

Name: Dr. Richard C. Rhodes III
Organization: Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA)
Contact: rcrhodes@uri.edu; office-(401) 874-2468; mobile (401) 742-0479

The Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA) is a consortium of 14 research stations primarily located at the region's Land-grant universities. All these stations serve the region and the country as part of an agricultural R&D enterprise, the largest publicly funded ag R&D enterprise in this country.

Directors of the Agricultural Experiment Stations in the Northeast want to ensure that the unique characteristics of agricultural systems of the northeast are well represented in NIFA's strategic planning and focus of the agency's grant funding portfolio. The Northeast is home to over 67 million consumers on roughly 5% of the US land. Hence, the NE has a very large portion of the US population living in close proximity to the rural/urban continuum.

The potential of linking urban consumers with rural producers has great economic potential for both food producers and consumers, can serve as a model for food supply chain management that protects the environment and food security, and can lead breakthroughs in producing food that helps diverse populations meet their nutritional needs. These links also create ideal models for understanding how rapid changes in food supply chain systems affect agricultural production and food security and accessibility. Capturing these opportunities and solving complex food systems challenges requires state-of-the-art, highly integrated research that recognizes and leverages the unique agricultural producer and consumer characteristics of the Northeast. Ultimately, such research has a high likelihood of leading positive change across all regions of our increasingly diversifying and complex country.

Despite the great diversity of agriculture and consumer populations in the Northeast that involve both food and non-food systems, very little grant funding programs exist that center innovation endeavors around the strengths of research opportunities that leverage agricultural entrepreneurship, food systems security, and environmental and economic sustainability along the rural/urban continuum. NERA encourages NIFA to make available grants that solve our food and natural resource challenges by supporting the diverse agricultural activities, from small to large, promoting sustainable practices, from field to consumers and customers

We encourage NIFA to fund integrated research programs that leverage the food systems characteristics of the Northeast to lead to measurable impacts that enable greater agricultural entrepreneurship and prosperity, increased and innovative agricultural workforce development, and highly resilient and responsive food systems that are solutions to climate change and provide diverse populations equitable access to food.

Those are the reflections, here are NERA's recommendations on the questions posed by NIFA.

Top priority for research?

Adequate and appropriate support for the nation's #1 agricultural R&D enterprise: the state agricultural experiment stations. Consider for a moment that state agricultural experiment stations conduct approximately 75% of the U.S.' public agricultural R&D (Philip G. Pardey and Julian M. Alston, 2020. "The Drivers of U.S. Agricultural Productivity Growth" in **The Roots of Agricultural Productivity Growth: 2020 Agricultural Symposium**, Federal Reserve Bank of Kansas City, pp 5-26). The support that is needed breaks down into three highly-linked categories: capacity funds, the Agriculture and Food Research Initiative (AFRI), and infrastructure.

The capacity funds provided by NIFA to Land-grant universities constitute the capital that makes us competitive. These capacity funds represent the foundational partnership between the federal government and the Land-grant system. This allows us to meet local and regional needs and to be responsive to our unique constituencies. The capacity funds also provide the support to maintain the intellectual capital within our network of agricultural research scientists enabling sustained effort to address stakeholder needs. Importantly, for every federal capacity fund dollar invested, each state in the Northeast contributes equally to the endeavor, minimally 1:1.

Capacity funding is foundational to pushing the frontiers of innovation and discovery but continuing to fund competitive grant opportunities is critical to converting foundational innovations into highly adopted on-the-ground applications. While NERA appreciates the fact that NIFA does not have control of appropriations, we are supportive of AFRI, NIFA's competitive grant initiative, being funded at its fully authorized level of \$700 million.

Lastly, infrastructure represents the backbone of both capacity and competitively funded agricultural research. Often, the success of what our world-class researchers can develop is only limited by the integrity and modernity of research facilities. Unfortunately, across the three highly linked research categories, infrastructure poses the largest challenge. Across the country, research laboratories are aging while scientific instrumentation and technologies are advancing at light speed. Having access to bricks and mortar funds would significantly assist the Northeast, significantly raising the ceiling of research output and impact at some of the oldest Land-grant universities in the nation.

Sustained public investment in agricultural R&D is required if we are to sustain U.S. agricultural productivity in the face of climate change, co-evolving pests and diseases, and progressive increases in food insecurity. The USDA Economic Research Service estimates that public agricultural research contributes to as much as 20% annual economic returns to the research stakeholders. However, U.S. public investment in agricultural R&D has fallen in the past two decades, and is being significantly outpaced by Brazil, India, and China. Our country's continued long-term leadership in agricultural innovation crucially depends on a

renewed and sustained investment in both fundamental and applied R&D. Our NE Land-grant universities and state agricultural experiment stations know and value that NIFA also sees this need. We look forward to continuing our strong partnership with NIFA to apply to secure and strategically steward the resources to ensure that our stakeholders, producers, processors, entrepreneurs, and consumers have access to a robust, innovative, and responsive regional R&D enterprise.

Greatest challenge?

We believe that sustainable prosperity in our agricultural communities and nutritious food security are two of our greatest challenges. What are the attributes of these challenges? A trained workforce, good-paying jobs, adaptive agricultural strategies for coping with global climate change (farming smarter), economic growth and development, equitable access to food across diverse populations and communities, and quality of life for agricultural producers and consumers. What do we know? Producers are aging and agricultural communities are growing smaller as rural populations are out-migrating to seek employment opportunities in urban areas. Further, the ag/rural communities have been some of the hardest hit by the opioid crisis. Consider for a moment that of the top 10 states leading the nation in drug overdose mortality rate, 8 are in the northeast. Skyrocketing land costs and uncertain food prices increase vulnerability for both the next generation of food producers and for the vast majority of the country's population who depend on domestic food products. Two growing sectors that pose interesting agricultural dimensions in our cities and towns include urban ag and controlled environment ag. Sustainable agricultural prosperity need not reside only in rural communities.

These two major challenges have coalesced within the Northeast, and we have the intellectual horsepower to not only address these challenges for this region but to provide a model for other regions to mitigate similar issues in the future. However, putting that intellectual capital to work requires investment. To meet this challenge, NIFA must further invest in funding opportunities that support sustainable agricultural systems in all three inextricably linked support categories: capacity research programs, competitive projects, and agricultural research infrastructure. We appreciate that funding has been dedicated to this program and to a program in resilient agroecosystems. We recommend that this investment be expanded to include programs to grow local food systems including urban agriculture. Likewise, further investment in programs that promote entrepreneurship, financial/business planning, and agricultural innovation that exploit the opportunities on the rural/urban continuum are necessary to meet our essential challenges.

What's the breakthrough?

Producing more with less. In making this recommendation, we're seeking to continue the incredible progress made in the 20th century of increasing agricultural outputs while significantly reducing inputs. The 21st century requires even greater reduction of inputs: water, fertilizer, pesticides, fuels, energy, and human power across all agricultural sectors. This puts a spotlight on local food systems, an area of specialty and opportunity for the Northeast. To achieve this breakthrough, innovation is required. Investment in programs

that explore agricultural innovation is necessary, as is an investment in programs for specialty crops, a sweet spot for NE food systems.

We also believe that to do more for less will require the full participation of NIFA's Land-grant partners: researchers, educators, and extension specialists. We support NIFA engaging us with innovative opportunities that seek an integrated approach.