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Regionalism: a New England recipe for a resilient food system

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Abstract

Regionalism is a framework for economic, policy and program development that responds to regional characteristics, differences and needs, and encourages regional approaches and solutions. This paper suggests that acting regionally contributes to food system resilience. The author discusses attributes of regionalism and regional food systems and how they build capacity to withstand disruptions in the food system. Food system resilience entails reducing vulnerability to risks of disruption to the food supply, and increasing capacity to withstand or adapt to such disruption. Regions are an effective scale to promote resilience through enhanced diversity, stability and flexibility, appropriately scaled supply chains and infrastructure, and strong foundational relationships. These attributes are important to resilience in that they decrease dependence on “external” variables such as long-distance transport of foods, and increase “internal” capacity to provide for the region and withstand natural and manmade disruptions. The region is a powerful scale to respond to disruption in that it: addresses supply (volume and diversity) better than local; is more nimble and flexible than nationally and globally sourced food (even accounting for global supply chain “substitution”); and effectively fosters relationships, communication and trust which are foundational for responding to change (disruption). This paper focuses on the New England region whose six states have a history of working together. It is also a region that exemplifies an area’s ability to respond to disruption based on real and felt interconnectedness of rural and urban interests. As such, it is an ideal learning laboratory for applying regional approaches to food system resilience, approaches that can be of use elsewhere both nationally and internationally. The paper describes several initiatives in New England that exemplify regional thinking applied to food systems and how such thinking can foster resilience. Initiatives focusing on regionally focused food supply chains, increased regional production, access to farmland, and food system Public policies illustrate how government, civil society and the private sector can collaborate to strengthen food resilience.

Keywords:

Regional food system; local food system; regionalism; food system resilience

Regionalism: A New England Recipe for a Resilient Food System

Introduction

Recently, the “regional food system” framework has achieved recognition among food advocates, planners, supply chain players and policymakers as an effective approach to how we can best feed ourselves. Over the past decade “local food” has attracted eaters, producers and marketers. To many, “local” connotes healthy, fresh, and more sustainable, just and secure than the alternatives (Born and Purcell 2006). But, local food is not likely to adequately feed the “locals,” particularly in the face of acute or chronic disruption. On the other hand, national and global scale food systems increasingly are decried for their harmful impacts on health, the environment, and social justice. This paper will describe how regional thinking in New England is building this region’s capacity for food system resilience. It will discuss regionalism and regional food systems, along with methods for acting “regionally.” Then, the paper will focus on several initiatives in New England that exemplify regional thinking applied to food systems and how these approaches can foster resilience. Additionally, this article will illustrate how government, civil society and the private sector can collaborate on initiatives that strengthen food resilience. Thus, the “New England case” contributes to the discussion as a real-world example of effectively scaled approaches to fostering food systems resilience anywhere.

Regionalism is a framework for economic, policy and program development that responds to regional characteristics, differences and needs, and encourages regional approaches and solutions (Clancy and Ruhf 2010). A region can be defined by political or administrative boundaries such as a county, state, or an EPA Region; bio-geographic boundaries, such as a watershed, river valley or mountain area, or cultural descriptors such as Cape Cod, Down East (Maine), or the Big Apple.

In a working paper on this topic, Ruhf and Clancy (2010) discuss how thinking about regions in general can be applied to food systems. Regions “nest,” meaning that a region may comprise sub-regions and be part of a larger region. For example, Cape Cod is a region of Massachusetts which is one of six states in New England which is part of the Northeast. They can overlap, and they connect and compete with other regions. On one hand regional boundaries are malleable; on the other, boundaries can obstruct the optimal flow of goods and information. Regionalism is not just about geography, although with food systems, geographic fixity – the dependence on climate, land, water, and other natural resources—is a major driver. It is also about scale, trade, markets, cultural dynamics, economics, politics, values and relationships. A key relationship in a region is between rural and urban interests. Often pitted against one another, their interdependence is of utmost importance in regional food system thinking.

Ruhf and Clancy (2010) describe an ideal regional food system as one in which “as much food as possible to meet the population’s food needs is produced, processed, distributed and purchased at multiple levels and scales within the region, resulting in maximum resilience, minimum importation and significant economic and social return to all stakeholders in the region.” This is not *self-sufficiency* (wherein all food needs are met). This is a vision for increased regional *self-reliance* in which a region supplies a volume and variety of foods to meet as many of the dietary needs and preferences of its population as possible. While “local” and “regional” are sometimes conflated or used synonymously, this paper employs them differently. A regionally focused food system is more than the sum of local

food systems within its boundaries. It is not a “scaled out” local food system of multiple local nodes, nor is it simply a “scaled up” or bigger local food system. Local food matters in many ways, but it is not sufficient to meet food needs in terms of volume, product variety, infrastructure, land base, markets and food access, for example.

While a regional approach to addressing food needs is compelling, regional food systems are not *by definition* “healthier” or more just (Clancy and Ruhf 2010). They could, however, be an engine for significant improvements to how food is produced, distributed and consumed, with multiple economic, environmental and social benefits. “Re-regionalizing” the food system means greater emphasis on the region as a driver to attain these benefits. In this paper I suggest that the regional scale has much to contribute to addressing the risks of disruption to the food supply.

In a tiered food system model (Bower, Doetch and Stevenson 2010) personal production (backyard and community gardens, hunting) is at the center of concentric circles. The next ring represents direct producer-to-consumer exchanges. The next ring represents strategically configured, regionally scaled and focused supply chains, while the two outer rings describe large volume national supply chains, and global, anonymous aggregation and distribution systems. In a reconfiguring of this model, Tagtow and Roberts (2011) suggest that the present “unbalanced” food system—overly dependent on the outer ring global system—be replaced by more “balanced” food tiers. In doing so, the regional scale nests prominently in the middle. It doesn’t mean that “regional” replaces or dominates the others. Rather, it recognizes that the regional scale is essential for food systems and suggests a compelling need to make the regional level (as well as self-provisioning and local, direct markets) more robust.

