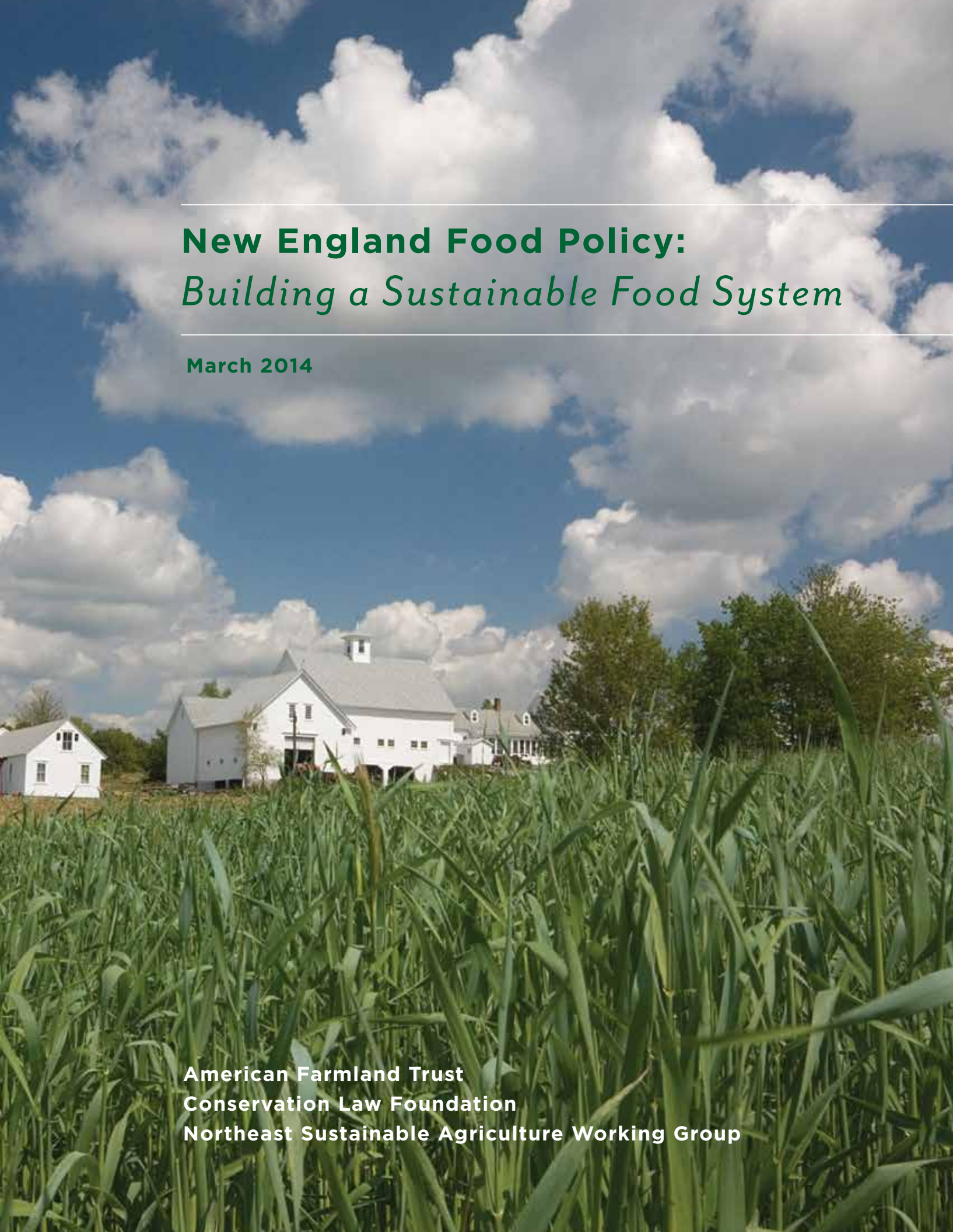

New England Food Policy:
Building a Sustainable Food System

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American Farmland Trust
Conservation Law Foundation
Northeast Sustainable Agriculture Working Group

CHAPTER 2

Food Production

Agriculture is inherently risky. It is becoming more so due to the impacts of climate change. Food production in New England in particular is challenged by many factors, including physical limitations, such as land and climate; input costs, such as labor, energy and feed; and other business expenses, such as taxes and regulatory compliance. The continued decline of agricultural support services in the region, such as research and extension, provides an additional challenge to producers trying to compete against food imports from around the country and the world, many of which benefit from government-sponsored research and technologies.

This chapter looks at public programs and policies that affect food production.[1] In some instances, public policy is helping farmers reduce costs, increase productivity and reduce risk. In other instances, public policy is falling short and will need to do more to help farmers address production challenges and improve profitability if the region hopes to increase its food production capacity.

Highlights

- The availability of farm labor is a key impediment to increasing regional food production. Federal immigration reform legislation passed in the Senate in 2013 would effectively address this concern, by creating an agricultural guest-worker program administered by the USDA for both seasonal and year-round employees.
- Growing production risks associated with climate change will require increased state and federal investments in agricultural research and extension, and better risk management strategies.
- Public investments in farm and food business development appear to be creating new jobs and economic opportunities in agriculture; improved impact analysis would help make the case for sustained state and federal funding for these programs.

2.1 HUMAN RESOURCES

FARM LABOR AND WORKFORCE DEVELOPMENT

Introduction

A resilient and robust New England food system offers new and expanding job opportunities and requires many types of skilled workers. Common core food system occupations and industries include farmworkers (production), slaughterhouse and other processing facilities

workers (processing), warehouse workers (distribution), grocery store workers (retail), and restaurant and food service workers (service).[2] According to the 2007 Census of Agriculture, New England's 33,000 farms employ 110,000 workers. This includes principal farm operators as well as seasonal workers, both domestic and foreign.[3] A study done by Farm Credit East, the region's largest agricultural lender, estimates that there are 121,000 jobs in agricultural services, inputs and processing in the region.[4] Similar estimates for jobs in distribution, retail and restaurant and food service that are closely tied to regional food production are not readily available. Some state-level estimates, however, have been done. The Vermont Farm to Plate Network, for example, estimates that the state's food system provides almost 58,000 jobs.[5] A University of New Hampshire study estimated 81,000 jobs in that state's food system.[6]

On-farm labor costs and availability were identified by several interviewees as a major obstacle to expanding regional food production. As with New England's labor force as a whole, the region's farm labor costs are higher than those in many other parts of the country. According to a recent report from Farm Credit East, the six New England states have farm labor costs that rank in the top 20 nationally in relation to farm sales, with Connecticut ranking third and Massachusetts ranking fourth highest in the United States.[7]

Just like growers in other regions of the country, New England's fruit and vegetable growers rely heavily on temporary, seasonal laborers. A lack of skilled domestic farmworkers has caused many farms to rely on the federal H-2A temporary agricultural worker program. Other farmers, frustrated with that program's delays and regulations, rely instead on undocumented foreign workers. The region's dairy farms also rely heavily on immigrant labor, but because most of these jobs are year-round, permanent jobs, dairy operations cannot make use of the federal H-2A program. Of the approximately 1.2 million immigrants in the U.S. agricultural workforce, about 300,000 immigrants work on dairy farms.[8] According to Farm Credit East, labor uncertainty is a significant problem for Northeast agriculture, and many in the region, including this lender, believe a new agricultural guest-worker program administered by the USDA for both seasonal and year-round employees is critically important.[9]

Renewed interest in the regional food system has fueled demand for worker training throughout the food chain. More colleges and universities are joining the region's technical and vocational schools in offering degree and/or specialized training programs in areas such as agricultural production, food processing and institutional food preparation. As they see more economic opportunities in food and agriculture, state agencies are also beginning to focus on workforce development in this area. Additional on-farm employment opportunities in processing, tourism and marketing may help to retain and support farm laborers.

Discussion

FARM LABOR: H-2A TEMPORARY AGRICULTURAL WORKER PROGRAM

The H-2A guest-worker program allows agricultural employers who anticipate a shortage of domestic workers to bring foreign workers to the United States to perform agricultural labor or services of a temporary or seasonal nature. Jobs for temporary or seasonal workers must be for less than one year.[10] As mentioned above, this program is important to fruit and vegetable growers, but not to dairy farms, which tend to need permanent year-round labor.

Prior to approval of an employer's petition for such workers, the employer must demonstrate that there are not sufficient able, willing and qualified U.S. workers available to perform the temporary and seasonal agricultural work, and that employment of H-2A workers will not adversely affect the wages and working conditions of similarly employed U.S. workers. In order to receive clearance to file an H-2A application, an employer must submit a job offer to a state workforce agency at least 60 days before the start date.[11]

According to several interviewees, the use of temporary foreign agricultural workers is necessary because of the lack of skilled domestic farmworkers or laborers willing to do the type of agricultural work needed. While some farmers in the region make use of the H-2A program (in 2011, visas for 2,085 workers in New England were approved[12]), others are frustrated with the program's expense and associated delays, and rely on undocumented workers. The use of undocumented farmworkers by those disenchanted with the H-2A program has created a competitive disadvantage for those who operate within the legal system, as required wages — more than $10 per hour, plus housing — are typically higher than those paid to workers without legal status.[13] Some in the region believe that the U.S. Department of Labor has increased the employer

requirements for the H-2A program in order to encourage the employment of unemployed U.S. citizens.

Although the H-2A program includes safeguards to protect foreign workers, national farm labor advocates have criticized the structure of the program for allowing exploitation due to the dependence of workers on their employers.[14] Advocates have also called for a new program that would better protect workers' rights, provide increased wages, and improve working conditions to make farm jobs more attractive.[15]

FARM LABOR: FAIR LABOR STANDARDS ACT

The Fair Labor Standards Act (FLSA) is the federal law that sets minimum wage, overtime, recordkeeping and child labor standards. Under the FLSA, farm employers must pay their employees the minimum wage, unless they fall into one of six exemptions; farm employers are not required to pay overtime as long as the employee is "employed in agriculture," as defined by Congress and the Department of Labor. Some farm employees, including minors under 16, family members and some local seasonal laborers are also exempt from minimum wage provisions.

