March 15, 2019

VERMONT DAIRY and WATER COLLABORATIVE: A CALL TO ACTION

The Vermont Dairy and Water Collaborative sounds the following call to action to Vermont's leaders and influencers. We are 22 Vermonters who came together to try to understand the complexities and inter-relatedness of farm viability and water quality. The quality of our water, the viability of our farms and associated businesses, and the fabric of our rural communities are all at stake. Immediate, incisive, effective, and enduring leadership and action are needed!

BACKGROUND

Vermont faces twin crises: our agricultural sector is at a critical juncture and nutrient pollution is seriously affecting water quality, diminishing our role as a national model for environmental health.

Dairy farming continues to be central to our state's identity and culture and is far and away our leading agricultural activity[1]. Dairy farm practices also contribute to water quality degradation in the state.

Our collective understanding of the importance of phosphorus management has evolved and the dairy community has been addressing and improving management practices, but at the same time, the public's tolerance and understanding of the agriculture sector is waning as their desire for water quality improvement grows. Meanwhile, our lakes suffer from annual algae blooms which have profound impacts on the quality of our water for drinking, recreational, and aesthetic purposes.

Vermont's dairy economy is in trouble due to declining milk prices, increasing costs of production, and an over-arching consumer expectation that food should be cheap. In recent years these factors have been compounded by an increasingly competitive and complex worldwide marketplace for commodity dairy[2] that has caused unsustainable, generally downward price swings. Cash-poor farmers are now required to implement on-farm nutrient management practices that even with public cost-sharing are both costly and resource- and capital-intensive. Farmers often do not have access to a coordinated "suite" of research, equity, and technical assistance that could help ensure both profitability and reduced nutrient loading. The traditional approach of regulatory oversight often focuses on practices instead of outcomes, and regulations are also often viewed with distrust and skepticism by those being regulated. While recent efforts to reduce farm-based phosphorus loss through regulation are showing early signs of

[1] Roughly 80% of Vermont farmland is dairy-based.

[2] By "commodity dairy" we mean the system in which fluid bulk milk is sold into national and international markets. Typically, commodity pricing does not factor in the cost of production, and leaves farmers and farmer cooperatives with little control over the price for their product. As well, it does not trade on the unique characteristics of milk produced by individual farmers, nor on the distinctiveness of Vermont milk in general.

progress, they have not yet yielded the improvement to water quality that many had hoped for. However, there are no quick fixes; long-term, measurable improvement will likely take decades and will require an integrated and comprehensive solutions-based strategy.

An estimated 40% of the phosphorus entering Lake Champlain is from agriculture, and 60% comes from other sources. All Vermonters have a stake in the future of agriculture, water quality, and our rural communities. We must work cooperatively to forge solutions that lead to an economically healthy agricultural sector, including dairy, and lakes, rivers and water sources that are clean, inviting, and pollution-free. An integrated approach to achieving the above objectives must include:

- Environmentally sustainable land management systems that improve and maintain soil health and fertility while decreasing nutrient loading to aquatic ecosystems and creating resilient landscapes that are able to withstand climate disruption,
- Public and private investment in water quality improvements, and
- Broad public support for a viable and vibrant farm sector.

OUR PERSPECTIVE

Because excellent water quality is a critical part of Vermont's quality of life and farming plays a major role in Vermont's economy and a healthy working landscape, linking the two will lead to positive futures for both. Farming is such an important land use activity in Vermont that it makes sense to view farm stewardship practices as a critical pathway to improving water quality. From this perspective, farm viability is essential. Because this area is so multifaceted, coordinated public engagement strategies will be critical, and committed leadership sharing common interests will need to come from a variety of sources, including farmers, other associated businesses, farm cooperatives, government, non-profits, researchers, and higher education.

We understand that change is coming. Two relevant questions are: What kind of change do we want? And, what is our level of involvement and commitment? There are factors beyond our ability as a state to easily affect (such as the dairy pricing system and a national cheap food policy), but we may be able to influence other areas, such as: debt restructuring, new product and market opportunities, research efforts, and incentive programs that will positively affect stewardship practices and water quality outcomes.

Within the context of a national "cheap food" policy, farmers find themselves squeezed by the inability of the commodity marketplace to adequately compensate them for the food they produce. The result is a race to the bottom: a dysfunctional system wherein the public's expectation of cheap food outweighs the farmer's interest in making a living and providing a reasonable standard of living for their family. And although farmers are paid (not enough) for food, they also produce other important public benefits, among them, a variety of "ecosystem services" for which they are rarely compensated. Many of

the current problems dairy farmers face are rooted in the fact that the true costs of production are externalized by market-driven forces of scale and efficiency. Farmers often cannot absorb the costs of environmental remediation without significant public commitment and assistance.