In what ways can regionally focused food systems contribute to resilience? Can regionalized food systems effectively withstand and respond to disturbances such as natural disasters, fuel shortages, transportation disruptions and climate change? New England may not be the world’s breadbasket, but it is an ideal learning laboratory for readers based elsewhere to explore these questions.

Regionalism and food system resilience

Food system resilience means minimizing vulnerability to acute as well as more insidious disruptions in food production, supply and access while maximizing control and adaptation. According to Marten and Atalan-Helicke (2015), vulnerability in the food system can come from: declining capacity due to loss of land base; water shortages or contamination; natural disasters; crop failure; disruption in energy supply; concentration in the supply chain; social conflict; and “dysfunctional social complexity” as associated with globalization. Building resilience requires addressing specific points of vulnerability but also enhancing the foundations for stability and adaptive capacity. Sustainability and resilience are not synonymous but they are connected. “Sustainability is about maintaining something indefinitely into the foreseeable future. Consequently, to be sustainable we have to anticipate and successfully adapt to the changes ahead” (Kirschenmann 2008). A sustainable food system will be more resilient, particularly with respect to volatility and longer-term natural threats. “Addressing climate change and achieving sustainability in the global food system need to be recognized as dual imperatives. Nothing less is required than a redesign of the whole food system to bring sustainability to the fore” (Foresight 2011).

Others have written specifically about resilience in the food system. Tagtow and Roberts (2011) describe the economic, ecological and social factors needed to build resilience in Iowa's food system. Economic factors include ability of farmers and communities to avoid financial losses, support basic livelihoods, contribute to local and regional economies, and decentralize control such that no entities hold a disproportionate share of the supply chain. Ecological factors include conservation and regeneration of natural resources and biodiversity, using energy from renewable sources and recycling waste. Social characteristics have to do with equitable food access, fair treatment of human resources, and assurance of healthy and culturally acceptable foods. The International Council for Local Environmental Initiative's annual Global Forum on Urban Resilience and Adaptation described a resilient urban food system as one that is diverse, distributed, natural, innovative, social, and inclusive.

Looking at the New England region, people located anywhere can begin to understand the relationship between regionalism and resilience in how we feed ourselves. Food system resilience entails reducing vulnerability to risks of disruption, and increasing capacity to withstand or adapt to disruption. This can be accomplished through enhanced diversity, stability and flexibility, appropriately scaled systems, and strong foundational relationships. It means:

- Reduced dependence on food imported from outside the region
- Increased food production within the region
- More efficient and stable regional supply chains (compared to global), including shorter transport distances
- Maintaining and enhancing the productive land base and associated natural resources
- Diversity in crops, production practices, farm scale and markets
- Shifts in diet including eating more seasonally and less red meat
- A supportive environment for farmers and adequate opportunity to enter farming
- Fairness and equity for all across the food chain, including farm and food workers and supply chain partners
- Capitalizing on the region's assets such as abundant water, transportation networks and consumers
- Sound infrastructure and institutions, from processing facilities to emergency food programs
- Cooperation and collaboration among food system sectors and among governments, commerce and civil society within and across states

These attributes are important to resilience in that they decrease dependence on "external" variables such as long-distance transport of foods, and increase "internal" capacity to provide for the region and withstand natural and manmade disruptions. The region is an effective scale to respond to disruption in that it: addresses supply (volume and diversity) better than local; is more nimble and flexible than nationally and globally sourced food (even accounting for global supply chain "substitution"); and effectively fosters relationships, communication and trust which are foundational for responding to change (disruption). The region also is the unit through which rural-urban connections can be examined and strengthened. The ability of an area's food system to respond to disruption depends on the real and felt interconnectedness of rural and urban interests.

New England: a historical and geographical context

Our New England laboratory is composed of six states: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. Before the colonists arrived, Native peoples subsisted on local diets of cultivated corn, beans, and squash, along with foraged nuts and berries, game, fish and shellfish. During and after the colonial period, the largely forested land base was precipitously cleared as subsistence farming was augmented by commercial production. Most of this was for pasture for dairy cows and a booming sheep industry. By the late 19th century, as farmers migrated to the more fertile soils of the Midwest, much of the cleared land, particularly the more marginal lands, returned to forest cover. Today, a walk through a New England woods reveals the stone walls that testify to this land use evolution. While farm acreage declined, into the 20th century farm production increased in value as population soared and “farmers responded to urban demand ... with milk, poultry, produce and fruit.” (Donahue, B. et al. 2014 p.6) Since WWII, almost all categories of farm production have declined.

The land currently in farming in New England—less than 2 million acres or 5% of the total land base—varies greatly, from the Connecticut River Valley with some of the highest quality farmland in the world to the sloped, rocky, wet, or shallow soils that typify our glaciated topography. These soils and topography have shaped New England agriculture, limiting average farm acreage to one-quarter the national average. Short growing seasons but abundant water are also significant factors in what and how we produce. These natural factors in combination with expanding markets have shaped a diverse and adaptable farming sector.

Today, the population of New England is about 14.5 million, with 80% categorized as urban, mostly concentrated in the southern three states (CT, MA and RI). Based on a calculation that “over one acre per person is needed to grow all the food the region consumes” our region’s demand for food greatly outpaces the currently available land base (Donahue et al. 2014). In fact, we produce about 12% of what we consume. What would it take to become more self-reliant, and would that result in greater resilience? Are there important ways in which the regional food system can become more resilient, even in the absence of a large increase in production? In a preliminary study of regional self-reliance (RSR) in the Northeast food system, Griffin and colleagues (2014) posit four factors that could result in substantial shifts (upward or downward) of RSR: land used for agriculture; crop and animal productivity; population; and dietary preferences. Increased regional self-reliance would require more land in production, increased productivity, moderate population increases and some shifts in diet.