The Department of Labor has broad discretion to determine what counts as being "employed in agriculture" — part of the inquiry examines whether a practice is an "ordinary" or "established" part of agriculture. Several interviewees expressed concerns that the FLSA does not reflect increasingly common agricultural practices on New England farms. According to the Massachusetts Farm to School Project, several farms in Massachusetts have been fined, or threatened with fines, for violating the law's overtime provisions, apparently because activities that farmworkers were engaged in — aggregating and processing products from their farm with product delivered from other farms — were considered outside the scope of the farm's agricultural operation and therefore subject to overtime provisions.[16] The FLSA also governs the use of interns on farms. Under the law, an internship must meet six criteria:

- The training, even though it includes actual operation of the facilities of the employer, is similar to that which would be given in an educational environment or vocational school;
- The training is for the benefit of the trainee;
- The trainees do not displace regular employees, but work under their close supervision;
- The business that provides the training derives no immediate advantage from the activities of the trainees, and may in fact be impeded;
- The trainee is not necessarily entitled to a job at the conclusion of the training period; and
- The trainee understands he or she is not entitled to wages for the time spent in the training.[17]

The interpretation of these criteria has been problematic in places in New England. Despite the relative popularity of farm apprentices or interns in the region, these farm employment arrangements are often not considered internships by state or federal labor regulators. Many interns are, in fact, subject to standard FLSA labor provisions, unless the farm falls under the act's agricultural exemption.

There are additional regulatory requirements around meals and housing provided to employees in exchange for work. Essentially, any circumstance in which an employee's housing is provided by the farm is likely to require approval by a federal and/or state regulatory agency, and the standards for acceptable housing are stringent.[18] In addition, there are limits on the deductions that employers can take for employee meals.[19]

WORKFORCE DEVELOPMENT

A limited skilled workforce appears to be restricting the growth of businesses along the food chain. Research conducted by the Vermont Farm to Plate Network found that "employers cannot find enough qualified employees to meet the needs of their businesses."[20] Employers stated that one of their biggest barriers to growth was the absence of entry-level employees ready to work. These employers were looking for people with more technical skills, such as basic animal care, culinary experience, and food safety and machining skills. Surveys revealed that hiring challenges prevent 40 percent of larger employers (those with at least 20 full-time staff) and 50 percent of smaller employers from growing as they would like.[21]

Around the region, food system-related workforce development is garnering attention. For example:

- The Connecticut Governor's Council for Agricultural Development is exploring the expansion of the state's existing manufacturing workforce development programs to include agriculture.[22]

- The Vermont Farm to Plate Network undertook a Food System Workforce Needs Assessment that resulted in 10 recommendations, including development of a suite of certificate programs for some food-related careers — such as food manufacturing machining to allow specialization — to offer alongside traditional two- and four-year degree programs. The assessment also recommended establishing clear educational pathways to careers in the food system, beginning in seventh grade and extending to post-secondary courses.[23]
- *Local Food, Local Jobs: Job Growth and Creation in the Pioneer Valley Food System*, a report by the Massachusetts Workforce Alliance, identified fields with the most significant and immediate job creation potential, including off-farm infrastructure and processing; on-farm season-extending and processing facilities; and infrastructure and systems relating to food waste.[24]
- The Vermont Skilled Meat Cutter Training Program is helping address an identified workforce need. This two-year program teaches students specialized slaughter and meat-cutting methods, and offers instruction about food safety and sanitation.[25]

Action

FARM LABOR

Research and Analysis

- An important area of further investigation is the Fair Labor Standard Act's definition of agriculture and whether it allows the type of collaborative processing and marketing practices that are increasingly common in this region. Harvard Law School's Food Law and Policy Clinic is currently analyzing this issue, and will have recommendations in 2014 that may prove valuable to federal lawmakers.

Policy Options

Bills proposing a new federal agricultural guest-worker program have been acted on by both the U.S. House and Senate. In June 2013, the House Judiciary Committee approved H.R. 1733, the Agricultural Guestworker Act; no further action has been taken on that bill. Comprehensive immigration reform legislation passed by the Senate in 2013 — S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act of 2013 — includes the following provisions related to agricultural labor:

- Existing agricultural workers who can document working a minimum number of days or hours in U.S. agriculture would be eligible for a blue card, indicating legal status. After five years, workers with a blue card who have no criminal record and have paid all taxes and fines would be eligible for a green card. This provision is very important to the region's dairy sector, as many farms employ immigrants who have been in the country for many years.[26]
- The USDA would administer a new agricultural worker visa program, which would allow two types of three-year visas, with a one-time renewal. The current H-2A program would sunset in one year.
- Minimum wage rates would be established; housing or a housing allowance would be required; and transportation guidelines would be set for six occupational categories covered under the new agricultural worker visa program.

A detailed comparison of agricultural labor provisions of the House and Senate bills can be found on the American Farm Bureau Federation website.[27]

Agricultural leaders interviewed for this project believe the Senate proposal for a guest-worker program would be extremely valuable for the region. The blue card system would allow existing workers to get legal status and provide more documented farmworkers. Administered by the USDA, the new program, which creates longer visa terms, would likely be more understanding of the needs of farmers than the existing Department of Labor program.

WORKFORCE DEVELOPMENT

Research and Analysis

- States that have not yet done so should consider a comprehensive assessment of their food system workforce needs, similar to the study done in Vermont. Those embarking on statewide food system strategic plans should include such an assessment in their planning processes.
- Given that workforce needs are similar throughout the region, a regional conference around food and agriculture workforce development could encourage cross-state collaborations such as multistate training programs.

BEGINNING FARMERS AND NEW FARM AND FOOD ENTERPRISES

Introduction

More than a quarter of New England's farmers are at or above retirement age, so encouraging a next generation of farmers is critical to expanding regional food production.[28] Defined by the USDA as having fewer than 10 years of farming experience, new and beginning farmers represent 32 percent of the region's farm operators.[29] Many of these new and beginning farmers are not, in fact, young, but are leaving or retiring from first careers to start farm businesses: 29 percent of beginning farmer primary operators in New England are 55 or older.[30] A USDA report found that 28 percent of local food producers in the Northeast are beginning farmers.[31]

Surveys of new and beginning farmers have identified a number of discrete challenges for this demographic beyond those that they share with farmers of all ages, such as profitability, government regulation and access to health care. Some of the challenges unique to new and beginning farmers include lack of capital; access to credit; access to affordable farmland; and business planning and marketing skills.[32] To address these challenges, state agriculture agencies and the USDA are devoting additional resources to new and beginning farmers, both through their own programming and in partnership with a growing number of nonprofit organizations and agricultural service providers. Community colleges and land-grant universities are also significantly expanding educational options for aspiring and beginning farmers, and for students interested in food-related careers.

Discussion

NEW FARMER TRAINING

College and University Degree Programs

Around the region, a growing number of colleges and universities are offering agricultural degrees, from two-year associate degrees to doctorates. Degree programs range from animal science and horticulture to interdisciplinary sustainable agriculture. For example, the University of Maine's Sustainable Agriculture Program offers an interdisciplinary bachelor of science program through the departments of plant, soil and environmental sciences; biology; and resource economics and policy.[33] The University of New Hampshire has had tremendous response to its eco-gastronomy minor, which can be paired with any number of majors, from dairy management to hospitality management. The University of New Hampshire also has a popular new associate degree program in integrated agriculture management, offered through its Thompson School of Applied Science.[34]

In recent years, many of these programs have seen increased enrollment, and institutions are focusing resources accordingly. Enrollment at the University of Connecticut's College of Agriculture and Natural Resources, for example, more than doubled from 2004 to 2012, while the overall student body did not increase.[35] The University of Massachusetts Amherst will open an Agricultural Learning Center in 2014 to serve as a hands-on living classroom for students to learn about farming.[36]

Some public universities are also providing non-degree farmer training programs. The University of Vermont, for example, offers a full-time six-month program that teaches aspiring farmers about sustainable agriculture. Participants manage a growing site, take classes from professors and farmers, and work on area farms. While data tracking the long-term success of program participants is not available, the program is popular. The 2013 program reached capacity quickly and applications for 2014 were accepted in advance.[37] The University of Vermont's Center for Sustainable Agriculture also houses the New Farmer Project, which brings together information and resources from extension services and other farm organizations to assist new farmers. The project includes a resource guide; business management and financial information; a land-access database; and marketing and production information. This project seems to compile successfully the many resources available to connect new and beginning farmers.[38] University of Massachusetts Extension holds a Green School every other year. The Green School is a comprehensive short course for green industry and agricultural professionals wishing to gain an understanding of plant care fundamentals and strategies and their relation to environmental quality.[39]

BUSINESS PLANNING FOR NEW FARM ENTERPRISES

At least two state agriculture agencies offer business training that is directed, in part, to new and beginning farmers. The Agricultural Business Training Program, offered through the Massachusetts Department of Agricultural Resources, is divided into three multisession courses, the first of which — Exploring Your Small Farm Dream — is geared toward individuals interested in farming, and the last of which — Tilling the Soil of Opportunity — is designed for experienced farmers looking to expand or diversify their operation. The program is popular, and more than 475 agricultural enterprises have completed at least one of the courses. The Maine Department of Agriculture, Conservation and Forestry provides training to new farmers through its NxLevel program. According to John Harker, director of market development for the department, more than 200 individuals have been trained through the program since 2000.[40] Maine also offers a small, but popular, incentive for new and beginning farmers through the state's Farms for the Future Program.[41] After completing the program, new and beginning farmers with a good business plan can then apply for a 2 percent interest rate through the state Agricultural Marketing Loan Fund.

Massachusetts is the only state in the region that has a business planning and implementation grant program developed specifically for new and beginning farmers. The Matching Enterprise Grants for Agriculture Program offers technical and business planning assistance, as well as financial help for equipment or other capital improvements to implement specific strategies identified through a business plan. Priority is given to new farm enterprises that have operated commercially for one to five years.[42]

Some business training for new and beginning farmers is being financed outside of state or federal government, such as through Farm Credit East's FarmStart program, which also assists new agricultural cooperatives. This program is more fully described below.

ACCESS TO LAND

State purchase of development rights programs and the federal Farm and Ranch Lands Protection Program are helping new and beginning farmers gain access to land by reducing the purchase price of farmland.[43] Two states in the region, Massachusetts and Vermont, have adopted an additional mechanism to address farmland affordability in their respective state programs. (For further discussion of these programs and other policy tools related to farmland access, see Expanding Land Access, chapter 1.3, and the Appendix.)

