

# **Massachusetts Food System Collaborative**

## **Climate Change Discussion: Meeting Synthesis**

March 7, 2019

### **Elements of Broader Conversation**

- Ballot Question Three:
  - Restricts food/animals that can come into the state
  - limits food options for those in the least secure food places
  - Need to work together more to increase options
  
- Support for folks with limited means adapting to climate change
  
- Reduce food waste
  - There have been past legislative efforts
  - Perhaps due to past use of food waste with pigs there have been unreasonable regulations from boards of health interfering with livestock production.
  
- Understand the differences between best management practices and good/normal management practices. Compensation for implementing both good farming practices and Best Management Practices (BMP) related to climate change. Comment that BMP sets the bar too high for many farmers to effectively implement.
  - Those practices that create the wider public good of climate change mitigation and adaption. Tufts GDAE is working on designing a compensation strategy for farmers.
  
- There is significant work being done, especially around adaptation which seems to be siloed at present.
  
- Important to include Urban Ag in these conversations and that connectivity to policy makers.
  - Can speak with Jessie Bahnzal and the Green City Growers "GCG's Managing Director, Chris. [christopher@greencitygrowers.com](mailto:christopher@greencitygrowers.com)
  
- MA is currently dependent on the global food system to eat
  - This is a vulnerability
  - How do we adapt to this here?
  
- How do we avoid adding to the administrative burden to farmers?
  - Are our regs more restrictive than other states?
  - Can we suggest tweaks to programs to reduce this?
  
- Need to focus on strategies that create profits for farmers
  - SARA publication recommends whole farm planning

## Climate-Induced Threats to Farms Discussion

- Vulnerability that should be highlighted: soil erosion. Beyond land/productivity loss erosion releases greenhouse gasses
  - NRCS and SARE could work together on soil erosion as a target area for climate change adaptation
  
- Population crash of certain insects
  - Do we have NE data?
  - Is it climate related or species already in decline due to other factors?
  - IPM data sets show this?
  
- Invasive pests
  - Tick & Lyme disease exacerbated due to high deer populations. Working on the islands to allow more culling and the meat is Donated to food pantries.
  - Extension is doing Tick Talks
    - Dr. Steven Rich
  - More research and info needed
    - Comment coming from Ext.
  - 900 new invasives species
    - U-Mass/Climate Center at NEVBGA meeting supplied this number
  - Lyme disease
    - Affecting farm and forestry personnel
  - Other tick borne disease
    - Anaplasmosis
  
- Water usage
  - Salt contamination in drinking water sources from snow management
    - Impacting maple and other trees along road sides as well.
  - Will increase in large snow events exacerbate the issue?
  - Droughts hit communities and farmers at the same time
    - High cost for both
  - More water planning at the municipal level
    - Reference programs list...
  - Surface Water Management Initiative?
    - State level
    - Targets munis reauthorizing extraction permits
    - Uses municipal extractions to target surface water levels?
  
- Frost/Thaw periods
  - Awful for planting/harvesting Observing far more temp fluctuation “at the shoulders” late winter/early spring and in the fall. This increases risks of having temp related damage.
  - Throws off temp dependent plant/animal development
    - Animals shedding sooner in spring

- Wildlife pressure
  - Deer pressure
    - Might see a crash in this due to ticks
  - Birds
    - Geese
    - Turkeys
    - Might be more of a local management problem than a climate problem?
    - New migratory patterns?
    - Other Bird population crash?
  - Squirrel damage of ag crops (squashes & pumpkins) has been significant in some of the recent seasons
  - Overall an increase in populations as well as resulting movement/expansion of territory is problematic.
  
- Marine environment
  - Damage to facilities on the water front
  - Black sea bass
  - Vineyard fisherman competing with ships from Virginia
  - Bass eating local lobsters
  - Lobsters have gone north
  - Fishers from out of state roaming north
    - Federal quotas attached to a home ports a problem
    - MAPC focus group participants confirmed this is a problem

### **Status of Climate-related Efforts**

- Composting regulations
  - Problems with off farm inputs being used on farms. % Limits may lower effectiveness for climate change mitigation. Food waste in compost may be challenging (odors and proper management). Application limitations targeted at reducing phosphorus is in conflict with other nutrient/mineral needs, enhancing soil tilth, and increasing organic content.
  