Regionalizing the food system takes vision, along with experimentation, collaboration, and leaps of faith. New England has a long history of multi-state cooperation, fostered in part by the small size of our states (except Maine). In the last few years, efforts to build a more sustainable and resilient New England food system have escalated ambitiously. New England is a small US region with its own set of unique attributes such as abundant water, relatively poor soils, limited land for farming, strong markets and short growing season, for example. On one hand, we are marginal in terms of domestic—not to mention global—food production. On the other hand, our constraints have pressured us to both deal with and take advantage of these attributes in our effort to address food system resilience. As this paper will show, our responses can serve as models for other regions.

For example, New England's small states (although Maine is relatively large) make those who live there deal with state boundaries and different states' laws all the time. We are forced to address our limitations—land base, productive capacity, physical and service infrastructure, and supply volume. Decades ago, dramatic rates of farmland loss to development in New England led to innovative farmland protection programs that are now widely replicated across the country. Because agriculture is not the economic driver that it is in other regions, we've had to assertively build awareness among—and bridges to—other interests such as community economic development, public health, environmental conservation, and anti-hunger. We've found it imperative to engage our large non-farming population, to make the case for local and regional food. (New England leads the nation in farm direct-to-consumer sales.) In the context of our rich diversity of farmers and consumers, advocates have worked hard toward collaboration and a unified voice, resulting in stronger relationships and greater trust essential for adaptive responses. Compared to other US regions, New England states are less dependent on commodity production and markets, export and international trade, and USDA commodity and conservation programs. This enables our producers to be more diverse, flexible, nimble and independent—all factors that contribute to resilience.

Frameworks for regionalism

What are the methods and tools that move us as citizens toward a more regionally focused and resilient food system? In other words, *how* do we get there? I suggest that regions are important (if not critical) contributors to food system resilience due to the social constructs that are possible and fruitful at the regional scale as well as the “hard” factors such as volume of production, structure of supply chains, and siting of infrastructure.

The New England Food Policy Project provides some answers by examining approaches for regional cooperation in food systems work. This project is a collaboration among American Farmland Trust, Conservation Law Foundation and Northeast Sustainable Agriculture Working Group (NESAWG). Its purpose is to identify policy levers toward increased sustainability in five areas: land; food production; processing, aggregation and distribution; markets; and waste. In addition, the project partners researched frameworks for regional (i.e. multi-state) food system coordination. The findings and suggestions are contained in a report, *New England Food Policy: Building a Sustainable Food System* (American Farmland Trust, Conservation Law Foundation and Northeast Sustainable Agriculture Working Group 2014). A description of various tools and methods for regional cooperation follows, illustrated by on-the-ground activities in the New England region.

This report states, “A thriving regional food system depends in part on the capacity of governments and stakeholders to work together around planning, policies and programs” (p. 123). Regional structures for multi-state cooperation and coordination range from informal to formal. And while such models exist, relatively few attempts have achieved lasting success. Success at a regional level depends as much on a thorough and shared analysis of the problem as it does on the method to address it. The tool or method chosen should fit the problem being addressed; you don't need a cannon to ring a doorbell. (For example, an interstate commission is not needed to regulate farmers markets.)

Our research categorized models for regional coordination. The most formal structures are governmental in origin and include compacts, commissions and authorities. The Northeast Interstate Dairy Compact (now defunct) is one example. Memoranda of Understanding or Agreement such as the Regional Greenhouse Gas Initiative and the Transportation and Climate Initiative are government-based, but voluntary and less binding than a compact or commission. Collaborative governmental relationships often function without specific governmental mandates. Examples include the Coalition of Northeast Governors and the New England States Animal Agriculture Security Alliance.

States may pursue regional solutions without the presence of a governance structure or body. With regulatory harmonization or reciprocity, states can cooperate such that certain regulations are either compatible or recognized across states. Reciprocity is common in the education and criminal law sectors. In agriculture, for example, a pesticide applicator license obtained in one state was honored in the other states. (This program is no longer in operation.) In the energy sector, each New England state has its own renewable portfolio standard program, but energy facilities are allowed to sell credits to utilities throughout the region. There are substantial barriers to inter-state harmonizing or reciprocity including bureaucracy, federal commerce laws and parochialism. But this approach holds much promise too, such as with procurement rules, described below.

Regional solutions can be found in cooperative initiatives that are not “hardwired” into government. One contemporary effort to re-regionalize New England’s food system came out of the New England Governors’ Conference. The Conference, in partnership with the six state agriculture agency heads, authored the New England Farm and Food Security Initiative (NEFFSI) in 2010. Its three-year, multi-state action plan articulated a shared commitment to strengthening infrastructure, spurring food sector economic growth, retaining farmland, fostering farm viability, improving food access and expanding production capacity. As NEFFSI phased out as a formal initiative, the six agriculture heads continued to collaborate on regional-scale solutions to identified barriers. The Initiative serves as a guiding influence within government around regional food system development. These shared commitments by government leaders demonstrate the relationships and stability that contributes to resilience.

The rest of this article focuses on examples of ongoing work in New England that exemplify regional approaches and exhibit several of the attributes of resilience listed above. These examples were chosen in part because they represent work in different sectors of the food system.

A vision for New England

A guiding influence for food systems change in our region emerged from academia in 2006 with strong grassroots and cross-sector participation. Food Solutions New England (FSNE) is a broad, collaborative “learning-action network” dedicated to “transforming the New England food system into a resilient driver of healthy food, sustainable farming and fishing, food system equity and thriving communities” (<http://www.foodsolutionsne.org/>).

Why regional and why New England? Joanne Burke is a member of the FSNE Core Team, and affiliated with the Sustainability Institute at the University of New Hampshire, FSNE’s backbone organization. Burke lists multiple reasons. “New England has an identity, a flavor that sets the stage. There are already many cross-state alliances, with ‘soft working borders’.” States can leverage each other’s resources. For

example, given the depleted Extension system in our region, states can cooperate to share specialists. According to Burke,” (personal communication) a New England regional approach invites state and regional planners and practitioners to pursue a more robust and equitable food system by identifying scale-appropriate strategies.”