ACCESS TO CAPITAL

Farm Service Agency

The FSA provides direct and guaranteed loans to beginning farmers who are unable to get financing from commercial sources. The Farm Service Agency reserves a portion of several loan funds exclusively for beginning farmers and has three programs that directly target beginning farmers: the Down Payment Program, Loan Contract Guarantees and Microloan Program.[44]

Down Payment Program

The Down Payment Program helps new and beginning farmers purchase a farm. To qualify, farmers must make a cash down payment of at least 5 percent and must not own a farm larger than 30 percent of the median farm size in the county. The maximum loan amount is 45 percent of the purchase price and may not exceed the appraised value or $500,000. The loan term is 20 years, with an interest rate that is 4 percent lower than the regular FSA direct-ownership loan rate, but no less than 1.5 percent.[45]

Loan Contract Guarantees

The Farm Service Agency also guarantees loans made by commercial lenders to new and beginning farmers purchasing farmland. The lender may request either a prompt payment guarantee — up to the amount of three annual installments plus the cost of related real estate taxes and insurance — or a standard guarantee of 90 percent of the outstanding principal balance. The purchase price of the farm cannot exceed $500,000 and the farmer must not own a farm larger than 30 percent of the median farm size in the county.[46]

Microloan Program

This new program is intended to help small and beginning farmers secure loans less than $35,000. One benefit of this program is an application process that is less burdensome and more simplified than that used for traditional farm loans. In addition, the loan can cover start-up expenses, such as equipment, and/or annual expenses, such as seed, land rents and marketing, as well as distribution expenses, such as delivery vehicles.[47]

According to the National Young Farmer's Coalition, there is little published data about the number of new and beginning farmers who participate in these three programs.[48] The coalition cites the following commonly raised issues with these programs:

- Farm Service Agency offices are inconsistent in knowledge and ability to work with new and diversified operations;
- Direct ownership loan requirements around experience disqualify many beginning farmers;
- Maximum direct ownership loans are too low given the high cost of land in many parts of the country; and
- FSA loans take 30 days to process and can take up to a year to release the funds, making them an unrealistic financing option for traditional real estate transactions.[49]

Aggie Bonds

At least 17 states have Aggie Bond beginning farmer loan programs, which encourage lenders to offer reduced rates on loans that beginning farmers can use to purchase land, farm equipment, farm buildings and breeding livestock. Under an Aggie Bond program, a state creates a bond that allows lenders to earn federally tax-exempt interest on loans to eligible beginning farmers and ranchers. With these tax savings, lenders can offer reduced loan rates directly to farmers.[50] While not limited to beginning farmers, Maine's Agricultural Marketing Loan Fund is an Aggie Bond program that encourages new farmers to apply, as long as they have a business plan and some collateral. The fund has more than $7 million in bond funds in use, and has done 107 projects to date.[51]

Farm Credit

The national Farm Credit System — a nationwide network of borrower-owned lending institutions and specialized service organizations established by Congress in 1916 — has three associations that operate in New England: Farm Credit East, which provides services in Connecticut, Massachusetts, New Hampshire and Rhode Island; Yankee Farm Credit in Vermont; and Farm Credit of Maine. (Pending approval by the Farm Credit Administration, Farm Credit East and Farm Credit of Maine plan to merge in early 2014.) All three Farm Credit associations in New England have programs geared specifically toward new and beginning farmers.

Farm Credit East and Yankee Farm Credit offer the Farm Start program, which provides working capital investments of up to $50,000, effectively functioning as an operating line of credit to farmers who, generally, are in their first three years of business. In its first five years (2005–2010), Farm Credit East's Farm Start program provided more than $2.5 million in loans to 65 participants.[52]

In addition to offering loans described above that are guaranteed by the Farm Service Agency, Farm Credit of Maine also has a Young, Beginning, and Small Borrowers program, which offers crop insurance to beginning farmers.[53] At Farm Credit East, the Young, Beginning, Small Farmer Incentive Program provides discounts for up to five years on FSA-guaranteed loan fees; farm accounting and management software; tax preparation; consulting; and interest rate assistance.[54]

USDA BEGINNING FARMER AND RANCHER DEVELOPMENT PROGRAM

The Beginning Farmer and Rancher Development Program (BFRDP) provides competitive grants to support training, education, outreach and technical assistance initiatives for beginning farmers or ranchers. In 2012, the program provided more than $18 million through 40 grants. While its authority and funding expired in 2013, the Beginning Farmer and Rancher Development Program is reauthorized in both the House and Senate versions of the next farm bill.[55] Activities covered by the program include production and management strategies to enhance land stewardship; business management and decision support strategies that enhance financial viability; marketing strategies that enhance competitiveness; and legal strategies that assist beginning farmers with farm or land acquisition and transfer.

One example of a project through the Beginning Farmer and Rancher Development Program is the University of Connecticut Cooperative Extension System's three-year project, "Scaling Up — Helping Connecticut's Beginning Farmers Evolve from Small-Scale Enterprises into Viable Farm Businesses," which launched in 2012. The project is providing training and technical assistance to beginning farmers in several key areas, including sustainable agriculture practices; integrated pest management; farm business management; and farmland access.[56]

For descriptions of 10 other New England projects funded through the Beginning Farmer and Rancher Development Program, see the Appendix.

Action

Support for Existing Programs

Federal

- The USDA Beginning Farmer and Rancher Development Program is providing funding for many successful projects to help young and beginning farmers in New England. This program should be renewed and funding increased in the next farm bill.[57]
- The USDA Farm Service Agency's new microloan program is a positive step to address access to credit for beginning farmers. An analysis of its use in New England could help drive support for the program.

State

- State business planning programs, including state farm viability programs, appear to have been used successfully by beginning farmers to build their businesses. Where this has not already been done, an analysis of program effectiveness in meeting the needs of new and beginning farmers could help to better target relevant state programming. A portion of funding for state farm viability programs could be designated for new and beginning farm enterprises.

Research and Analysis

- More rigorous data and evaluation around the impact and effectiveness of state business planning and farm viability programs for beginning farmers could help build broader and deeper support for these programs from state lawmakers.
- Research is needed on the cost and impact that the Maine Agricultural Marketing Loan Fund and state Aggie Bond beginning farmer loan programs could have on beginning farm enterprises, and the cost and potential impact of such a state-level program in other New England states.

Policy Options

Federal

- The National Young Farmer's Coalition has recommended that:[58]
  - » The experience requirement for USDA Farm Service Agency's direct farm-ownership loans be reduced to two years, from three.
  - » The USDA be given authority to increase the borrowing limits for direct farm-ownership loans, currently set at $300,000, in areas of the country with higher real estate prices.
  - » The Farm Service Agency should become more accessible to beginning farmers by expanding online resources and by having specially trained agents to assist young and beginning farmers in each county office, or specialists serving multiple offices in a region.
  - » Loan pre-approval should be available for beginning farmers, as the current process is likely to take too long for farmers to purchase land in competitive real estate markets.

State

- New England states should consider creating an Aggie Bond program to support new and beginning farmers, or a broader Aggie Bond program in which beginning farmers could participate. These programs are cost-effective for states, as the loans are made by private lenders who assume the liability and administration costs.

2.2 NATURAL RESOURCES AND ENVIRONMENTAL COMPLIANCE

MAXIMIZING ENVIRONMENTAL BENEFITS AND MINIMIZING ENVIRONMENTAL IMPACTS FROM AGRICULTURE

Introduction

New England's farmers steward more than 4 million acres of land, or 10 percent of the region's land base. How they manage this land and other natural resources has an impact on the region's environmental health. Well-managed farmland can provide valuable environmental services, including water filtration, carbon sequestration and habitat for fish, plants and wildlife. Farmers are subject to a variety of federal, state and local environmental regulations, such as

those pertaining to pesticide use, wetlands protection, manure, wastewater and nutrient runoff. Given the environmental and regulatory challenges that farms face, as well as the environmental opportunities they offer, state and federal programs have been established to incentivize adoption of on-farm conservation practices and technologies. While interviewees cited the importance of these voluntary programs, several also voiced frustration with state environmental regulators, and stressed the need for regulators to communicate regularly with the agricultural community.

Discussion

FEDERAL PROGRAMS

USDA Natural Resources Conservation Service

The NRCS administers most of the USDA's farm conservation programs. As the University of Vermont's Center for Sustainable Agriculture has noted, ". . . historically and currently, USDA NRCS (using taxpayer dollars) has been the primary 'investor' in environmental conservation on farms across the United States."[59]

Most NRCS programs are authorized through the federal farm bill, with the exception of conservation technical assistance, which allows NRCS staff to provide conservation planning assistance to farmers, landowners and communities outside of farm bill programs. NRCS programs are largely administered by state offices, with the help of state technical committees, and are implemented locally by NRCS staff and/or other technical service providers.[60] Local conservation districts around the region also partner with NRCS and assist with the implementation of federal conservation programs.[61]

Agricultural Management Assistance

Agricultural Management Assistance (AMA) provides financial and technical assistance to agricultural producers to address issues such as water management, water quality and erosion control by incorporating conservation into their farming operations. Producers may construct or improve water management structures or irrigation structures; plant trees for windbreaks or to improve water quality; and mitigate risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. This assistance program is available in 16 states, including the six New England states. Payments are up to $50,000 per participant per year, but total annual funding to the region has been relatively small: $780,000 in 2012.[62] This program is likely to be significantly curtailed or eliminated in the next reauthorization of the federal farm bill: The Senate version of the 2013 Farm Bill eliminates the program altogether.[63] The House version amends it by eliminating some of the funded conservation practices and shifting funding from NRCS to USDA's Risk Management Agency.[64]

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) provides technical assistance and cost-share assistance of up to 75 percent to plan and implement conservation practices that address natural resource concerns on agricultural and forestland. Agreements span up to 10 years. National priorities address:

- Impaired water quality;
- Conservation of ground and surface water resources;
- Improvement of air quality;
- Reduction of soil erosion; and
- Improvement or creation of wildlife habitat.[65]

Interviewees recognized the Environmental Quality Incentives Program as one of the most important federal conservation programs available in the region, because of its funding for things such as manure storage systems for dairy farms; water management systems for cranberry bogs; energy efficiency improvements for greenhouses; and high tunnels for extending the growing season for vegetables. Decisions on the types of practices funded are typically made at the national level. Both House and Senate versions of the 2013 Farm Bill call for continuation of EQIP without significant changes, and at similar funding levels to the 2008 Farm Bill.[66]

Conservation Innovation Grants and other EQIP Initiatives

Within the Environmental Quality Incentives Program is a carve-out for Conservation Innovation Grants (CIG), which is intended to stimulate the development and adoption of innovative conservation approaches and technologies. These grants may be awarded to government entities, nongovernmental organizations and individuals. A percentage of Conservation Innovation Grants are awarded at the national level; the remaining funds are awarded at the state level. In 2011 grant awards were up to $1 million.[67] CIG requires a 50 percent match.[68] Both Senate and House versions of the 2013 Farm Bill retain the program.

