
- **Grants** are from government sources and private foundations.
- **Endowment** income is the interest that is earned from generous donations made to the Center by donors who wanted to ensure that important work can continue in perpetuity.
- **Gifts** are donations to the Center's annual fund raising appeals, or those made spontaneously.



Understanding the Center's Expenses

- **Pasture** represents salaries and program costs for the Center's largest program, with three staff who engage in research, outreach, collaboration and technical assistance with farmers around the state.
- **Admin. & Communications** monies support leadership, collaboration, development, grants management, financial oversight, support for program staff, outreach and customer service, and allow us to produce the Center's newsletters, calendars and annual report.



- **Food Safety** allowed the Produce Safety Coordinator to help farmers develop and follow plans for safe handling of their on-farm produce, including important work around FSMA and other new regulations.
- **New Farmer** expenses supported work in the areas of Land Access, Youth Ag. IDA, and New American Farmer projects.
- **Climate Change** expenses represent the research, outreach, publications, collaborations, and technical assistance provided through the Farming & Climate Change program.
- **Miscellaneous Projects** include work on food access, local food, and other projects.

Many thanks to all the partners and supporters represented here.

And here are some of the questions we're working on now, which we look forward to sharing with you in next year's Annual Report.

Visit us online at uvm.edu/sustainableagriculture to learn more.

UVM Center for Sustainable Agriculture
UNIVERSITY OF VERMONT EXTENSION
Cultivating Healthy Communities

The University of Vermont and State Agricultural College
UVM Center for Sustainable Agriculture
23 Mansfield Ave.
Burlington, VT 05401

This is one of our favorite quotes from a partnering farmer in the 2015-2016 fiscal year. **"The Center gives us the confidence to change as we learn and test different practices. In the past 10 years we've transitioned to organic because we needed more stable prices for our milk. But now we've gone way beyond that!"**