FSNE’s website exemplifies its regional attitude. “The future of our food is in our collective hands. Transforming our regional food system cannot be done through individual efforts alone; we need to work together to continually forge a common agenda and mutually reinforcing visions of the future.”

Burke points to *A New England Food Vision* which represents one such vision. The “Vision” proposes that New England can be substantially food self-reliant. The report results from years of data analyses and other research, with broad collaborative input. It “invites state and regional planners and practitioners to pursue a more regionally robust, and equitable food system by identifying specific strategies that will turn possibilities into realities.” The Vision calls for a dramatic increase in the region’s food production, guided by four principles: the basic right to food access, healthier diets, environmental sustainability, and equitable economic conditions for producers and communities.

Using two alternative diets meeting the current USDA My Plate recommendation, the Vision’s authors project that in 50 years New England could produce at least half of its food needs—up from about 12% currently. Along with dietary and crop/livestock shifts, land in production would go from 5% to 15% of the total land base under these scenarios. The authors argue that “there is ample room to expand New England agriculture without decimating the region’s recovered forests and without derailing necessary economic development” (Donahue et al. p. 16). “By thinking and working as a region the six states are coming together to build clout, opportunity and capacity. The Vision helps to give voice and direction to our aspirational goals of advancing a New England food system that works for all.”

The New England Food Vision is not a prescription, plan or goal. While it was meticulously researched and widely vetted, it is not universally embraced, nor is that the point. As a catalyst for dialogue and collaboration, it is a compelling contribution to food system resilience.

Burke adds, “Having the Vision helps people organize politically. For example, FSNE team member Amanda Beal has been actively involved in the efforts of State and U.S. legislators in New England who are interested in advancing the goals of the Vision. One of Maine’s gubernatorial candidates referenced the Vision in his food and agriculture policy platform, recognizing that in this vision his state would play a key role in feeding the region and, in turn, create great opportunity for producers and other entrepreneurs in the food sector.”

Understanding that regional boundaries are flexible and regions are nested, FSNE’s work is of interest beyond New England. The Vision was featured at the annual conference of the Northeast Sustainable Agriculture Working Group (NESAWG). “It Takes a Region”—the name of NESAWG’s annual conference—reflects over two decades of advocating for and strengthening regional food systems. NESAWG is a food system network that spans 12 Northeast states and includes over 500 participating organizations (www.nesawg.org). New England’s six states are nested in this region, and engage neighboring states as well as the entire region (and Canada) through supply chains and markets, for example.

The success of FSNE is due in part to its dedication to inclusion. There is a strong grassroots presence in the network, and an explicit commitment to equity, food access, health and nutrition outcomes that reaches across states. This focus on inclusion is manifest in annual Summits that are attended by delegates chosen within each state (plus a regional delegation). The delegate model allows each state to select its representatives to the Summit where they interact with their compatriots from the other states. Despite challenges identified by Burke such as transportation, communication, laws and policy, and cultural variations by state, “Establishing regional goals and direction through ongoing network activities helps the region see what is possible and to set a course toward realizing our food system aspirations.”

Distribution networks and the marketplace

The NEFFSI led to the creation of Farm to Institution New England (FINE), a regional market-focused network that addresses institutional procurement. FINE seeks to strengthen our regional food system by increasing the use of New England food by New England institutions such as schools, hospitals, colleges and universities, government agencies and corporations. FINE includes non-profit organizations, government agencies, foundations, farmers, food distributors and processors, and the food service industry in New England. As a nested network, each FINE state has its own network; FINE connects them together as well as with the National Farm to School Network and its Northeast Regional Steering Committee. FINE projects address processing, supply chains, and policy such as commenting on the Food Safety Modernization Act and the DOD (Department of Defense) Fresh program. FINE contributes to resilience by reducing reliance on out-of-region supply chains, and improving the stability of the region’s farm sector. Its vision is “for all New England institutions to preferentially purchase regionally produced food.”¹

With its focus on the marketplace, a regional approach makes sense because as Peter Allison, FINE’s network coordinator, points out, “Food producers, distributors and buyers already work on a regional basis; they don’t stop at the state borders.”

The six-state New England region is relatively small compared to many other parts of the country. Our 72,000 square miles would fit within many other states. In the “foodshed” model, we look regionally at production and consumption by institutions. We have much more production in the three northern states (ME, NH and VT) and a majority of the consumers in the three Southern states (CT, MA and RI). In fact Massachusetts has 50% of the region’s population, Maine has 50% of the vegetable and berry acres in production and Vermont has 50% of the beef and dairy cows. “Seeing this region as a food shed makes a lot of sense. In addition, New England has a regional identity. There are public and private partnerships and relationships in the region that provide a strong foundation for collaboration,” observes Allison (personal communication).

Virtually all of FINE’s initiatives are cross- and multi-state. FINE coordinates a processors’ “community of practice” that brings together small processors from the states to discuss common barriers and opportunities to processing regional food for institutional markets. FINE’s research on distribution

¹ Additional information about procurement policies is provided in the appendix.

companies, beef producers and demand, and food service management companies all have a regional approach.

Allison states, “There are myriad benefits to working on a regional scale in this effort. While there are unique political, demographic and geographical characteristics to each state and even sub-state region, there are an equal number of similarities. Providing a forum for individuals and organizations to come together to share information, learn from each other’s successes and challenges and develop collaborative strategies enables all entities to be more successful.”

When asked to identify lessons about working regionally, Allison elaborated, “FINE’s partners routinely speak about the value they derive from connecting with their counterparts in other parts of the region and with people working in other sectors and areas of the supply chain. We are better and more resilient together. We are working to change a national and international food system that has placed a high premium on efficiency at the cost of local relationships. This cross-state collaboration provides each partner with more influence than they would have on their own.”