In 2012, the University of Vermont was awarded a $669,365 Conservation Innovation Grant to explore energy savings through livestock grazing and management. The project measured and analyzed energy inputs from 200 farms across the Northeast using a range of grazing management practices. The analysis of energy savings from feed or forage production, manure management and use of soil building techniques was intended to help farmers adopt grazing practices that reduce reliance on energy inputs.[69]

The Environmental Quality Incentives Program has a number of other initiatives besides Conservation Innovation Grants. These include the Organic Initiative, which assists already certified producers, as well as those transitioning to organic with conservation practices, and the Seasonal High Tunnel Initiative, which helps producers extend the growing season for high value crops in an environmentally safe manner.[70] Both are important to New England producers.

Wildlife Habitat Incentive Program

The Wildlife Habitat Incentive Program (WHIP) provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. Agreements generally last from one to 10 years and can award up to $50,000. National priorities for the Wildlife Habitat Incentive Program include:

- Promoting the restoration of declining or important native fish and wildlife habitats;
- Protecting, restoring, developing or enhancing fish and wildlife habitat to benefit at-risk species;
- Reducing the impact of invasive species on fish and wildlife habitats;
- Protecting, restoring, developing or enhancing declining or important aquatic wildlife species' habitats; and
- Protecting, restoring, developing or enhancing important migration and other movement corridors for wildlife.[71]

Both the Senate and House versions of the current farm bill eliminate WHIP as a separate program and incorporate funding for wildlife habitat cost-share assistance into the Environmental Quality Incentives Program.[72]

Conservation Stewardship Program

The Conservation Stewardship Program provides payments to farmers for conservation performance; the higher the performance, the higher the payment. The program's priority concerns are set at the state level, and may include:

- Soil quality;
- Soil erosion;
- Water quality;
- Water quantity;
- Air quality;
- Plant resources;
- Animal resources; and
- Energy.

A range of practices are covered and include wildlife friendly fencing, drainage water management, use of legume cover crops as a nitrogen source, and intensive rotational grazing. Contracts are limited to five years and payments are capped at $40,000 per year.[73] Nationwide, payments average $18 per acre, but vary considerably depending on the type of land.[74] Because of the relatively low payment rates, few producers in the region participate in the program; only $710,000 in these contract payments went to New England producers in 2012.[75]

The proposed changes to the Conservation Stewardship Program in both the Senate and House farm bills attempt to make the program easier to use and implement by establishing a "science-based stewardship threshold" for each of the priority resource concerns.[76] Both bills place a greater emphasis on new conservation activities, as opposed to established and on-going activities. Both versions also remove the 10 percent enrollment cap on private forestland acreage, which may encourage enrollment of New England forestland.[77]

Cooperative Conservation Partnership Initiative

The Cooperative Conservation Partnership Initiative (CCPI) takes a landscape-scale approach to the delivery of conservation programs, leveraging the technical resources of nonfederal partners. Through regional partnerships, the Natural Resources Conservation Service makes resources from the Environmental Quality Incentives Program, the Wildlife Habitat Incentive Program and/or the Conservation Stewardship Program available to owners and operators of agricultural and nonindustrial private

forestlands. State and local governments, producer associations, farmer cooperatives, institutions of higher education and nongovernmental organizations are eligible.[78]

Both the Senate and House versions of the 2013 Farm Bill combine the Cooperative Conservation Partnership Initiative with other regional programs to create a new Regional Conservation Partnership Program, which would continue the partnership model to address priority resource concerns. In the newly proposed structure, the USDA would use a competitive process to select projects and enter into partnership agreements for up to five years to implement a regional or watershed-based conservation project. Partners would be expected to contribute a significant portion of the overall costs of the project. The basic level of funding for the regional projects would be $110 million per year nationwide. In addition, NRCS would be required to set aside for regional conservation projects about 8 percent of funding or acreage provided by certain conservation programs, including the Environmental Quality Incentive Program, the Conservation Stewardship Program, the Healthy Forest Reserve Program, and the Agricultural Conservation Easement Program. (For more information about the Agricultural Conservation Easement Program, see Increasing Permanent Protection, Chapter 1.2.) Between the basic level of funding and the amount NRCS must set aside, a total of $380 million could be available for regional conservation projects per year nationwide.[79]

Conservation Reserve Program and Conservation Reserve Enhancement Program

The Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP) are administered by the Farm Service Agency. The Conservation Reserve Program provides annual rental payments and cost-share assistance to establish long-term, resource conserving cover crops on eligible farmland. Participants enroll in CRP contracts for 10 to 15 years. Because the Conservation Reserve Program is essentially a land retirement program, it is not used much in New England, where cropland is at a premium. As of October 2012, the program covered 27 million acres across the country, with less than .05 percent of that in New England states.[80]

A subset of the Conservation Reserve Program is the Conservation Reserve Enhancement Program, which focuses on riparian buffers. The enhancement program pays producers to remove lands along waterways from agricultural production, and to plant native grasses, trees and other vegetation in order to reduce sediment runoff and improve the quality of water and wildlife habitat. The Conservation Reserve Enhancement Program is run in conjunction with state agencies. Vermont is the only state in New England with a CREP program.[81]

Regional Equity

Until 2002, federal conservation program funds were allocated to states based on formulas that favored states with significant acres of farmland in production. Accordingly, New England states received relatively few conservation program dollars. This changed in the 2002 Farm Bill, with enactment of a regional equity provision designed to ensure that historically underserved states, including all six New England states, receive at least $15 million annually in federal working lands conservation program funding. In order to be eligible for this annual minimum, each state must have sufficient approved applications for those programs. It is unclear yet whether the $15 million minimum allocation will remain or be replaced in the next farm bill. The Senate version of the bill proposes replacing the fixed minimum allocation with a formula that provides regional equity states with a percentage of total conservation program funding.[82]

State Programs

Connecticut, Maine, Massachusetts, New Hampshire and Vermont currently offer state-level conservation programs. These programs often work in conjunction with federal conservation programs, helping farmers with the matching funds required to participate in programs like EQIP. Accordingly, these programs leverage federal funding, and NRCS often directs farmers to these state programs.[83]

The Connecticut Partnership for Assistance on Agricultural Waste Management Systems offers technical and financial support to address farm waste issues and develop Comprehensive Nutrient Management Plans. These plans are whole-farm, progressive documents that contain records of the current activities on a livestock operation, an evaluation of the existing conditions, and proposals to reduce the risk of negative impacts to the environment while meeting production goals. For large operations, a Comprehensive Nutrient Management Plan and approval or permit may be required. The Partnership team is comprised of the Connecticut Department of Agriculture; the Natural Resources Conservation Service; the Farm Service Agency; University of Connecticut Cooperative Extension System; and the Connecticut Department of Energy and Environmental Protection. Eligible producers can receive funding to cover part of the cost of implementing the recommended conservation practices through the

federal Environmental Quality Incentives Program and the Connecticut Department of Agriculture's Environmental Assistance Program. The total combined federal and state grant available to a farmer cannot exceed 90 percent of the project cost.[84]

In conjunction with the Maine Department of Agriculture, Conservation and Forestry, the Finance Authority of Maine administers the Nutrient Management Loan Program, which offers low-interest loans for agricultural non-point source pollution abatement projects. These loans have a 2 percent interest rate and are capped at $450,000.[85]

In Massachusetts, the Agricultural Environmental Enhancement Program helps agricultural operations install conservation practices that prevent direct impacts to water quality; ensure water conservation; and/or address impacts to air quality. Farmers are reimbursed for up to $25,000 in materials and labor costs associated with the approved practice.[86]

The New Hampshire Department of Agriculture, Markets, and Food's Agricultural Nutrient Management Grant Program provides financial, educational and technical assistance to livestock and other farms to prevent or mitigate water pollution. Funding for the program has been significantly reduced since 2008, but the department hopes to restore prior funding levels in the next state budget biennium.[87] The program is used most heavily by very small and beginning farmers, especially livestock owners, to help address water quality issues.[88]

In Vermont, the Agency of Agriculture, Food and Markets offers a number of financial and technical assistance programs, primarily focused on reducing nutrient runoff from the state's dairy farms. As with the Massachusetts Agricultural Environmental Enhancement Program, Vermont's Best Management Practice program can be coupled with the federal Environmental Quality Incentives Program to increase cost-share assistance for implementing certain conservation practices. Vermont also helps dairy farms develop nutrient management plans, which are required for many of its dairy farms. Through the Farm Agronomic Practices program, for example, Vermont reimburses farmers for implementing such best management practices as cover cropping, no-till farming and crop rotation. The Alternative Manure Management program provides incentive dollars to farmers interested in implementing new technologies dedicated to enhancing water quality and improving waste management on the farm.

Action

Support for Existing Programs

Federal

- Several interviewees reiterated the importance of federal conservation programs in helping the region's farmers comply with federal and state environmental regulations and in encouraging more farmers and farm and forest landowners to adopt conservation practices. More severe weather events as a result of climate change will also increase the necessity for conservation practices on farmland. Among the federal cost-share programs, the Environmental Quality Incentives Program is by far the most in demand and most widely used; current funding levels for this program should be maintained in the next farm bill.
- Conservation technical assistance is also extremely important, allowing NRCS staff to work with landowners to develop conservation plans for their farms or forestland. Maintained or increased funding for conservation and farm bill technical assistance programs would enable NRCS to meet demand from farmers and landowners for comprehensive conservation planning.
- The regional equity provision of the farm bill is an enormously important funding mechanism for New England. It is vital to keep the $15 million regional equity allocation minimum or the equivalent in formula funding in the next farm bill.

State

- Given that conservation cost-share assistance under the federal Environmental Quality Incentives Program typically pays only 50 percent of the cost of implementing conservation practices, state conservation cost-share programs have been important in helping farmers leverage federal dollars. This is especially important for the region's dairy farmers, who face significant costs in developing manure storage systems to reduce nutrient runoff. It is important to maintain or increase funding for these programs.
- Local soil and water conservation districts typically rely on both state and federal funding. Conservation districts play an important role in educating farmers and farmland owners about available conservation programs and resources, and often provide farmers with the technical support to implement specific practices.

Research and Analysis

- To encourage continued state-level investments in conservation cost-share programs, an analysis of the effectiveness of these programs in meeting state and federal environmental objectives and the degree to which they have leveraged federal and private resources would be helpful.

