February 4, 2022

Dr. Megan O'Rourke
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NIFA
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Dear Megan,

On behalf of the Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA), we are pleased to share some regional perspectives on the impacts of climate change and how those changes are affecting research programming. We also endorse comments submitted by the national consortium of experiment stations (ESCOP) and those of our companion regions. As you read our comments, you'll see common denominators with national priorities and the priorities of other regions. Importantly, while priorities may be common, the solutions to some of the challenges will be regionally-dependent. Our first observation is that a "one size solution" does not fit all.

The Northeast constitutes approximately 5% of the U.S. landmass and 20% of the population of the country. The Northeast is both the most heavily forested and most densely populated region in the country (U.S. GCRP 2017) and the urban coastal corridor between Washington, D.C. and Boston is one of the most developed environments in the world (U.S. GCRP 2020). Further, the Northeast is home to a vibrant agricultural economy known for its dairy, timber and forest products, field crops, vegetables, fruit, greenhouse/nursery, and aquaculture/fishing. The Northeast has the highest density of LGUs in the country and is home to 16 Land grant universities (thirteen-1862 and three-1890) and one stand-alone state AES (CTAES, New Haven). The reason for sharing this background is to pose the supposition that the Northeast has intellectual capital and is an excellent bellwether for assessing the impact of climate change and for evaluating strategies for adaptation to and mitigation of the effects of climate change.

Nine of the twelve states of the Northeast are situated on the Atlantic Ocean and the Northeast hosts seven significant estuaries including the largest estuary in the U.S., the Chesapeake Bay. Hence, sea level rise and its attendant effects including saltwater inundation, threaten coastal areas. Clearly, this requires the development and employment of resilience strategies. What are the best practices for addressing salt water inundation in agricultural fields or drinking water wells? Conversely, every state in the Northeast contributes to one or more of its coastal estuaries, estuaries that host near-shore aquaculture as well as serving as transportation waterways and recreation areas. We also note that our small coastal fishing villages are similar in character with rural towns with which they also share common challenges (e.g., high unemployment, insufficient health care, poverty, and chronic disease). As we note later, strategies for climate change adaptation and mitigation must extend to our vulnerable populations.

The outcomes of severe weather (hurricanes, deluge rainfall, drought) pose unique challenges to the Northeast's agricultural operations and natural resources. As noted previously, every Northeast state contributes to its major estuaries. Science-based strategies for addressing agricultural run-off and storm water management following large storms is essential for preserving the estuarine natural resources. Climate-smart strategies are needed to reduce and prevent run-off from all agricultural operations.

As the climate continues to change, Northeast crop, vegetable, and livestock producers must be prepared for the implications of change including the prospect of agricultural production moving back to the Northeast from other regions and the impacts of these northward shifts on crop production patterns and supply chains (e.g., food processing, storage, manufacturing, etc.). Building local food systems will require investment. The investment is essential for building resilience in our national food production strategies including prevention of supply chain disruption. (The nation got a good look at what happens when a pandemic collides with meat processors; large swaths of the meat processing industry were disabled and availability of red meat products fell while prices rose.) Decreasing vulnerability of food available locally is essential in a world experiencing changing climate.

Assisting producers includes identifying specialty or eco-based crops to be cultivated as well as assisting with the implementation of climate smart practices that add value to the farm. How might ecosystem services be employed that bring value to both the farm and the planet? Deploying carbon sequestration and tapping carbon markets by producers adds value to producers who are trying to save the farm and the planet. Science-based, climate smart strategies will be needed to innovate, capture value, and promote entrepreneurship.

Clearly, social science research is required to understand the challenges, impacts, and avenues that global climate change poses in the context of jurisdictional and social fragmentation. Likewise, the technical/engineering and social aspects of adaptive infrastructure, including distributed energy resources and current limited capacities will need to be thoroughly assessed. This assessment will also assist in predicting the skills demand for a proactive and prepared workforce and will guide investments. Importantly, research will be required to assess and address environmental justice and the inequities that climate change poses. What are the best strategies to ensure that climate change adaptation and mitigation strategies are available to, accessible to, and deployable by socially disadvantaged and marginalized populations?

The Northeast is committed to being part of the solution and looks forward to opportunities to collaborate and innovate.

Sincerely,

Dr. Richard C. Rhodes III
Executive Director