Another example focusing on the market is Harvest New England (HNE), a regional marketing program that was created by the New England state departments of agriculture back in 1992. HNE facilitates the sale of New England agricultural products through traditional and evolving wholesale markets using the HNE brand. HNE is a 501(c)(5) nonprofit organization that promotes the use of its logo to increase consumer awareness and encourage purchasing of local produce and other agricultural products. Seven regional or national supermarket chains participate. HNE also holds a biennial trade conference. Whether regional (i.e. multi-state) branding holds significant cachet in the marketplace remains to be proven. But as a multi-state cooperative endeavor, and a reinforcer of local/regional consumer and retailer buying habits, HNE contributes to resilience by fostering market stability, reducing food importation and building cross-sector relationships.

A 2010 NESAWG study surveyed 35 “regionally focused food value chain” entities, 21 of which were New England-based. The chains represented a wide range of products from produce to meat to processed specialty items. The researchers looked at geography, scale, structure and business practices. None specifically mentioned resilience as a purpose; the most common goals were supporting local and state producers and fostering environmental benefits through farming. Their goals and practices—particularly sourcing from within their region—result in greater food system resilience by reducing transportation miles and vulnerability to external disruptions, building stability and relationships, and fostering diversity in types and scales of farms, products, and market channels. Even though transportation is a relatively small greenhouse gas emitter in the US, compared with other food system activities, it is worth noting that regionally scaled supply chains use less fuel (fewer transportation miles) and emit less CO₂ than conventional systems (Pirog 2001). Regional supply chains may be more fuel-efficient than local food that relies on many short trips with small trucks.

Seafood is an important component of our region’s food system. Another regional market-focused initiative is the Northwest Atlantic Marine Alliance (NAMA). At the time of NAMA’s inception, founders’ thoughts were centered solely on New England. But they knew it was inconceivable to manage these

waters successfully without collaborating with others, including neighbors in Canada. NAMA seeks to maintain and enhance the productivity and diversity of its marine region as a vital part of New England's food system. Some of this sector's issues parallel its land-based counterparts, for example, access to markets, business succession, sustainability, profitability, concentration.

Services, planning and advocacy

One of the biggest challenges for farmers—especially our next generation of farmers—is access to land (American Farm Bureau Federation 2015; Lusher Shute 2015). This is particularly true in large parts of New England where farmland values can exceed ten times the national average. If farmers cannot achieve secure, affordable land tenure, the region's capacity to sustain (not to mention increase) production is compromised. It is imperative that we equip the next generation of farmers to deal with acute events and longer-term adaptation by providing them with the best conditions to launch and grow their operations. Each state has a farmland protection program, conservation land trusts and various "farm link" efforts. But land access requires a more comprehensive, regional response.

Land FOR Good (LFG) is a New England-wide nonprofit that specializes in farmland access, tenure and transfer. It led the Land Access Project (LAP) with funds from the USDA Beginning Farmer and Rancher Development Program (2010-2013). As the backbone organization, LFG convened over 40 service provider partners across the six states to improve the services and conditions for New England farmers to access land. (See <http://landforgood.org/our-work/projects/land-access-project/>.)

Among the project outputs is the New England Farmland Finder (NEFF), a regional (six-state) online farm property clearinghouse that operates in coordination with the smaller farm link programs in the region. (See www.newenglandfarmlandfinder.org/.) NEFF is a regional response to the frustrations of farm seekers and of smaller and under-resourced "linking" services. With this new service, farm seekers have more options to identify potential properties. The site also directs them to providers—many of whom serve multiple states—who can help them prepare financially, explore their alternatives and assess farms of interest. LAP also upgraded the web-based Farm Transfer Network of New England that caters to farmers planning for succession. (See www.farmtransfernewengland.net.)

By design, LAP strengthened the region's service network. Providers shared information and best practices across states. As relationships grew, so did the number of cross-state initiatives and referrals. Where capacity may have been shallow in a particular state, the regional reach strengthened it. In their written evaluations, collaborators said, "It was great to [delve] into complex issues with colleagues from different organizations and states." "Being able to talk with others doing this work in other states was very valuable. I have new contacts and new resources to share." Addressing land access and transfer leads to a more secure land base and greater support for farm entry and exit. Stronger relationships means greater trust and more communication which lead to more capacity to share and deliver services, and to adapt to changing conditions.

While regional food systems are more than the sum of their state parts, state level work is both essential and fruitful for regional resilience. In New England, every state has a food plan at some stage of development. Vermont's Farm to Plate is the most advanced, the result of an inclusive government-

sponsored initiative supported by the Vermont Sustainable Jobs Fund. While each state has its unique profile and approach, food planners from the six states meet regularly. At minimum, this regional connectivity fosters sharing of best practices and brainstorming solutions to common or specific problems. At its best, cooperative state food planning can build regional food system sustainability and resilience by addressing, for example, siting of food system infrastructure, land use and transportation, shared technical resources, and procurement policies.

Food policy councils (FPC) are another fruitful vehicle for regional cooperation toward greater sustainability and resilience. (See Food Policy Networks at the Johns Hopkins Center for a Livable Future.) Each New England state except New Hampshire has several local FPCs. Connecticut, Massachusetts and Rhode Island have state FPCs. FPCs are characterized by multi-sector representation and broad mandates. Recently, local and state FPC members convened to network, share challenges and accomplishments and strategize about cooperative actions. A FPC member shared this story: a severe snowstorm caused the state's governor to call a state of emergency and close the highways. While grocery store inventories depleted, trucks carrying food idled at the state line. A food industry member of that state's FPC raised the problem to the Council which in turn was able to connect with the departments of transportation and emergency services to allow the trucks into the state. This adaptive response to sudden disruption would likely not have happened without the existence of the FPC and the relationships it made possible.

New England's successes toward a more regional food system are a result of government, the private sector and civil society working in collaboration for collective impact. Progress would not be possible without the vision and commitment of funders who deserve credit and appreciation. While federal government tips its hat to "regional," many federal grant programs are not set up to reward or even accept multi-state projects. Private philanthropy is stepping up with increased understanding of the importance of regional approaches and network building. Several New England-based foundations have chosen to focus food system grant-making on the New England region, supporting FINE, Food Solutions New England and the New England Food Policy Project, for example. Foundations that operate at the local, national or international scales may not be willing or able to think regionally, but where feasible, they should be encouraged to do so.