Policy Options

Federal

- For recommendations related to farmland protection, see Increasing Permanent Protection, chapter 1.2.

State

- State environmental regulatory agencies should maintain collaborative relationships with state agriculture agencies, NRCS, conservation districts, and state farm organizations to address concerns about the environmental impact of agricultural operations.

FARM ENERGY NEEDS AND OPPORTUNITIES

Introduction

Energy costs, including heat, electricity and transportation, are a substantial portion of operating expenses for the region's farms and food businesses.[89] Likewise, the volatility of unit costs for fossil fuels is a major financial risk factor that can undercut business profitability. Reducing energy use and expanding on-site renewable power generation through wind, solar and biomass are therefore important business strategies, as well as practices that will foster environmental sustainability. Farms, like many other types of businesses, however, often lack the financial capacity to make these capital-intensive investments, despite the likelihood of substantial savings in future years.

This section describes federal and state incentives that are specifically intended to increase energy efficiency and renewable energy generation on farms. It also looks at several obstacles associated with expanding renewable energy generation at the farm level.

Discussion

INCENTIVES FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY

Taxpayer and ratepayer-funded incentives, including grants, subsidized loans and no- or low-cost technical assistance, have a track record of reducing payback times and otherwise encouraging investments in energy efficiency and renewable energy. At the same time, they offer substantial benefits to the recipients of such incentives, the public at large and the environment.[90] As many farms in the region are engaged not just in agricultural production, but processing and value-added production as well, this section looks at incentives available for a variety of farm and food businesses.[91]

Federal Programs

The USDA Rural Energy for America Program (REAP) offers funding in the form of grants and/or loan guarantees designed to allow farmers, ranchers and rural small businesses to install renewable energy systems and make energy efficiency improvements. Rural Energy for America Program grants cover up to 25 percent of total project costs but will not exceed $500,000 for renewable energy systems and $250,000 for energy efficiency improvements.[92] Under the rural energy guaranteed loan program, project developers are expected to work with local lenders to secure an initial loan. The local lenders, in turn, can apply to the USDA for a loan guarantee of up to 85 percent of the loan amount.[93] REAP-guaranteed loans will cover up to 75 percent of total project costs but will not exceed $25 million.[94]

In order to be eligible for rural energy grants and/or loans, the USDA sometimes requires applicants to include an independent feasibility study in their completed application.[95] Through its Feasibility Studies Grants Program, the USDA offers applicants financial assistance of up to $50,000 or 25 percent of the total project costs to help offset the financial burden associated with completing such a study.[96] Through its Energy Audit and Renewable Energy Development Assistance Grant Program, the USDA also provides grant assistance for conducting energy audits and disseminating information on renewable energy development assistance[97] to entities such as colleges and universities, as well as state and local governments, that are willing to help agricultural producers and rural small businesses become more energy efficient.

Cost-share assistance for on-farm energy efficiency and renewable energy projects is also available through the Environmental Quality Incentives Program. (For more information about EQIP, see the Maximizing Environmental Benefits and Minimizing Environmental Impacts from the Agriculture section, above.) Farmers eligible for both the Environmental Quality Incentives and Rural Energy for America programs may be able to combine grants or loans from the two programs.[98]

State Programs

Connecticut

The Connecticut Farm Energy Program helps farms and agriculture-related rural small businesses learn about energy efficiency and renewable energy options, and provides grant-writing assistance to applicants for federal rural-energy grants.[99] It was developed in 2009 as a partnership between USDA Rural Development and the Eastern Connecticut Resource Conservation and Development Area, Inc.

Because federal rural energy grants only cover up to 25 percent of a given project, the Connecticut Farm Energy Program also helps applicants pair those grants with other funding sources, such as grants from the state's Agriculture Viability Grants Program.[100] The Connecticut Farm Energy Program has helped farmers and other business owners from the state secure more than $410,000 in grants and loans.[101] This program also provides farmers with useful information about energy upgrades through its Energy Best Management Practices Guide. However, due to uncertain funding, the program's future is unclear.[102]

Connecticut also has a fledgling program that helps finance deployment of anaerobic digesters.[103]

Maine

Harvesting Clean Energy is a technical assistance program of the Farm Energy Partners network at Maine Rural Partners. The program supports energy conservation and renewable energy production efforts, and its goal is to help Maine farmers determine if energy conservation or other energy applications make sense for their farms. Specifically, Harvesting Clean Energy provides four key services to farmers:

- Publications containing up-to-date information on energy conservation and alternative energy technologies;
- Presentations and workshops designed to clarify available conservation and renewable energy technologies;
- On-farm energy audits targeted toward helping eligible dairy farmers and greenhouse growers identify immediate steps that they can take to decrease their energy use and save money; and
- Tours that allow farms that have implemented energy efficiency and/or alternative energy projects to share their experiences with peers.[104]

Massachusetts

The Massachusetts Farm Energy Program is a joint project of Berkshire-Pioneer Resource Conservation and Development Area, Inc., and the Massachusetts Department of Agricultural Resources. It offers financial incentives of up to $5,000 per farm to reduce consumption of traditional energy sources and/or replace old energy systems with renewable energy technology.[105] Since its inception in 2008, this program has leveraged approximately $4.2 million to help more than 300 farmers implement energy-saving upgrades. This effort has collectively saved participating farmers roughly $740,000 annually.[106] Massachusetts also has specific financial incentives for deployment of anaerobic digesters.[107]

In addition, the Massachusetts Farm Energy Program has developed a series of Farm Energy Best Management Practices guides that describe various factors farmers should consider before undertaking energy efficiency and renewable energy projects. These guides are organized by sector — dairy farms, greenhouses and nurseries, maple sugaring, orchards and vegetable farms, and renewable energy — and focus primarily on energy upgrades suitable for existing farming operations.[108]

Vermont

Efficiency Vermont, a ratepayer-funded energy efficiency utility operated by the Vermont Energy Investment Corporation, offers rebates and incentives to help the state's farmers install new, energy-efficient equipment at their farms. Standard rebates cover alternative methods for lighting, refrigeration, heating, cooling and ventilation, for example.[109] Efficiency Vermont also considers requests for custom rebates to support additional projects not covered by its standard rebate program.[110]

Vermont is also home to the innovative Cow Power program, coordinated by Green Mountain Power, which enables its utility customers to support deployment of

anaerobic digester technology at dairy farms in the state.[111] Anaerobic digesters contain microbes that break down cow manure to allow the resulting methane to be recaptured as a fuel source for an electric generator that serves farm and nonfarm loads. These digesters substantially reduce farm methane emissions and present the opportunity to reuse other byproducts of the process, including heat and plant fibers. The program currently uses 10,000 cows across 12 relatively large dairy farms and generates 16 million kilowatt-hours per year, enough to power 2,200 average Vermont homes. Green Mountain Power customers can opt to buy all or part of their electric energy from the Cow Power program at a premium of up to 4 cents per kwh. This premium goes directly to farmers.

OBSTACLES

While federal grants are available for both farm energy efficiency and renewable energy projects, they typically cover less than half of project costs, and only some states in the region have programs that help farmers offset an additional portion of costs. In addition, coordinating requests to multiple funding programs and undertaking lengthy application paperwork present practical impediments to farmers and other small business owners considering projects.[112] The economics of renewable energy projects also may be uncertain or unworkable due to high interconnection costs, unpredictable returns from renewable energy credits, or state utility laws and regulations regarding net metering, which may allow renewable energy projects to offset farm electric bills, yet limit the potential revenues available from selling power to the electric grid.

Renewable energy projects often face nonfinancial obstacles, too. On-farm renewable energy generation can provide economic and environmental benefits that complement and support agricultural uses. However, solar, wind and methane digester projects — especially those that produce energy beyond what the farm needs — may face local zoning limitations. Some of these limitations, especially around solar "farms," address reasonable concerns regarding long-term conversion of productive agricultural land to commercial energy use.

State regulations may also limit these projects. For instance, where methane digesters require additional organic matter beyond that produced on farm, state regulations around compost may limit the type and scale of compost produced off the farm that can be brought on farm. (For more information about compost regulations, see chapter 5.) Massachusetts regulations concerning the compost of waste require operations that bring in off-farm materials to develop a plan, follow guidelines and register with the state Department of Agricultural Resources. If the operation does not conform to these guidelines, it must comply with more burdensome requirements from the Department of Environmental Protection's Site Assignment Regulations for Solid Waste Facilities.[113]

Most of the region's state farmland protection programs limit the scale of renewable energy projects allowed on protected farms to meeting the energy needs of that farm, regardless of whether the renewable energy production occurs on productive agricultural land. The rationale for this limitation is to prevent a protected farm from becoming an inviting energy investment, compromising its availability for agriculture in the future; the inclusion in an easement of an "Option to Purchase at Agricultural Value" as is used in Massachusetts and Vermont, however, can mitigate this concern. (For more information, see the Appendix.)

Action

Support for Existing Programs

Federal

- Maintain funding at levels adequate to meet demand for the Rural Energy Assistance and Environmental Quality Incentives programs. The 2013 Senate and House farm bills both provide funding for the Rural Energy for America Program, but at levels lower than the 2008 Farm Bill, which set mandatory funding at $70 million per year for 2011 and 2012. The Senate bill authorizes $48.2 million per year in mandatory funding, with authority for the appropriation of up to $20 million per year. The House bill provides no mandatory funding but does authorize appropriations up to $45 million annually.[114]

State

- Maintain funding for state farm energy programs at levels adequate to meet demand.
- Consider convening state-based working groups to guide state farm energy programs and improve coordination with USDA, state utilities and clean energy industry. State farm energy programs, like those in several New England states, can be effective tools

to ensure that farmers have full access to available incentives and technical assistance, and that those resources are well-publicized and cost-effectively deployed. Such programs could benefit from state-based working groups comprised of agricultural and energy sector stakeholders that would identify the appropriate role for the state program, implementation obstacles, potential program improvements, and further technical assistance needs.

Research and Analysis

- Investigate policy mechanisms to align utility energy audit and efficiency programs, interconnection requirements, and net metering regulations with farm needs.

Policy Options

- Encourage creating state-level farm energy programs in states without such programs.
- Consider funding state-level farm energy programs through systems benefit charges billed to ratepayers or through state renewable energy funds.
- Consider creating an ombudsman in each state to help farm businesses identify and develop applications for sources of grant funding.
- Consider further legislative and regulatory efforts to expand incentives for energy efficiency and renewable energy projects that are specifically tailored to farm and food business applications and support deployment of innovative technologies like high-efficiency processing equipment and anaerobic digesters.