- TA for somethings, but perhaps not a lot around soil health?
  - NOFA has TA around soil health
  - Working to increase soil health on leased land, especially short term, is problematic. Few have incentive (financial and otherwise). Some land owners are reducing per acre land rent if farmer works to increase soil health.
  - Metrics and monitoring systems part of some. May need more TA and technology to work better.
  - Soil “sponge” health, fertility, structure and water retention practices, guides written by Didi Pershouse “Understanding Soil Health and Watershed Function.”
  - Practices from NRCS Soil Owner’s Manual
  - Isolated projects by SARE mentioned – does SARE need to improve outreach efforts, or are they not well funded?
  - Why aren’t ACRE projects better-known/more widespread?

- NRCS has guidelines for healthy soil management, and other critical climate adaptation practices. How to increase outreach of NRCS to MA farmers as part of climate efforts? Any collaboration possible between NRCS and UMass Extension?
- NRCS Basics of soil health:
  - Keep covered
  - Minimal disturbance
  - Increase diversity
    - First crops, then livestock
  - Living roots all year
  - Benefits of no till
    - Generally does sequester carbon
    - NRCS has calculator online
    - Tilling starts decomposition that burns soil organic matter
    - Cover crops are needed in concert
    - Less fuel used
    - Can be Problems with scale
    - Large seeded crops easier for no-till. Some success with small seeded crops except small seeded root crops that do not appear to be able to do well with no-till. Farmers likely will have to use crop rotation coupled with no till rotation to succeed.
- Some possibility and support for Sylva culture. Works better with flat land and non-deciduous trees.
- Farmers want/need more knowledge on this stuff
- Former Extension services were much more robust in the past
  - Self-aware of limits at this time
  - We need more resources here
  - We need better collaboration
    - Introduced Pests Outreach Project

**MDAR** - Split their focus on energy and agriculture sectors. Developing list of programs for 2019

- Does MDAR fund verification of practices within any of these grant programs?
- Smallest ag dept in state gov
  - Programs always oversubscribed
    - 2018 - 6.4 million
    - There are about 2500 commercial farms in MA
- ACRE - more adaptation and not just mitigation in future
  - Might be combined with an energy program
  - Not limited to equipment
- State is funding drip irrigation, ebb and flow bench systems, and catchment systems
- Ag Composting Program - more diversity of funding opportunities, funding has not increased
  - Always oversubscribed

- Staff efforts to stretch dollars to fund max number of projects
- Ag Energy Grand Program - funding uncertain in the coming year
  - Category of projects called 'special projects'
    - Higher dollar investments
    - Net zero construction
    - Climate battery approach?
    - Net Zero GH's
    - Heat recovery on digesters
- APR Improvement Program - provide funds for second gen APR farmers
  - 3rd year
- Comm Org to Energy - first digesters in state
  - Partner with Clean Energy Center
  - Planning dollars
  - Implementation funds
- Farm Viability Enhancement Program - more capital investment
  - Farms can apply twice
  - First step is business planning
- Incentives for Energy Efficiency - day to day work, bread and butter of the MFEP
  - Goal to get projects in the ground
- MEGA Program
- SARA on APR - get APR land back into production
- AEEP - water conservation
- MFEP Best Management Practices
  - Collab with NRCS to produce
- Problem with wetland regulations
  - lack of ability to adapt cranberry bogs to climate change and potential to use new plant species and crops for sustainability.
- Perhaps integrated plans needed? Solar on farms?

## NRCS

- AMA - new irrigation, very small program
- CTAP - funds used for staffing
- ACEP - land easements, matches APR and other land trust easements
- CSP - mostly foresters use this in MA
- EQIP - reimbursement for 'conservation practices,' lots of capital improvements are eligible
  - Often paired with FSA loans

- Advance payments for 'historically underserved'
  - Minority farmers, new farmers, at FSA women
- Regional Conservation Partnership Program - has funds
  - Can be used to fund implementation of soil health stuff
  - Essentially assists with the applications to EQIP
  - Is this an opportunity for a collaborative grant application?