Conclusion

This paper asks in what ways regionally focused food systems can contribute to resilience. The New England case contributes to this important exploration. The initiatives described here do not feature resilience as an expressed goal. None address responsiveness to disruption as a metric. In various ways, however, each contributes to the conditions that foster food system resilience. Several would reduce vulnerability by building regional self-reliance through increased food production. Several promote stronger, more flexible regionally focused supply chains and appropriately sited and scaled supply chain infrastructure such as aggregation hubs. Some contribute to enhanced productive capacity by supporting sustainable land use and farming opportunity in the region. A region is an effective scale to accomplish these objectives—big enough to contemplate supply, diversity and certain efficiencies, but small enough for greater flexibility, nimbleness and adaptation than the national or global levels.

All the initiatives described here have a common thread. They all build relationships. If resilience is the capacity of a system to respond to change (disruption), then the ability of the participants in that system to anticipate, communicate and problem-solve is foundational for resilience. Food system players in a region need to build trust and familiarity to create durable infrastructure and institutions as well as to effectively mobilize in the face of acute crises or longer-term shifts. A regional food systems framework embraces both solidarity and diversity among diverse interests, and rural-urban geographies.

Researchers, teachers and advocates can contribute to improving food resilience by, for example, identifying it as a critically important lens, and conducting investigations and discussions to deepen our collective understanding. They can build regional food systems and seek leverage points for change such as tiered procurement policies, regional thinking applied to infrastructure siting, and identifying new land for farming.

Regionalism and regional food systems are not solutions. They are frameworks for advancing the goals that many food systems change advocates espouse, including increased food self-reliance and control over how we feed ourselves, with reduced vulnerability to the global system. The little region of New England has taken big steps toward those goals.

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References

American Farm Bureau Federation (2015) Young farmers still concerned about adequate land. http://www.fb.org/index.php?action=newsroom.news_article&id=269 Accessed 25 May 2015

American Farmland Trust, Conservation Law Foundation and Northeast Sustainable Agriculture Working Group (2014) New England food policy: Building a sustainable food system. www.newenglandfoodpolicy.org. Accessed 15 January 2015

Bower J, Doetch R, Stevenson GW (2010) Tiers of the food system. UW-Madison Center for Integrated Agricultural Systems. <http://www.cias.wisc.edu/wp-content/uploads/2010/09/tiers082610lowres.pdf>. Accessed 15 January 2015

Born B, Purcell M (2006) Avoiding the local trap. *Journal of Planning Education and Research* 26:195-207

Center for a Livable Future, Johns Hopkins Bloomberg School of Public Health (2015) Food policy networks. <http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/projects/FPN/> Accessed 25 May 2015

Clancy K, Ruhf K (2010) Is local enough? Some arguments for regional food systems. *Choices Magazine* (Agriculture and Applied Economics Association) 25:1

Donahue B et al (2014) A New England food vision. <http://www.foodsolutionsne.org/new-england-food-vision>. Accessed 15 January 2015

Foresight (2011) The Future of food and farming: Final project report. The Government Office for Science, London.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288329/11-546-future-of-food-and-farming-report.pdf. Accessed 15 January 2015

Griffin T, Conrad Z, Peters C, Ridberg R, Tyler PE (2014) Regional self-reliance of the Northeast food system. Renewable Agriculture and Food Systems, available on CJO2014.
doi:10.1017/S1742170514000027. Abstract at
<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9184645&fulltextType=RA&fileId=S1742170514000027>. Accessed 26 March 2015

ICLEI (2015) (<http://resilient-cities.iclei.org/?id=723>)

Kirschenmann F (2008) Food as relationship, 3 J Hunger and Environ Nutrition 106:113

Lusher Shute L et al. (2011) Building a future with farmers: Challenges faced by young, American farmers and a national strategy to help them succeed. Accessed 25 May 2015
http://www.youngfarmers.org/reports/Building_A_Future_With_Farmers.pdf

Marten GG, Atalan-Helicke N (2015) Introduction to the symposium on American food resilience. J Environ Stud Sci. doi:10.1007/s13412-015-0310-4

Pirog R, Van Pelt T, Enshayan K, Cook E (2001) Food, fuel, and freeways: An Iowa perspective on how far food travels, fuel usage, and greenhouse gas emissions. Leopold Center for Sustainable Agriculture, Iowa State University. <http://www.leopold.iastate.edu/sites/default/files/pubs-and-papers/2011-06-food-fuel-and-freeways-iowa-perspective-how-far-food-travels-fuel-usage-and-greenhouse-gas-emissions.pdf>. Accessed 26 March 2015

Ruhf K, Clancy K (2010) It takes a region: exploring a regional food system approach. Northeast Sustainable Agriculture Working Group.
<http://nesawg.org/sites/default/files/NESAWGRegionalFoodSystemFINALSept2010.pdf> Accessed 25 May 2015

Tagtow A, Roberts S (2011) Cultivating resilience: A food system blueprint that advances the health of Iowans, farms and communities. www.IowaFoodSystemsCouncil.org/cultivating-resilience. Accessed 15 January 2015

Appendix. Promoting local food purchases and sustainable food production through institutional food procurement policies²

Regina Gregory³

Farm to Institution New England (FINE) representatives in each New England state are available to support local and sustainable food procurement and promotion efforts (FINE 2013). The two main tools for institutions to support local food are laws and policies.