ACCESS TO WATER

Introduction

While New England is considered a region with plentiful water, accessing safe and reliable quantities of water presents challenges to farmers in some areas. Residential and industrial water demands have led to intense competition. Extraction of both surface and ground water for any use has an impact on watersheds and regional ecology, as improperly managed withdrawal can cause drought and harm to ecosystems. Given the effects of over-extraction, state and local governments have implemented rules and regulations around water withdrawals, which can affect the use and cost of water by farms.

Discussion

Through federal and state initiatives, New England's water resources are becoming better understood every day. This improved knowledge is giving rise to sophisticated water planning programs. Actual use of water, however, is governed by a patchwork of permitting programs of varying effectiveness.

INVENTORY AND PLANNING

The federal SECURE Water Act, enacted in 2009, requires the U.S. Geological Survey to establish a "national water availability and assessment program."[115] The director must prepare and maintain "a comprehensive national water-use inventory" and determine "indicators that reflect each status and trend relating to the availability of water resources in the United States."[116] The director must provide a report every five years detailing, among other things, "the withdrawal and use of surface water and groundwater by various sectors, including the agricultural sector."[117] This program provides a basic idea of how much water is available regionally and how much of that is being used for agriculture.

Some New England states have undertaken inventories of their own for planning purposes. In Massachusetts, for example, the Sustainable Water Management Initiative has produced a detailed study of water availability and a recommendation for a safe yield — the amount that can be extracted from a water body without causing drought or other ecological harm.[118] In Rhode Island, the Water Resources Board inventories water availability, and the Division of Agriculture monitors stream flow with an eye to avoiding drought conditions for farmers.[119]

To provide a demand-centered view of water use, many states also require that water users report how much water they withdraw; however, these data present an incomplete picture, and farmers are often exempt from reporting requirements.[120]

WITHDRAWAL

In most New England states, riparian doctrine governs water allocation.[121] Under this doctrine, ownership of riparian land conveys the right to use adjacent water in a "reasonable" manner.[122] Determining what is reasonable involves consideration of the purpose of the use, the suitability of the use to the water body, and the social and

economic value of the use.[123] Due to the complexity of this determination, most states require that owners get permits to use surface water.[124] The right to use groundwater varies much more significantly from state to state. Most commonly, the owner of the overlying land has a right to reasonable use of groundwater.[125]

Some permitting programs are far from comprehensive. Connecticut's Diversion Act generally requires permits for water extraction but contains broad exemptions, most notably grandfathering pre-1982 water uses.[126] A report from Connecticut's Department of Energy and Environmental Protection has noted that "the vast majority of Connecticut's water diversions are grandfathered," preventing the state "from developing and implementing a comprehensive water allocation program."[127]

Other permitting programs are more robust. Massachusetts, for example, requires that permitting authorities consider a water source's safe yield[128], and that permit applications include water conservation planning.[129] Additionally, permitting authorities must consider any state water resources plan by the state's Water Resources Commission.[130] Overall, Massachusetts law ensures that significant withdrawals of ground and surface water will be subject to careful analysis before being permitted.

Rhode Island is the only New England state that lacks a permitting program for water extraction.

Another practice that has the effect of reducing water availability is wetland development, which prevents groundwater from recharging and leads to drought. For this reason, most states require permits for wetland development; however, agricultural uses are sometimes exempted from this requirement.[131]

TRANSFER

In some parts of New England, farmers are challenged with water scarcity. Most states do not have laws that allow water transfers from one source to another; Massachusetts is the exception. That state's Interbasin Transfer Act provides a procedure that allows farmers to access water from a different basin while ensuring that the source basin does not get overdrawn and that other environmental protections remain in place.[132]

Action

Research and Analysis

- States that have not done so already may want to undertake a comprehensive planning process to better understand their water resources. Specifically, states should identify sustainable yields from all water sources, especially those drawn on for agricultural use. Massachusetts has a strong example for designing and implementing this process in the Sustainable Water Management Initiative, which other states could look to for a model. States can only effectively avoid harmful drought conditions in times of intense local competition for water if they understand what constitutes sustainable yields.
- All New England states should perform a baseline assessment of wetlands permitting programs. States should convene panels that include farmers, government officials, advocates, academics and scientists, to figure out the effectiveness of wetlands permitting requirements generally, as well as agricultural exemptions. These panels should issue recommendations on how an ideal wetlands permitting regime would work.

Policy Options

- States may want to consider enacting policies to allow for sustainable interbasin water transfers, like Massachusetts's Interbasin Transfer Act. As a result, water may be available for transfer from areas high in supply and low in demand to areas low in supply and high in demand, giving farmers some insulation from drought.

2.3 BUSINESS DEVELOPMENT AND CHALLENGES

RESEARCH, DEVELOPMENT AND EXTENSION

Introduction

Similar to other business sectors, investments in research, development and education are key to sustained competitiveness and profitability in agriculture. Regardless of the sector, these investments have traditionally relied in part on government support. Historically, agricultural

research and development support has been provided at the federal level, primarily through the land-grant university system and its agricultural experiment stations, created by the Morrill Acts of 1862 and 1890 and the Hatch Act of 1887. Support for agricultural education has been provided through the Cooperative Extension system created by the Smith-Lever Act of 1914.[133] Federal funding has been supplemented by states, but decades of declining public resources for these functions at both the federal and state level have affected the region's agricultural competitiveness. Calls for renewed investments in research, development and education are beginning to be heeded at the state level, with a greater emphasis on public-private partnerships.

Discussion

USDA NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

The National Institute of Food and Agriculture (NIFA) is one of four agencies that make up USDA's research, education and economic mission. It supports research, education and extension programs in the land-grant university system, at affiliated agricultural experiment stations, and at other partner organizations. While the National Institute of Food and Agriculture does not perform these tasks, it does provide funding and leadership. In its leadership role, the institute helps states identify research and extension priorities and create programs to respond to these issues.[134] NIFA provides funding to land-grant universities and competitively granted funds to researchers in land-grant and other universities in several ways.[135] In fiscal year 2012, total funding to the National Institute of Food and Agriculture was approximately $1.3 billion.[136]

Many of the institute's grant priorities and programs are important to New England agriculture, and researchers at many of the region's public and private universities and its state agricultural experiment stations have received NIFA grants.[137] One of the competitive grant programs within the National Institute of Food and Agriculture is the Agriculture and Food Research Initiative, which currently is focused on several challenges, including keeping American agriculture competitive while ending world hunger; improving nutrition and ending childhood obesity; improving food safety for all Americans; securing America's energy future; and mitigating and adapting to climate change.[138] The following competitive grant programs are also part of the National Institute of Food and Agriculture:

- Integrated Research, Education and Extension Grants Program;
- Specialty Crop Research Initiative;
- Sustainable Agriculture Research and Education Program;
- Beginning Farmer and Rancher Development Program (for more information, see Human Resources, section 2.1 in this chapter);
- Organic Agriculture Research and Extension Initiative;
- Community Food Projects (for more information, see Retail Markets, chapter 4.3); and
- Risk Management Education (for more information, see the Risk Management section in this chapter below).

While federal funding for agricultural research grew steadily from the 1950s to the 1970s, it has remained relatively flat since then, and growth in funding has not kept pace with other federal science agencies. From 1983 to 2003, the annual growth rate of the research budget at the National Institutes of Health was eight times the growth rate of USDA research spending; the annual growth rate of all federal nondefense research and development spending was approximately four times that of USDA's.[139]

AGRICULTURAL EXPERIMENT STATIONS

State agricultural experiment stations were created through the Hatch Act of 1887 and are funded through a combination of federal formula funds, federal competitive research grants, state appropriations and industry support. Every New England state has an experiment station, and services offered to farmers differ by state. The Connecticut Agricultural Experiment Station, for instance, provides soil testing services and research related to plant productivity, plant pests and diseases.[140] Federal funds must be matched one-to-one with nonfederal funds.

A new emphasis by USDA on multistate research has helped foster closer collaboration among some of the region's experiment stations. A new Northern New England Collaborative Research Funding Program, comprised of the Vermont, New Hampshire and Maine stations, was established in 2012 to catalyze coordinated regional research on high priority needs.[141]

On average, federal money accounts for 30 percent or less of total funding for agricultural experiment stations, while state funding comprises a significant remainder of their budgets[142] In the past few years, several New England states have either threatened to or actually cut their experiment station budgets.[143] For example, in Connecticut, more than 60 percent of the agricultural experiment station's budget is comprised of state funding, which has been in jeopardy recently.[144] In 2011, during negotiations with state employee unions, Gov. Dannel Malloy introduced a budget that, among other cuts, completely eliminated the agricultural experiment station. Union members and the governor came to an agreement and the cuts were avoided, but the situation demonstrated the unclear future for these institutions. Declining USDA support for agricultural experiment stations has led stations to look for other federal funding sources. In 1970, USDA provided 70 percent of all federal funds dispersed to experiment stations; by 2004, the department covered less than 50 percent of federal funds for agricultural experiment stations.[145] Some interviewees believe that this increased reliance by agricultural experiment stations on nontraditional funding sources has changed their research focus and resulted in less attention paid to issues and concerns of local farmers.

Increased federal and state baseline funding for agricultural experiment stations would enable agricultural experiment stations to remain focused on state-specific production challenges. And continuing research around production challenges and technologies will be crucial to increasing regional food production, especially given climate change and the region's higher-than-average production costs. Public investments in research and development have been demonstrated to result in agricultural sector growth. Studies have consistently found high rates of return on public agricultural research, ranging from 20 to 60 percent annually.[146]

NORTHEAST SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION PROGRAM

The regional branch of the national Sustainable Agriculture Research and Education program is Northeast SARE. It serves the 12 Northeast states and Washington, D.C., and provides a range of grants to projects that "explore and address key issues affecting the sustainability and future economic viability of agriculture." Grants are not restricted to research institutions; depending upon the grant, farmers, agricultural service providers, nonprofit organizations and communities are also eligible to apply. In 2013, Northeast SARE awarded $2.4 million in grants.[147]

COOPERATIVE EXTENSION

Created through the 1914 Smith-Lever Act, the cooperative extension service is a partnership between USDA and the land-grant university system. Extension was established to develop, demonstrate and spread existing or new practices and technologies around agriculture, especially those developed through state land-grant universities and agricultural experiment stations. Every New England state has a cooperative extension service that undertakes a variety of agricultural research and educational activities. Agriculture-related services offered by extension around the region include:

- Research and education about livestock health and processing; plant pests; integrated pest management; pasture management; and production systems;
- Programming related to farm transfer, farmland access and land conservation; and
- New farmer training and support.