National milk pricing policies have a huge effect on Vermont dairy farms. Milk prices often do not cover the cost of production. This pricing system is driving farmers to either expand to take advantage of economies of scale, or go out of business. The result is farm consolidation and ever-larger ever-more-intensive farms. We are losing the social capital that comes from smaller farms, which diminishes the health of our rural communities. And because farmers are so strapped for cash, it is extremely difficult for them to keep farming, much less invest in water quality improvement efforts.

Regulatory goals are often at odds with the financial capacity of those being regulated. This market and regulatory dichotomy does not serve to support Vermont farms and farmers in the long run. Payment for ecosystem services is an area of rich potential that should be carefully considered. Payments for services support the dual purposes of improving water quality (through the restoration of degraded landscapes) and farm viability.

We also believe that the following concepts can point the way to increased farm viability and improved water quality:

- Policies that reduce a farmer's debt burden and increase profitability will allow for creative approaches to farming
- Aligning market-side and regulation-side approaches will create positive synergies
- Farmers are pragmatic opportunists who will positively respond to economic incentives that promote enhanced water quality,
- Farmers today strive to become good stewards of their resources including land, livestock, and practices.

All Vermonters have a stake in both an economically sustainable agricultural community and excellent water quality. We are at a critical juncture: we should face the future with a common sense of purpose and shared responsibility that reflects our traditional strengths, rather than resorting to blame. The VDWC supports this approach, because it is the "Vermont way" to put our collective shoulders to the wheel and get things done. We do not intend to lead this effort but we do offer the following set of recommendations with the hope that interested stakeholders, policy officials, and leaders will take them up (as appropriate) as part of an integrated, inclusive effort.

OUR PROCESS

In the spring of 2018, a group of Vermonters came together to consider the twin goals of improving Vermont's water quality and enhancing our agricultural future. We called ourselves the Vermont Dairy and Water Collaborative (VDWC). We chose to start with a

fairly small group of 22, with the humble understanding that there are many, many people who will be a critical part of this conversation as it moves forward.[3]

Beginning in May, and for the next four months, we listened and learned from front line experts about the causes, realities, and potential responses to the difficult situation we currently find ourselves in. We heard from a panel of young dairy farmers, learned about the complexity of dairy pricing and economics, got new perspectives on the state of water quality in Vermont, explored new thinking about farmland stewardship, and discussed incentive programs across the country and around the world designed to improve water quality and farm viability through whole-farm nutrient balancing[4].

We discussed what we had learned and crafted a common vision[5]. Next, we formed working groups that focused on articulating approaches to the issues of: Agricultural Economic Viability, Soil Health and Nutrient Management, and Financial Incentives for Water Quality Improvements. Please see the appendices for the reports summarizing the work of each of these groups.

RECOMMENDATIONS[6]

These recommendations integrate the various elements of the water quality and farm viability issues in a way that can provide benefits for both. While the implementation of any single recommendation will have a positive result, ***a deliberate, comprehensive, systems approach that incorporates most or all of these elements is needed to ensure long-term success in improving water quality and increasing the viability of Vermont farms.***

1. Build public support, leadership and cross-sector coalitions. We must Increase public understanding of how important clean water and a viable agricultural community are to us all, and identify citizen leaders, change agents, and diverse coalitions as essential first steps.

2. Use Tactical Basin Plans[7] to prioritize water quality investments.

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[3] Other important conversations are underway. For example, see "A 2018 Exploration of the Future of Vermont Agriculture," October 2018 prepared by Chuck Ross, Vern Grubinger, and Alison Nihart (UVM Extension); Ela Chapin, Nancy Everhart, and Liz Gleason (VHCB); Nick Richardson (VLT); Paul Costello (VCRD); Ellen Kahler (VSJF); and Andrea Asch.

[4] Please see the appendices for more information about our learning sessions.

[5] Our vision statement is included in the appendices.

[6] For more detailed discussion of these recommendations, please see "Recommendations: A Detailed Description," attached.

[7] "Tactical Basin Planning" is conducted iteratively by the Vermont Department of Environmental Conservation to identify the projects or actions needed to protect or restore specific waters and identify appropriate funding sources to complete the work, based on monitoring and assessment data. Tactical Basin Plans integrate priority items from complementary plans, including River Corridor Plans, Stormwater Master Plans, Backroads Inventories, and Agricultural Environmental Assessments.

