# Massachusetts' Local Food System and Climate Change

## Opportunities for mutually supportive policy

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The disruption caused by the COVID pandemic, along with state, municipal, and stakeholder responses to the crisis, have illuminated the broad value of our local food system on the residents of the Commonwealth. COVID's impact on our food system has exposed systemic issues that, if not addressed, will become even more problematic through the unrelenting pressures caused by climate change.

Climate change's impact on the food system will be particularly acute in its effects on agriculture. Inconsistent growing seasons and weather patterns, new invasive species, and degraded soils will all disrupt farm sustainability, which in turn will exacerbate existing problems of equitable access to food. At the same time, farmers and the land they steward hold the key to many solutions to help mitigate climate change, from sequestering atmospheric carbon, to siting green energy production infrastructure on non-productive land, to protecting land from development. But research, education, technical support, policy changes, and investments are needed to help farmers adapt their management practices to the changing climate, to help them remain financially sustainable while contributing to climate change mitigation, and to help our local food system more equitably serve our communities.

During listening sessions and conversations that led to the MA Food System Collaborative's report, *Massachusetts' Local Food System: Perspectives on Resilience and Recovery*,[i] climate change was often cited as one of the core concerns to address as the Commonwealth recovers from the COVID crisis. Those concerns, along with many of the positive systemic responses implemented Massachusetts during the pandemic, reflect the United Nations' Intergovernmental Panel on Climate Change's (IPCC) conclusion that multilevel, hybrid, and cross-sectoral governance and policies can maximize mutual benefits and minimize the need for trade-offs, supporting the food system while at the same time positively supporting climate change adaptation and mitigation. Such actions can also help reduce poverty and improve public health, key indicators of inequity that systemic changes to the food system can help to address.

The IPCC further states that the food supply is projected to become more unstable due to climate change, while the USDA has concluded that "changes in climate and extreme weather have already occurred and are increasing challenges for agriculture".[ii] These assessments highlight the need for Massachusetts' climate change policies to recognize and address the needs of our local food system. Such consideration will, as the IPCC report says, generate social, ecological, economic, and development benefits that contribute to eradicating poverty and which foster livelihoods that are more resilient for those who are vulnerable.

**Opportunities for action**

Substantial bills related to climate change mitigation, adaptation, and preparedness provide lawmakers opportunities to address the role the local food system has, as both an asset in these efforts as well as a sector in need of support. The Collaborative's report offers insight on policies that are likely to be most impactful in addressing climate change issues and could be integrated into proposed legislation, including:

- Compensate farmers and fishermen for the environmental services they provide. From carbon sequestration, to water storage and filtering, to providing wildlife habitat, to recycling food waste, farmers' and fishermen's work creates positive benefits that have real value to the Commonwealth. Creating mechanisms to compensate farmers and fishermen for these efforts helps producers remain viable and continue to provide both healthy food and these public benefits while competing with industrial food production that intensify climate change.
- Significantly increase funding and rebuild our state's Agricultural Cooperative Extension System in order to provide the research, information, and tools required to adapt successfully to climate change as well as to reduce greenhouse gas emissions.
- Ensure local farmers and fishermen do not have a net increase in tax liability when crafting tax policy for climate change programs and incentives. Offsets to carbon taxes or taxes on greenhouse gas GHG emissions, such as carbon credits and EV incentives, should be extended to vulnerable farmers and fishermen. Local-option taxes on sales of gasoline and diesel fuel for transportation and stormwater infrastructure programs must be crafted to minimize the financial impact on farmers and fishermen, or offsets such as tax credits should be provided. Municipal water, stormwater, and wastewater utility fees should include exemptions for farmland and farm and fisheries infrastructure.
- Allow farmers to benefit fully from solar development on less- and non-productive farmland. The current Solar Massachusetts Renewable Target (SMART) regulations have expanded the limits of solar production on farmland without much consideration to the productive capacity, or lack of it, on the land. Limitations on total land percentages and net shading, disregard for the capacity of solar development to increase the amount of quality farmland at the end of their life cycles, and restrictive municipal zoning and other local bylaws significantly limit farmers' ability to benefit from state goals to increase the amount of solar production.
- Allow municipalities to contract with private land owners to place renewable energy infrastructure on land not well-suited for agriculture when public land suitable for agriculture could be brought into food production in exchange, rather than being used for energy production.
- Support projects in which a municipality contracts with private land owners to provide ecosystem services such as water diversion structures, retention ponds, or water absorption, wetlands restoration, composting, etc. or functional participation in land or infrastructure improvements that benefit public infrastructure, without requiring municipal ownership, a right of way, or easement.
- Municipal Vulnerability Preparedness projects, meant to help cities and towns build resilience in the face of climate change, should support and prioritize food system projects, and funds should be eligible for public-private partnerships with landowners and businesses in order to increase efficiency.
- Include incentives for electric tractors and other energy-efficient farming equipment.