Several of the region's extension services also have significant programming around food safety, health and nutrition and youth development.[148]

Federal formula funding for state extension programs has been declining, requiring state extension services to be more dependent on federal competitive grants.[149] Federal formula also requires a one-to-one nonfederal match, making state funding essential to the viability of each cooperative extension service. State support for extension, however, has also waned over the decades, and several interviewees for this project cited the loss of traditional agricultural extension agents as a limiting factor in increasing the region's food production capacity. For example, state funding used to account for more than 40 percent of the University of New Hampshire cooperative extension's budget. In 2011 this state allocation was cut by 23 percent, a reduction of $1.7 million. Two years later the New Hampshire legislature restored funding for the university system — including extension and the Agricultural Experiment Station — to pre-2011 levels, but because they both rely heavily on state funding, these entities remain at risk.[150] With a loss of staff and resources, New Hampshire's extension service has been forced to look for alternative funding sources, such as grants, contracts, gifts and fees, which will likely result in greater specialization and

programs focusing in areas where funding is available. As a result, extension services may be further diverted from an agricultural focus.[151]

Increasingly, farmers are looking to extension personnel in neighboring states for traditional extension expertise where none remains in their own state,[152] and extension services are collaborating more closely in this regard. An informal regional network of state extension services exists, and the groups making up this network meet frequently. They also coordinate regional events such as the New England Fruit and Vegetable Conference.

AGRICULTURAL INNOVATION CENTERS AND INITIATIVES

Two states in the region have experimented with virtual agricultural innovation centers, one focused on value-added agricultural businesses and the other on using public-private partnerships to promote economically viable and environmentally sustainable agriculture enterprises. The Vermont Agricultural Innovation Center was established in 2009 with $469,000 of USDA funding to provide technical, marketing and organizational development services to value-added agricultural businesses. The center was administered by the Vermont Agency of Agriculture and operated for two grant rounds.[153] In 2010 and 2011, the center received $1 million from congressionally directed USDA funding and focused on five project areas: technical and business assistance for value-added and agricultural related business; infrastructure development, such as processing and storage; market development; professional and organizational development; and workforce development. Funding levels and eligibility varied by category. The center has not received additional funding.[154]

In Massachusetts, the Agricultural Innovation Center was also a virtual center, investing $2.7 million in a number of large-scale projects aimed at improving output and developing new business opportunities. One round of grants was made through the program in 2007.[155]

The Connecticut Governor's Council on Agricultural Development is currently exploring an Agricultural Innovation Initiative centered at the University of Connecticut to help advance and diversify agriculture. While still in development, the following areas have been identified as having the greatest need and potential impact:

- Increasing capacity for conducting economic analyses related to agriculture;
- Developing a green industry research and education center;
- Creating a food innovation center; and
- Establishing a food safety education program.

The initiative would focus in part on "controlled environment" agriculture, a potential source of significant food production in the region. While the greenhouse and nursery industry comprises half of the agricultural sector in Connecticut, it is challenged by regional, national and foreign competitors that can produce the same products for less and overcome Connecticut's geographic advantage. The future of this industry will rely on technology to reduce energy and labor costs, improve water-use efficiency, and produce a higher quality product. The development of new energy-efficient greenhouse designs, the use of renewable energy, the introduction of robotic systems and new low-energy lighting systems, and production innovations such as vertical growing systems are revolutionizing the industry. The Agricultural Innovation Initiative envisions creating a state-of-the art greenhouse that would serve as a research and education facility with a focus on examination of the latest technology, energy conservation and water-use management as it relates not only to horticulture production, but also to growing food. The initiative would also fund research exploring the economic drivers around controlled environment food production, helping to identify market opportunities for the state's growers.[156]

Action

Support for Existing Programs

- Continued and sustained federal and state investments in agricultural research and extension will be increasingly important as the region's producers face a changing and volatile climate. According to a report released in 2013 by the Massachusetts-based Manomet Center, New England agriculture will likely need the following climate change adaptation strategies:
  - » Modifications to livestock buildings to address heat stress;
  - » Adjustments to livestock diets and feeding patterns to address heat stress;
  - » New management techniques for plant pest pressures;

» Different crop varieties better suited to the changing environment; and

» New technologies and techniques to address climate change impacts associated with specific crops, such as new sap collection technology for maple trees and water management needs for cranberry bogs.[157]

- Growers will also need research and extension investments to help them comply with new production practices, record-keeping and tests required in the proposed Food Safety Modernization Act.
- A number of smaller federal farm bill research programs — including the Specialty Crop Research Initiative; the Organic Research and Education Initiative; and the Beginning Farmer and Rancher Development Program — are valuable to the region, but are not mandatory programs and therefore have no budget unless they are reauthorized in a new farm bill.

Policy Options

- A new emphasis is needed in federal and state research around controlled environmental agriculture and opportunities for year-round food production. A significant research initiative, such as that contemplated by the Connecticut Governor's Council on Agricultural Development, could benefit the entire region, and collaboration among states and with the USDA could help raise additional research resources.

BUSINESS PLANNING AND ASSISTANCE

Introduction

Over the past few decades, New England agriculture has transitioned from being a sector largely oriented around wholesale markets to one with more market diversification and greater emphasis on direct-to-retail and value-added opportunities. With this shift has come a need for expanded business planning and for capital to support the processing and marketing infrastructure necessary to capture these new opportunities. State departments of agriculture have devoted significant resources in this area, largely through programs that provide business planning assistance to farmers, and, in some cases, grants to implement aspects of the business plans. Where grant funds are made available, farms are typically required in exchange to agree to a nondevelopment covenant on their land for a period of years. These programs fall loosely under the term "farm viability" programs.

Discussion

FARM VIABILITY PROGRAMS

Connecticut

Through the Farm Transition program, the Connecticut Department of Agriculture offers grants of less than $50,000 to:

- Provide support to farmers enhancing their agricultural operation and marketing strategies to increase profits;
- Help farmers diversify, transition into new production areas and/or expand existing production; and
- Support educational activities that help farmers diversify or transition toward new products or new market areas.[158]

A different program, the Farm Reinvestment Grant program, is designed to provide funding for capital enhancements to farms. The funds may be used to expand existing agricultural facilities, or to diversify or expand into new production areas and site improvements related to such expansion or diversification. The program provides competitive grants of up to $40,000.[159]

Maine

The Maine Farms for the Future Program offers both business planning assistance and grants to implement elements of the business plans. Eligible farmers receive help creating a business plan, and then can apply for a grant of up to $25,000 to implement some aspect of the plan. In exchange, farmers must sign a covenant agreeing not to develop their farmland for seven years. The grants can be used to invest in infrastructure, equipment or land to increase the viability of the operation.[160] A program evaluation found 66 percent of participants reported a net increase in profits after completion of the program.[161]

Massachusetts

The Farm Viability Enhancement Program, the first program of its kind in the region, helps participants develop and implement farm viability plans. In the first phase, the program provides technical and business planning assistance to expand, upgrade and modernize existing agricultural operations. In the second phase, farmers can access capital to implement the improvements recommended in

the viability plan in exchange for signing an agricultural covenant on the farm property for a fixed term.[162] Grants of up to $25,000 are offered in exchange for a five-year covenant, up to $50,000 for a 10-year covenant, and up to $75,000 for a 10-year covenant on farms with at least 135 acres. To be eligible, farmers must own at least five acres of land and have managed the land for at least three years.[163] Because of the covenant requirement, farms that have been permanently protected through the state's Agricultural Preservation Restriction Program are not eligible for the second phase of the program.

To meet the needs of these farms, the Commonwealth created a separate Agriculture Improvement Program, which provides technical assistance and business planning only to farms that are already protected in whole or in part through the Agricultural Preservation Restriction Program. Farmers who complete their plan and then move to a second phase may be eligible for a grant award of up to $75,000, depending on factors including the number of acres protected, number of jobs that would be generated, and needs identified in the business plan.[164]

New Hampshire

In 2005, the New Hampshire legislature authorized a Farm Viability Task Force to study and recommend policies and actions to promote the agricultural sector. Among the task force recommendations was the creation of a farm viability program to support agricultural operations with business planning and capital investments. The proposal mirrored the Massachusetts program and would make use of temporary land-use covenants in exchange for funding to implement a farm business plan developed with expert consultants. A farm viability program has not been created as of 2013.[165]

Rhode Island

In Rhode Island, the Division of Agriculture provides grants between $10,000 and $50,000 to farmers or agricultural or educational organizations for:

- Research, promotion, marketing or trade enhancement related to agricultural product development or education;
- Projects having to do with nutrition, food safety, food security, plant health, product development, education or "buy local" initiatives; and
- Programs that provide for increased consumption and innovation, improved efficiency and reduced costs of distribution systems, environmental concerns and conservation, and development of cooperatives. [166]

The funding comes from the USDA Specialty Crop Block Grant Program, so the awarded grants must be used to further the competitiveness of specialty crops as broadly as possible and not just serve to enhance an individual farm's viability. Unlike several of the other state programs, grant funds in Rhode Island may not be used for construction projects.

In 2012, the Rhode Island legislature established a Local Agriculture and Seafood Small Grants and Technical Assistance Program. The program is intended to:

- Assist in the marketing of Rhode Island grown agricultural products and local seafood for the purpose of sale and promotion within the state of Rhode Island or United States;
- Enhance the economic competitiveness of Rhode Island grown agricultural products and local seafood;
- Provide financial and technical assistance support to organizations and farmers for activities and programs which enhance the economic viability of local agriculture, and support the development of a locally based, safe and sustainable food system;
- Provide individual farm grants to small or beginning Rhode Island farmers that support the entry or sustainability within the respective industry;
- Work with the state department of health to further develop and support food safety related programs and standards pertaining to local agriculture and seafood; and
- Perform other activities necessary to facilitate the success and viability of the state's agricultural and seafood sectors.