3. Provide farmers with enhanced, coordinated technical assistance and investments in water quality and nutrient management improvement.

4. Compensate farmers for enacting best practices for nutrient management (short-term).

5. Restructure Vermont's regulatory framework to achieve watershed nutrient balance and meet water quality goals. Focus on outcomes rather than on mandates that require specific practices.

6. Compensate farmers for the water quality improvement and other ecosystem services they provide (long-term).

7. Institute a transition program for land with high water quality impacts.

8. Develop institutional capacity and invest in transitioning to a thriving, diverse and sustainable farm economy that is less dependent on commodity dairy.

CONCLUSION

We came together in order to shine a light on the economic crisis in Vermont agriculture and especially its dairy sector, the unacceptability of continued degradation of some of Vermont's major bodies of water, and to seek common ground. The health of Vermont farming and the quality of our waters are inextricably linked, and the value of this linkage will become evident as efforts to mitigate extreme weather events through better land stewardship practices begin to bear fruit.

We can effect real change by using a solutions-based approach to complex systems that draws on the perspectives and involvement of economic, environmental, community, and regulatory stakeholders.

Farming can help us adapt to this change through improvements to soil health, water-retention capacity and flood control, and through carbon sequestration. Our recommended actions (below) can begin to move the needle in a positive direction. Given the magnitude of the challenges Vermont faces, we must act; doing nothing is an unacceptable option. Let's demonstrate what is possible when we work together for the common good and restore a sense of "Vermont Proud."

Recommendations: A Detailed Description

1. Build Public Support, Leadership and Cross-Sector Coalitions

We Vermonters need to understand that the health of agriculture and the health of Vermont's waters are inextricably linked and that both are essential to our quality of life. We need to better understand that our tourism, recreation, food, and even tech economies rely on functioning communities, open space and a healthy natural environment. Public understanding and support are critical to effectuating change.

We all must be part of the solution. We need a stakeholder process that invites, encourages, and supports involvement from all sectors and perspectives of these twin issues.

Coalitions that include farmers, conservationists, environmentalists, residents, policy officials, and ag development and business leaders must all take an active role in developing solutions. Leadership at many levels and from a variety of sectors is sorely needed to foster these coalitions and ensure that all sectors are well represented.

2. Use Tactical Basin Plans to Prioritize Water Quality Investments

Concentrate public investment and other water quality improvement efforts on farms located within the watersheds of impaired sub-basins as identified in Vermont's Tactical Basin Plans. Investment should be prioritized based on water quality impact, farm and watershed nutrient balances, urgency, cost-effectiveness, durability, etc.

3. Provide Farmers with Enhanced, Coordinated Technical Assistance and Investments in Water Quality and Nutrient Management Improvement

Vermont has a number of programs that offer farmers excellent, but limited, technical services to improve water quality. The effectiveness of these programs can be significantly increased through a coordinated approach that acknowledges that farmers cannot adopt management practices that improve water quality unless the farms themselves are economically viable. Our water quality and the health or our farms are inextricably linked. We see two options for enhancing these services; both are dependent on close coordination and collaboration with all the entities that currently provide services to farmers, including farmer-led watershed improvement groups, Natural Resource Conservation Districts (NRCD's), The Natural Resources Conservation Service (NRCS), UVM Extension, the Vermont Agency of Agriculture, and the Vermont Department of Environmental Conservation.

Preferred Option: A strong majority of our group endorses the idea of creating and supporting a stand-alone entity (such as a utility) dedicated to the future of environmentally sustainable agriculture. To be most effective, this entity should be independent of regulatory and compliance programs. Like Efficiency Vermont and

the Vermont Farm and Forest Viability Program, the utility would include practices and policies that flow from a clearly articulated mission, and that are administratively separate from, but aligned with regulatory goals. It would have a service relationship to farmers and the general public and would have a dedicated funding source. The work of the utility would be rigorously and publicly reported. Formal accountability would be provided by a multi-constituency governing board and legislative reporting and accountability.[8]

Alternative: If our preferred option is not feasible and if a coordinated, farmer-focused, efficient and non-regulatory service delivery can be assured, an alternative approach is to significantly expand and better coordinate existing programs in a manner that respects and is in service to farmers. A key issue is the current lack of clear responsibility for coordinating the programs, incentives, regulations, etc. For this alternative approach to be effective, strong coordinating responsibility must be established and articulated broadly.