### **Other Programs**

- Farm Tech Review Commission - no longer operational
  - Would be valuable to revive?
- LAND Grant - new language allows work with ag, but needs additional tweaks
- Landscape Partnership Grants - only for partnered projects
- Mass Food Ventures Programs - added value
- National Drought Early Warning System
- Looking at how cities mitigate their impact on climate
  - All local legislation
  - Does ag have a place here?

### **Needs/Actions we can take:**

- Brief summaries of target programs in place that are addressing climate needs already, by SARE, MDAR, NRCS and Extension.
- Increase funding for Extension personnel to work directly with farmers
- Facilitate better access to conservation programs
- Share webinars on any useful tech?
- Support Leases incentivizing regen ag practices
  - Which agency is best situated to address this?
  - MDAR will grant funds to lease holders
  - NRCS fact sheet on increase of land value when farming sustainably
  - Nate has examples of incentives to use good practices in leases
  - Absentee landlords are a huge challenge
- Noting methane and nitrous oxide impact?
- More detailed strategies
- Include worker health impact/issues going forward
  - Risk of disease from pests
  - Risk from exposure to extreme heat
- Breaking silos so we are all pushing the same things and using the same language.

- How do we find funding to work across silos?
- Make 'increased risk of soil erosion' more noticeable in impact assessments
- Insert ag as a priority into programs that are already funded
  - MVP is an example, doesn't look at ag rn
    - State EEA office
    - Money for research/planning - \$100,000
    - Some money for implementation - \$2,000,000
      - Climate science is viewed favorably in applications
    - MAPC is a technical assistance provider on these applications
      - MAGIC example project
    - Clearing house of applications so folks can share good ag examples
      - There is one of these....
  - Community Compact Program
    - Ag is an option to identify as a priority when pursuing funding
- Ag Commissions
  - Some towns don't have these
  - They connect the community to the state
  - 'acknowledged municipally'
  - Can raise funds
  - State wide association
- More options for Payment of Ecosystem Services
  - Historic precedent for this in wetlands preservation
- Advocate for dedicated state funding for Soil and Water Conservation Districts
- Planning through Conservation Districts
  - We have these in MA but they are not super active
    - Can apply for the ACRE programming
    - No funding from the state
  - These could help meet demand unmet by Extension
  - Example states
    - MN, VT
- Sustainable Business Network of Mass
  - Works with CAVA or CABA?
  - Does leg testimony training

### **Research Topics**

- More research on increased CO2 concentration on nutrient density in plants
- Technology for monitoring and managing soil health and other factors on farms. What is our ability to monitor on farm conditions impacted by climate change?

- Who is doing it well and with what technology?
  - Brookdale farm in southern NH
  - Are our weather station networks adequate for monitoring?
  - Cost of equipment and maintenance a serious limitation of existing technologies
    - NEWA weather modeling network
  - Several projects in the state and around the country for on farm monitoring, especially around soil moisture.
  - Some work on carbon levels. Fibershed in California to work with six alpaca farmers to help them draw up a 'Carbon Farm Plan" through SEMAP
  - Low tech solutions like implementing no till
    - Different strategies for different scales
    - Umass Ext. has done a lot of workshops on this as well
      - Contact: Katie Nelson
  - Better grass growing/cover and intercropping practices
  - Faster tree growth - plans for woodlots, forest stock management on farmland
  - Likely future pest pressures
  - Carbon pricing schemes impact on farms
    - Regen Network working on this
    - Taking examples from CA
  - Options for payment for ecosystem services  
What other incentive options do we have?
    - Tufts student has research examples
    - Credits related to sequestration?
  - Hugh center for agroecology
    - University of Maryland
    - Tend to incentivize larger farms over smaller farmers
    - General:
      - Site sources of information better in our documents
      - Identify a list of essential research topics
        - Kayleigh Fay has examples
      - Appropriate resources/support for Extension
      - Funding levels adequate for state programs given the number of applicants each year

**Proposed Legislation (State):**

- Funding for Umass soil lab
- Act to protect water resource
- Ag and Climate Council
- Ag land and energy generation
- Healthy soils
  - A few key examples around the country