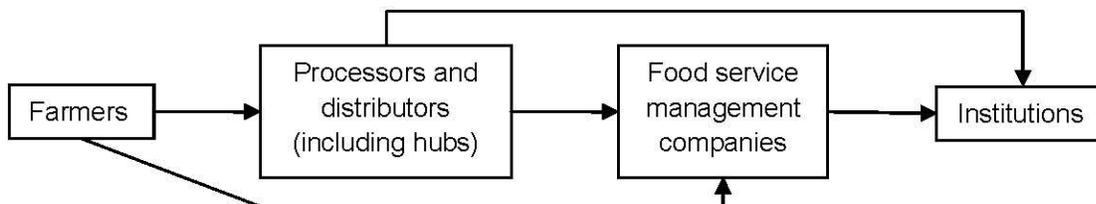
Procurement laws for state agencies

Thirty-seven states across the US already have some form of law or policy that requires or encourages a preference for local products in state procurement. There are two types of local procurement laws. One type of law sets up a preference for local food products. For instance, Massachusetts' local procurement law sets a preference that requires state agencies to purchase in-state food products if they are not more than 10% more expensive than out-of-state food products. The second type of procurement law sets up a target for the amount of food that will be purchased from local producers. For example, Illinois' local procurement law sets a target that by 2020, 20% of all food and food products purchased by state agencies and universities shall be local farm or food products (Harvard Food Law and Policy Clinic 2013).

In some parts of the country, such as in New England, it makes sense to encourage purchasing of regional as well as local food. States can set up procurement laws that incorporate regional food products into the preference or target, for instance in a tiered preference: in-state food products receive the highest preference, regional food products receive a lesser preference, and out-of-region food products receive no preference (Harvard Food Law and Policy Clinic 2013).

Procurement policies for institutions and food service management companies

Many institutions hire food service management companies (FSMCs) to run their food service operations, including food procurement.



² This appendix was added to this article at the suggestion of the editor to provide additional information about food procurement policies. It was written by Regina Gregory with information provided by Peter Allison and does not represent research or opinions of Kathryn Ruhf.

³ EcoTipping Points Project, Kailua, HI, USA

There are over 200 FSMCs in the United States, but three dominate the field: Compass Group, Aramark and Sodexo. Together these three companies supply 47% of food served in health care facilities; 21% of food served at colleges and universities; and 11% of food served in K-12 schools (FINE 2015a).

Local food advocates can work directly with FSMCs to enlist their support in leveraging the collective power of institutions to source from local farmers (**FINE 2015a**). Institutions can influence FSMCs with requests for proposals (RFPs) and contract language.

FINE's Contracted Food Service Action Project aims to increase the understanding of how FSMCs work. Publications include a report on barriers and opportunities for local food procurement by FSMCs in New England (**FINE 2015a**), and a guide to leveraging contracts for local food procurement for institutions that work with FSMCs (**FINE 2015b**). A separate FINE document (**Massachusetts Farm to School n.d.**) compiles samples of local food contract language from institutions around the country.

FINE also published a toolkit for institutional purchasers sourcing local food (**FINE 2013**). It includes contract negotiation tips and a directory of New England produce vendors known to source local and regionally grown foods. Its advice on how to "use your contract to your advantage" includes:

- Include "preferential purchasing of locally grown, sustainably-produced foods" language in your bid specifications or contract language.
- Require that "local" foods be identified by source or origin, such as farm name, state, zip code or region where food was grown/produced.
- Clearly define the terms "local" and "sustainable" to represent what your organization values. For value added product, define whether the ingredients and/or the processing needs to be "local". Include this criteria in your bid specifications or contract language.
- Food identified as "sustainable" should carry one or more of the certifications or label claims listed on the following website: www.noharm.org/lib/downloads/food/EcoLabels_Matrix.pdf (see Table 1) or other label/certification that has transparent and meaningful standards and independent verification processes.
- Require an accounting of locally grown foods that are sold to you within a designated time frame (e.g., month, quarter). Request this information by product, by weight, in dollars, or both, so that you can set goals for the amount of locally grown foods purchased/served.
- Produce distributors may have the ability to negotiate the purchase and pricing of specific products for you in advance of the season with your commitment to purchase. If your institution is willing to make the commitment, your vendor may arrange for farmers to grow specific crops for you. For example: you may guarantee to a distributor that you will purchase "x" pounds of cucumbers each week. With that knowledge, a grower may dedicate a certain number of cucumber plants to grow and harvest for your institution, ensuring a supply to you at an agreed upon price. Be sure any contract language provides for weather related interruptions in supply and notes acceptable substitution for necessary products.

Table 1. Sustainability Certifications and Label Claims

Third-Party Certifications
Certified Organic - Products must meet the federal organic standards as determined by a USDA-approved certifying agency. Organic foods cannot be grown using synthetic fertilizers, chemicals, or sewage sludge; cannot be genetically modified; and cannot be irradiated. Organic meat and poultry must be fed only organically-grown feed (without any animal byproducts) and cannot be treated with hormones or antibiotics.
Food Alliance Certified -Farmers/Producers must use safe and fair working conditions, humane livestock handling practices, cannot use hormones or non-therapeutic antibiotics, cannot use or produce GMOs, reduce pesticide use, implement water and soil conservation and habitat protection practices.
Animal Welfare Approved – Animals must be able to behave naturally and be in a state of physical and psychological well-being. Requires animals to be raised on range or pasture, prohibits dual production (i.e., raising animals under both an industrialized, factory-farm system as well as an alternative, higher-welfare system), certifies only family farmers, high standards for animal welfare.
Certified Humane Raised & Handled - Meat and dairy products are raised humanely. No growth hormones or non-therapeutic antibiotics used. Food, living, environmental, and slaughter standards in place.
Marine Stewardship Council – Certified products come from and can be traced back to sustainable fisheries. Sustainable fisheries are those that ensure that the catch of marine resources are at the level compatible with long-term sustainable yield, while maintaining the marine environment’s bio-diversity, productivity and ecological processes, and take into account relevant laws, responsible management, and social considerations.
Fair Trade Certified – Mainly used for small farms or farm co-ops/unions made up of small farms that works to ensure that farmers and farm workers in developing nations receive a fair price for their product; have direct trade relations with buyers and access to credit; and encourage sustainable farming methods, without the use of a dozen of the most harmful pesticides, and forced child labor.
Rainforest Alliance Certified –Products have been grown using environmentally responsible management practices including integrated pest and disease management practices, soil and water conservation, fair labor treatment practices and good community relations. Protected Harvest - Certifies that crops have been raised with integrated pest management (IPM). Certain pesticides are prohibited and GMOs are explicitly prohibited Salmon Safe – Aimed at protecting salmon streams from farm run-off through good soil, water, and vegetation management that reduces chemical use and sustains resources. Bird Friendly – Coffee is grown using shade management practices, ensuring the provision of habitats for birds. Available for organically produced coffee only. USDA/FDA Label Claims & Meaning Raised without Antibiotics - Animals must not have received any antibiotics at any point during their lifetime. Raised without Hormones - Animal did not receive added hormones at any point during its lifetime.