4. Compensate Farmers for Enacting Best Practices for Nutrient Management (Short-Term)

Many Vermont farms face dire financial conditions, with little reason for optimism that the near-term situation will improve. Funds are sorely needed to help farms make investments that will support Nutrient Management Best Practices. These "transition payments," when tied to specific practices, would accomplish four things: 1) They would support farms during a transition period while the longer-term solutions proposed above are being developed, 2) give an economic shot in the arm for farms that are willing to play a role in Vermont's environmental and economic future, 3) signal a shift toward public acknowledgement for some of the uncompensated benefits that farmers currently provide, and 4) provide the agricultural community with an opportunity to demonstrate and for the public to learn about positive environmental benefits. It is reasonable for the public to expect that in order for a farmer to receive a payment, they must demonstrate a commitment to comply with specified actions that are compatible with Recommendations 3, 5, & 6.

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[8] Key functions of the utility might include:

- Technical assistance for farm-specific stewardship practices and whole farm nutrient management planning and budgeting
- Technical and financial support for the design and implementation of improvements and infrastructure – livestock management, watering systems, surface and tile drainage remediation, manure management, etc.
- Assistance in managing a statewide farmland transition system (see below)
- Overseeing a state ecosystem services payment or nutrient trading system
- Coordinating capital investments: Beyond dedicated state funding, the entity would leverage private and foundation capital, and coordinate other public funding (including the NRCS-funded Lake Champlain Regional Conservation Partnership, VHCB, Vermont Clean Water Fund, FSA programs such as EQIP and WRE, and VEDA/VACC)

5. Restructure Regulations

Vermont should develop and implement a results-oriented regulatory system that uses measurable water quality outcomes to achieve the degree of farm and watershed nutrient balance required to meet water quality goals. The current regulatory system mandates practices that may not achieve the water quality improvement we need, and mandating specific practices often stifles innovation.

The method for measuring results needs to be carefully considered and requires further work. On-the-ground monitoring is prohibitively expensive, and models are limited by their base assumptions. We suggest a balance of monitoring and modeling, similar to what is being done in New Zealand.[9]

We also suggest adopting a system similar to that used in the Netherlands that assures meeting targets for whole farm nutrient balances by establishing a phosphorus and nitrogen accounting system for farms. Such a system would require that phosphorus and nitrogen inputs and outputs be in balance (as measured at the farm gate) to the degree required to meet water quality goals over a specified time period, with an allowance for temporary fluctuations.

The Dutch system requires farms to use certified procedures to account for all nutrient inputs (animal manure, compost and sludge, fertilizers, animal feed, and animals) and all outputs (animal products including sold animals, animal manure, and sold crops at farm level). The required farm nutrient balance plans serve both as a land management tool and a regulatory tool. The Dutch program of technical assistance and farmer-to-farmer coaching helped many farmers achieved a 50% reduction in excess phosphorus within the first two years.

Vermont should consider implementing such a system. Doing so would require building on our current ability to measure suitable outcomes. Please see the Soils and Nutrient Work Group Report for further discussion.

6. Compensate Farmers for the Water Quality Improvement and Other Ecosystem Services They Provide (Long-Term)

Farmers can and regularly do provide a wide range of public benefits including:

- nutrient and water cycling,
- soil structure, formation and fertility,
- storm water attenuation and flood mitigation.
- carbon sequestration and climate regulation,
- pest control and pollination services,

[9] The FARM-PREP modeling framework in development under a grant from the Lake Champlain Basin Program is a promising farm-scale model that should be applicable to nearly all Vermont farms.

- wildlife habitats and biodiversity conservation,
- recreation, tourism, scenic beauty and open space, and
- production of food, fiber and fuel.

We recommend carefully considering and, if feasible, implementing a payment system to compensate farmers for the public benefits they provide. The first three "ecosystem services" listed above should be of primary focus initially, because they represent the strongest links between farms and water quality. Such payments would reward farmers for increasing the supply of these services, and therefore would present opportunities to broaden their businesses and diversify their incomes. As such, it is a mechanism to align the interests of farmers with water quality. Farm eligibility could be based on Tactical Basin Plan criteria and would give priority to farms within impaired watersheds.

Significant research, scenario testing, data measurement and analysis, financing, and program design will be required before a "payment for ecosystem services" (PES) system can be implemented. Additional work is needed to establish measurable goals and quantify the value of these services, and to consider whether compensation for ecosystem services might be offered to forest owners as well as farmers. Please see Compensation Models and Soils and Nutrient Work Group Reports for further discussion.