- The state's renewable energy goals should increase support for anaerobic digesters in a manner that also provides farms with less expensive and more readily available soil organic matter inputs.

Other actions that can be taken to improve farm sustainability connect with climate change and natural resource concerns as well, including:

- Enact lower thresholds for food waste bans and mandate residential, municipal, school composting programs.
- Provide tax credits for compost facilities and ensure compost goes to local agriculture at affordable rates.
- Incentivize small farms in urban areas that foster converting local food, yard, and leaf waste into carbon reducing compost that also increases productivity.
- Incorporate modern materials and construction methods into the state building code in a manner that supports efficient and cost effective infrastructure growth for the food system. For example, lack of consideration of the negative impact the required use of cast iron drains for food processors with acidic or alkaline sanitation practices, after years of improved science and drain pipe materials, remains a barrier to safer and less costly operations.

**Integration with planning efforts**

Recent administration efforts, such as the Resilient Land Initiative (RLI) and Rural Policy Plan (RPP) also address problems and solutions that would benefit from increased integration of local food system issues.

The RLI's goal to create policies and mechanisms to ensure development does not create a net loss of farm and forestland should integrate lands that are highly effective carbon sinks, such as marshlands and wetlands, and enhance existing regulations and executive orders for no net loss of farmland. In addition, the RLI should support using forestland for silviculture and other food production, and support using farmland, especially pastureland, for carbon sinks.

As stated in its draft, the RLI should add green infrastructure to the State Revolving Fund, which currently offers affordable loan options to cities and towns to improve water supply infrastructure and drinking water safety. Green infrastructure projects should be encouraged to partner with private landowners so that greater efficiency in the use of public funds is created.

The RLI should also support urban agriculture in playing a significant role in creating more green space and cooling zones in urban settings.

The Rural Policy Plan highlights Climate Change as well as Land Use and Working Lands as two of its 15 focus areas. Some of the recommendations are key to food system resilience in the face of climate change.

First, the RPP states the need for expert technical assistance for rural communities and collaboration with state academic institutions to study climate-related issues. In addition, it recommends significantly expanded UMass technical assistance services for farms and forests by supporting county conservation districts or other vehicles. Both of these objectives can be accomplished by significantly expanding

UMass Cooperative Extension's climate change adaptation and mitigation research, education, and outreach.

The RPP further recommends the creation of a land use plan to guide future growth in a responsible and proactive manner, especially in the face of climate change. This aligns with the 2015 Food Plan's proposal for a Farmland Action Plan to set measurable goals and benchmarks related to farmland protection, retention, and access, coupled with state program spending levels to meet those goals and benchmarks. It also echoes a need to enhance farmland access developed in the Collaborative's recent report. Properly implemented, such a plan can become a core component of creating greater equity in the Commonwealth.

**Connecting with broader initiatives**

Underlying these and many other science-based recommendations for addressing climate change mitigation as contained in work done by the USDA,[iii] the Northeast Climate Adaptation Science Center,[iv] the Northeast Healthy Soils Network,[v] and the 4 per 1000 Initiative[vi] lies the unavoidable tie between land and food production, and carbon sequestration, renewable energy generation, and other climate change initiatives.

These ties show that zoning, land protection and valuation/tax incentives, food waste, carbon taxation and credits, improving and making water and transportation infrastructure more resilient, energy related building codes, and electric vehicle and equipment incentives are key elements of a successful strategy to address climate change. In these efforts, farming and protecting parcels of land under five acres in size, supporting the use of electric vehicles and equipment in food production and transportation, wide use of agricultural composting, and renewable energy generation on non-productive and minimally productive farmland become critical elements.

There is much to be learned about how the local food system is tested and adapts to crises from the current response to COVID-19, and much benefit to be had from integrating those learnings into preparation for the ongoing climate change crisis. In addition, president-elect Biden has indicated a commitment to embed climate action across the federal government, including USDA. A team of former White House and government officials have drawn up a 300-page blueprint for how to leverage the government to fight climate change. The Climate 21 Project[vii] argues USDA has enormous capacity to contribute meaningfully to the administration's climate ambitions.

As the federal government begins to create climate change solutions that involve agriculture, state officials should work closely with local food system stakeholders to consider the capacity of the local food system to leverage federal programs with state programs in all aspects of climate change policymaking and public investments, and to act on the above recommendations.

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[i] https://mafoodsystem.org/projects/2020perspectives/
[ii] https://www.climatehubs.oce.usda.gov/sites/default/files/adaptation_resources_workbook_ne_mw.pdf
[iii] https://www.usda.gov/topics/climate-solutions
[iv] https://necsc.umass.edu/
[v] https://sites.tufts.edu/gdae/conferences-panels-and-events/
[vi] https://www.4p1000.org/
[vii] https://climate21.org/