Funding for the program's first year was included in the fiscal year 2014 budget. Under the program, nonprofits and eligible farmers may apply for grants of up to $20,000.[167]

Vermont

Vermont's Farm Viability Enhancement Program offers business planning and technical assistance to enrolled farmers through farm business planners from partner organizations. Farmers and planning consultants meet and work together for approximately one year to produce a written business plan. In the second year, farmers

receive additional technical assistance and help updating their plans. When funding is available, farmers who have completed business plans with the program are eligible for grants of up to $8,000 that they can put toward capital expenses or additional technical support to implement the plan.[168] Surveys conducted after the completion of the business plan and at the end of a second year show positive results: For farmers who completed plans in 2010, the average gross income increased 38 percent in the year after completing their business plan.[169]

A separate program, the Working Lands Enterprise Initiative, was created in the 2012 legislative session. For fiscal year 2013, the initiative invested $1 million in agricultural and forest based businesses through three grant programs. Investment decisions are made by a 12-person board composed of three state agency heads and nine appointed industry representatives. The goals of the enterprise fund are to:

- Stimulate economic development in the agriculture and forest product sectors by advancing entrepreneurism, business development and job creation;
- Increase the value of raw and value-added products by developing in-state and export markets;
- Attract a new generation of entrepreneurs to Vermont's farm, food system, forest and value-added chain by facilitating more affordable access to the working landscape; and
- Increase the amount of state investment in working lands enterprises.[170]

The initiative includes three grant opportunities. Enterprise Investments provide grants between $3,000 and $15,000 to new or growing businesses, and offer business and technical assistance and infrastructure development to producers. Working Lands "Service Provider" grants between $10,000 and $100,000 are available to nonprofits, associations and colleges that address workforce needs and/or offer training; technical assistance; needs assessments; product research; marketing assistance; market development; business and financial planning; or access to capital. Working Lands "Capital and Infrastructure" investment grants between $15,000 and $100,000 are available to producers and nonprofit organizations, including food hubs, farmers' markets and shared processing facilities, for capital investments to increase operational capacity and influence the industry beyond their immediate business. Funding can be used to pay specialized personnel; to acquire land or easements; to pay for building and equipment costs such as processing, storage or distribution; to put toward long-term working capital; or for other collaborative ventures that would open new markets or build capacity within the supply chain.[171]

Action

Support for Existing Programs

- State farm viability and other business development programs have been effective in fostering new agriculture business models and opportunities, and in leveraging significant private investments in on-farm agricultural infrastructure.

Research and Analysis

- States differ in their level of impact analysis around farm and food business development programs, with some states documenting the impact that each of their programs has on economic growth, job creation and farm profitability. More robust program evaluations could help build public and political support for these programs.

Policy Options

- The Vermont Working Lands Enterprise Fund offers an interesting model of state investment in agricultural business and job creation, providing funding to both individual farm operations as well as to statewide high-impact projects.
- In states with programs that provide business implementation grants in exchange for a nondevelopment covenant, consider a course similar to the Massachusetts Agricultural Investment Program, which provides grants for business planning and implementation to permanently protected farms that would not otherwise be eligible for the program. To qualify, farms should be required to document public benefits associated with the investment.

RISK MANAGEMENT

Introduction

Farming is an inherently risky business, and is likely to become riskier with a changing climate and more severe weather events. Government plays an important role in

administering programs and policies that help farmers manage their risk. Most risk-management tools used by farmers in New England are federal and are not, according to several interviewees, especially effective. For the region's dairy farmers, a proposed new revenue margin insurance program in the current House and Senate versions of the farm bill — in concert with a Dairy Market Stabilization Program — offers some hope of addressing the severe milk-price swings that have affected dairy profitability over the past decade. For the region's fruit and vegetable growers, improved crop and revenue insurance products could minimize the financial impact of crop losses due to adverse weather events.

Discussion

CROP AND REVENUE INSURANCE

USDA's Risk Management Agency administers the Federal Crop Insurance Corporation, which provides insurance through private companies for crops and livestock. While crop yield insurance covers only yield losses, crop- or whole-farm-revenue insurance protects against low revenue due to losses in production and declines in product quality and market price.[172] Traditional crop insurance continues to be used in New England for some crops, and revenue insurance has become increasingly popular.

For many of the region's fruit and vegetable growers, traditional crop insurance is valuable for catastrophic crop losses, but does not pay for shallow losses, which can represent a farm's profit margin for the year. Crop insurance is also not available for certain specialty crops, such as lettuce, broccoli and spinach. In part for these reasons, specialty crops comprise only about 5 percent of crop insurance premiums despite accounting for nearly 22 percent of farm crash receipts.[173] The Risk Management Agency has been working to improve its Adjusted Gross Revenue and Adjusted Gross Revenue-Lite insurance products, which in theory are attractive for New England's diversified farms because they cover multiple crops under one policy and cover up to 35 percent of farm revenue from livestock and livestock products.[174] However, neither insurance product is used much in New England; fewer than 40 producers in the region purchased either product for the 2013 crop year.[175]

DISASTER PAYMENTS

The 2008 Farm Bill created a permanent disaster program called the Supplemental Revenue Assistance Payments Program, which pays producers with crop insurance on eligible commodities for losses incurred as a result of diseases, adverse weather or other environmental conditions. The Noninsured Disaster Assistance Program is available to producers of crops for which crop insurance is unavailable.[176] These programs have not proven sufficient in cases of severe crop losses in New England. For instance, excessive rain in Connecticut during the 2013 summer growing season resulted in that state offering $5 million in grants to producers who had suffered excessive losses. Grants were used to repair damaged property and equipment; replant lost crops; purchase feed to supplement lost hay, corn and other crops for livestock; or other similar purposes.[177]

PRICE AND INCOME SUPPORT PROGRAMS

With the exception of dairy, USDA commodity programs are largely not used by New England farmers, as few farms plant significant acreage of covered crops. Dairy is considered a commodity crop, and current federal dairy policy is in flux. Of the five major dairy programs authorized through the 2008 Farm Bill, four remain in place:

- Federal Milk Marketing Orders, which effectively control the price of milk paid by milk handlers;
- Dairy Product Price Support Program, which acts as a floor for farm milk prices through the purchase by USDA of dairy products at set prices;
- Dairy Import Tariff Rate Quotas, which limit the import of lower-priced foreign dairy products; and
- Dairy Export Incentive Program, which subsidizes dairy product exports.

The Milk Income Loss Contract program (MILC) was the fifth dairy program in the 2008 Farm Bill that expired at the end of September 2013. In the suite of federal dairy programs, it was arguably the most important to New England's dairy farmers. The MILC program provided farm income support by giving participating dairy farmers a payment whenever the fluid milk price fell below a certain target price. Payments were limited to the first 3 million pounds of milk production per farm (equal to about 150 cows) annually, which limited payments to the region's larger dairy producers. An important addition to the program, though, in 2008 was a "feed adjuster,"

which allowed the MILC payment rate to rise if and when feed costs rose.[178] In the eleven years of the MILC program, payments to New England dairy farmers totaled $162 million.[179]

The Senate version of the 2013 Farm Bill eliminates MILC, the Dairy Product Price Support Program and the Dairy Export Incentive Program, and replaces them with two new programs: a Dairy Production Margin Protection Program and a Dairy Market Stabilization Program. These two programs are intended to work in tandem. The Dairy Production Margin Protection Program is an income-support program based on the margin between the national average all-milk price and a formula-derived estimate of feed costs, and the Dairy Market Stabilization Program acts as a supply-management program by reducing payments to producers when the margin falls below statutory thresholds. For smaller dairy producers, the Senate bill provides additional margin protection on the first 4 million pounds of production (about 200 cows). New England producers and dairy cooperatives are generally supportive of the Senate-passed bill.[180] The House bill includes the Dairy Production Margin Protection Program but not the Dairy Market Stabilization Program; for that reason, many of the region's dairy farmers oppose the House version of the farm bill.

Because federal policy has not been effective in stabilizing fluid milk prices or providing a meaningful safety net for dairy farmers when milk prices are especially low, several states have stepped in to create state-level safety net programs. These programs are described below.

CONNECTICUT AGRICULTURAL SUSTAINABILITY ACCOUNT

In 2009, Connecticut earmarked $10 of a $40 statewide deed recording fee imposed through the Community Investment Act to fund an Agricultural Sustainability Account, which provides grants to dairy farmers according to a formula based on the difference between the regional all-milk price and 82 percent of the cost of production. Grants are based on monthly production levels, and payments will be prorated if there are insufficient funds in the account to cover all producer payments.[181]

MAINE TIERED DAIRY STABILIZATION PROGRAM

The Tiered Dairy Stabilization Program, established in 2004, pays farmers directly from the state's general fund when the market price received for milk falls below cost of production. A producer's target price depends on which of four production range tiers he or she is in. All producers begin in the first tier at the beginning of the year. Some move into the second, third and fourth levels of production fairly quickly, while others never get out of the first tier. Since the program gets its resources from the general fund, it is subject to the state budget process. Milk handling fees, collected by the Maine Revenue Service, are sent to the general fund. Since 2007, at least $30 million has been paid to milk producers through this program. The state legislature has frequently imposed an annual cap on program expenditures; in 2010 and 2011, the program was capped annually at $13.3 million.[182]

MASSACHUSETTS DAIRY FARM INCOME TAX CREDIT

Established in 2008 to offset the cyclical downturns in milk prices paid to dairy farmers, the Dairy Farm Income Tax Credit is activated every month that the Federal Milk Marketing Order's price drops below a trigger price established by the Massachusetts Department of Agricultural Resources. This trigger price is calculated from monthly costs-of-production figures, including hired labor and some portion of the value of unpaid labor; the amount of credit is based on volume of milk production. The credit is received when farmers file their annual taxes, and the pool of available credit is capped at $4 million a year.

Action

Support for Existing Programs

- State-level programs providing income support for dairy farmers appear to be having a positive impact on farm profitability. Continued support for these programs is important to keep dairy farms viable and the land they steward in farming.

Research and Analysis

- Little analysis has been done in Massachusetts and Connecticut about the impact of their state dairy programs on farm profitability. Such analyses could help build sustained support for the programs.

- Additional analysis should be done about the insurance needs of New England farmers, to better inform the development of a workable whole-farm-revenue insurance product in the region.

Policy Options

Federal

- The Dairy Market Stabilization Program is an important component to the suite of federal dairy programs and should be included in the final version of the 2013 Farm Bill.
- As Farm Credit East suggested, consider crop insurance provisions to encourage more coverage of specialty crops including funds allocated for education efforts in underserved regions and for specialty crop agents serving specialty crops. The lender also supports simplifying the Adjusted Gross Revenue and Adjusted Gross Revenue-Lite insurance products to encourage more participation among Northeast farmers.
- The National Sustainable Agriculture Coalition recommends the establishment of a new whole-farm-revenue insurance product for specialty crop producers and dairy operations. The insurance product should be offered at the same coverage levels and options as other revenue products and should work for farmers engaged in value-added agriculture and alternative marketing.[183]

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