7. Institute a Transition Program for Land with High Water Quality Impacts

Vermont should consider a voluntary farmland transition program similar to that used in the Lake Taupo, New Zealand watershed[10] that brought the public and the farm community together to address nutrient pollution problems

Not all land used for agriculture is created equal when it comes to its potential impact on water quality. We now have the technology to assess a given parcel's impact on water quality and its suitability for various farm practices. For some farm parcels with high water quality impacts, a shift in management practices will likely result in significant improvements in water quality. For other parcels, permanent protection is needed to ensure that riparian and wetland buffers are maintained. In some extreme cases whole farms should be taken out of production because they have high phosphorus and nitrogen impacts and water quality goals can't be met by changing management practices.

[10] Lake Taupo is about one-half the size of Lake Champlain, its shore length is one-fifth as long, and there are 100 farms in the watershed. The Lake Taupo program invested capital to reduce nitrogen in the watershed. Buy-outs were based on basin-wide priorities. The Lake Taupo Trust purchased land and took it out of production, instituted a nitrogen cap and trade program for the watershed, and purchased nitrogen permits requiring less-intensive farm production. The total investment was $81.5 M in national, regional and local funding over 15 years.

We propose building upon the existing work of VAAFM/VANR, VHCB, conservation organizations like the Vermont Land Trust, NRCS, VACD, and others, with much-enhanced coordination and financing.

8. Develop Institutional Capacity and Invest in Transitioning to a Thriving, Diverse and Sustainable Farm Economy that is Less Dependent on Commodity Dairy

The state must support Vermont agriculture as farmers transition to new markets and new products that reflect good land stewardship and sustainable production practices. We suggest a comprehensive and independent assessment of the needs and values of consumers in nearby markets for new value-added Vermont dairy products, and an assessment of the value of the Vermont Brand.

Vermont must commit significant resources to:

- support farm diversification,
- develop and market value-added products,
- help build associated infrastructure,
- assist in developing and marketing value-added products, and
- foster and promote the distinctiveness and value of the "Vermont brand,"[11] and
- establish a "clearing house" of information for regulatory requirements, funding opportunities, support providers, etc.

One model to consider is the creation of a Vermont version of the Southern Maryland Agricultural Development Commission, http://www.smadc.com/

[11] We cannot assume that "Vermont distinctiveness" improves the pricing or marketability of milk or other commodity products. This distinctiveness could be expanded and enhanced if measurable attributes such as product quality, environmental stewardship and farm worker fairness were assured. Independent, market-based research is required before advancing these ideas. Further, Vermont might do well to collaborate with New England producers in developing strategies around regional distinctiveness.

VERMONT DAIRY & WATER COLLABORATIVE MEMBERS

Farmers:

Mark Magnan - Magnan Brothers Farm, a dairy in East Fairfield.
Bob Foster – Foster Brothers Farm, a diversified dairy in Middlebury
Jack Lazor – Butterworks Farm, an organic dairy in Westfield
Becky Maden – Singing Cedars Farm, a diversified, organic farm in Orwell.
Brian Kemp – President of the Champlain Valley Farmers Coalition, and manager of Mountain Meadows Farm, a large organic beef operation in Orwell.

Dairy Processing and Distribution:

Cheryl Pinto – Global Values Led Sourcing Manager for Ben & Jerry's

Research and Education:

Heather Darby – UVM Extension Agronomic and Soils Specialist, and a farmer.
Eric Roy – UVM Rubenstein School professor focused on ecological design in the contexts of water quality, waste management, and food systems.
Taylor Ricketts, Director of UVM's Gund Institute
David Mears – Executive Director of Audubon Vermont and Vice President of the National Audubon Society

Lake Stewardship & Science Education:

Phelan Fretz - Executive Director, ECHO Lake Aquarium and Science Center at the Leahy Center for Lake Champlain

Farm Lending, Finance & Technical Assistance and Private and Philanthropic Capital

Tom Bellavance – Principal, Ag Venture Financial Services, and a farmer
Ela Chapin – Director of VHCB's Vermont Farm & Forest Viability Program
Peter Stein – Managing Director, Lyme Timber Company
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State Agency Experts:

John Roberts – VT Agency of Agriculture, Small Farm Water Quality Specialist and former organic dairy farmer
Neil Kamman – VT Department of Environmental Conservation, Senior Policy Advisor

Organizers & Facilitators:

Roger Allbee – Former Vermont Agency of Agriculture Secretary
Will Raap – Founder, Gardener's Supply
Gil Livingston – Former President, Vermont Land Trust
Will Stevens – Golden Russett Farm, organic fruit and vegetable farm in Shoreham,VCF board member, and former Independent legislator
Cindy Cook – Adamant Accord, environmental and policy facilitator