100% Grass-Fed - Raised on a lifetime 100% grass-fed diet. Must have access to pasture most of the growing season and cannot be fed grain or grain crops.

rBGH/rBST-Free or something to the effect of “our farmers pledge not to use rBGH or rBST”/“Our farmers pledge not to use artificial hormones” – Milk used in dairy products comes from cows not treated with rBGH/rBST.

No Genetically Engineered Ingredients – The product was made with ingredients that were NOT derived from genetically engineered/modified (GE/GM) organisms.

Source: Health Care Without Harm (n.d.)

Health Care Without Harm and the Real Food Challenge are two organizations that have asked institutions to adopt pledges or commitments to procure food that meets their criteria for local and sustainable.

The Real Food Challenge, which “unites students for just and sustainable food,” uses a similar list for defining ecologically sound food. It also considers local and community based, fair, and humane as procurement criteria (Real Food Challenge 2014). Colleges and universities are asked to sign a campus commitment to the goal of at least 20% real food by the year 2020. The project created a “campus commitment” toolbox for students and a downloadable real food calculator for institutions of higher education. So far 180 universities around the country have signed up to use the calculator.

FINE and its partners have generated some impressive commitments from institutions, including:

- Healthcare Partners: 68 facilities have signed the Healthy Food in Health Care Pledge, and 95 have joined the Healthier Hospitals Initiative Food Challenge
- College Partners: 9 colleges have signed the Real Food Challenge Pledge and 68 are members of American Association of Sustainability in Higher Education;
- K-12 Schools: 44% of schools in the region participating in the USDA Farm to School census are engaged in farm to school activities, representing 23.5 million students and investing \$385.8 million food dollars (Peter Allison, pers. comm.)

FSMCs are beginning to recognize that there is significant momentum behind the local food movement. They realize that client and customer demand for these products is growing and that it is to their competitive advantage to provide local food options to their clients (**FINE 2015a**). In Vermont, Sodexo even made a commitment to developing a Vermont First brand. The company has agreed to:

- Develop a plan to meet the production needs of Vermont farmers and enable businesses to buy local. This includes market analysis, technical assistance around production, processing and marketing.
- Form a steering committee of Vermont stakeholders to discuss issues of procurement, marketing and customer demand.
- Develop a formal commitment and investment that supports the production and purchase of local food.
- Hire of a local food coordinator to broker relationships with growers wanting to meet the institutional market demand and track progress and growth in local food procurement.

- Sponsor an annual summit meeting and two working group sessions around “scaling up” local food production and procurement.

References

Harvard Food Law and Policy Clinic (2013) Tools for advocates: Increasing local food procurement by state agencies, colleges, and universities. Farm to Institution New England.

<http://farmtoinstitution.org/sites/default/files/imce/uploads/Increasing%20Local%20Food%20Procurement%20by%20State%20Agencies%2C%20Colleges%20and%20Universities.pdf>

FINE (2013) A Toolkit for Institutional Purchasers Sourcing Local Food from Distributors. Farm to Institution New England. [http://www.farmtoinstitution.org/sites/default/files/imce/uploads/1-](http://www.farmtoinstitution.org/sites/default/files/imce/uploads/1-Toolkit%20for%20Institutional%20Purchasers%20Seeking%20Local%20Produce%20thru%20a%20Distributor%202013.pdf)

[Toolkit%20for%20Institutional%20Purchasers%20Seeking%20Local%20Produce%20thru%20a%20Distributor%202013.pdf](http://www.farmtoinstitution.org/sites/default/files/imce/uploads/1-Toolkit%20for%20Institutional%20Purchasers%20Seeking%20Local%20Produce%20thru%20a%20Distributor%202013.pdf)

FINE (2015a) Food service management companies in New England: Barriers and opportunities for local food procurement (draft, January 6). A Toolkit for Institutional Purchasers Sourcing Local Food from Distributors. Farm to Institution New England.

http://farmtoinstitution.org/sites/default/files/imce/uploads/FSMC%20Local%20Food%20Report_DRAFT.pdf

FINE (2015b) Leveraging contracts for local food procurement: a guide for institutions that work with food service management companies (draft, January 6). Farm to Institution New England.

http://www.farmtoinstitution.org/sites/default/files/imce/uploads/Leveraging%20Contracts%20for%20Local%20Food_DRAFT.pdf

Massachusetts Farm to School (n.d.) Sample language & resources for local foods in contracts & rfps. Farm to Institution New England.

<http://farmtoinstitution.org/sites/default/files/imce/uploads/Local%20Food%20Language%20for%20Contracts.pdf>

Health Care without Harm (n.d.) Sustainability certifications and label claims. Health Care without Harm.

http://noharm.org/lib/downloads/food/EcoLabels_Matrix.pdf

Real Food Challenge (2014) Real food guide. Real Food Challenge. [http://](http://realfoodchallenge.org/sites/g/files/g809971/f/201403/Real%20Food%20Guide%20Version%201.0%20March%202014_0.pdf)

realfoodchallenge.org/sites/g/files/g809971/f/201403/Real%20Food%20Guide%20Version%201.0%20March%202014_0.pdf