

**Testimony of Dr. Alan L. Grant**  
**Dean of the College of Agriculture and Life Sciences at**  
**Virginia Polytechnic Institute and State University**  
before the  
**Subcommittee on Conservation, Research, and Biotechnology**  
**House Agriculture Committee**  
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Thank you for the opportunity to highlight the impacts of USDA's capacity and competitive funding in hopes that it will help inform your subcommittee's work on the Farm Bill. Strong investments in research and extension programs are needed to keep pace with the evolving agricultural landscape, especially as new and greater challenges emerge.

Approximately 70% of public agricultural R&D is performed at land-grant universities, non land-grant colleges of agriculture, and other non-federal entities. The partnership between USDA and Virginia Tech is critical in carrying out agricultural research, extension, and educational activities. In addition to the programs that are led by faculty on Virginia Tech's main undergraduate campus, Virginia Tech also operates across the Commonwealth through a network of 11 Agricultural Research and Extension Centers (ARECs) and 107 local extension offices. The programs led by the faculty at these sites serve communities and businesses in Virginia and beyond.

Virginia Tech's ARECs and Extension offices are critical in supporting Virginia's agriculture and forestry industries, which contribute significantly to Virginia's economy. Virginia's largest private industry is agriculture, which has an economic impact of \$82.3 billion annually. When combined with forestry, these two industries contribute \$105 billion to the state economy and provide more than 490,000 jobs in Virginia, according to a recent study by the Weldon Cooper Center for Public Service. As a land-grant university, Virginia Tech works in partnership with federal, state, and local government stakeholders and industry to meet evolving agricultural needs in Virginia, as well as throughout the country and around the world.

### **Capacity Funds**

As an 1862 land-grant university, Virginia Tech receives capacity funds from USDA through the Hatch Act, McIntire-Stennis Cooperative Forestry Research Program, Animal Health and Disease Program, and the Smith-Lever Act. These programs enable us to maintain a presence throughout the Commonwealth, tailor our research and extension efforts toward regional and local agricultural needs, provide boots on the ground during unexpected events or in times of crises, and ensure businesses have the information they need to serve their communities.

Hatch and McIntire-Stennis funds support research capacity at Virginia Tech's 11 ARECs across the Commonwealth, which address critical issues and innovations that affect agricultural production, profitability, and sustainability, including areas like conservation, economic analysis, food safety, invasive species, biosecurity and precision agriculture. Virginia has a diverse

agriculture industry in terms of commodities produced. Virginia Tech's AREC system reflects this diversity, spanning seafood research in coastal regions to commercial fruit research in the Shenandoah Valley.

The Alson H. Smith, Jr. AREC located in Winchester, Virginia, which specializes in the commercial fruit industry and wine grape research, is conducting time-sensitive, relevant research directly impacting local and regional producers. The spotted lanternfly is an invasive species that poses significant threats to viticulture and commercial fruit production. It is estimated that the spotted lanternfly leads to \$40 billion in crop loss per year, causing concern for producers down the East Coast and as far west as Illinois. To combat the invasive species, Virginia Tech researchers at the AREC are training dogs to sniff out spotted lanternfly eggs. This detection allows producers to identify affected plants, address the invasion before the eggs are able to hatch and destroy crops, and prevent the overuse of insecticides. This is only one of many examples of the great research underway at Virginia Tech ARECs.

Similarly, Smith-Lever funds support cooperative extension and provide the capacity needed to deliver vital, timely, practical information to agricultural producers, small business owners, communities, youth, and families. Extension allows us to apply science locally, where it is needed. This past year, Virginia Tech was awarded \$80 million by the USDA to pilot a program that will incentivize producers to implement climate-smart practices on farms of all sizes and commodities, an initiative that could have significant impacts on curbing climate-changing gases. Virginia Cooperative Extension will play an important role in the delivery of this program.

Virginia Tech, Virginia's 1862 land grant university, and Virginia State University, Virginia's 1890 land grant university, work together to deliver extension programs to the Commonwealth. These educational programs are critical to communities. In fact, USDA Economic Research Service reports that without the U.S. Cooperative Extension System, 28% additional farmers would have left farming over the last 30 years. The work of our Extension offices can be found in every community across the Commonwealth. The program offerings through Extension are extensive and include nutrition education, financial literacy, substance abuse prevention, and youth development programs. This publicly funded, out-of-the classroom educational network combines the expertise and resources of federal, state and local partners to empower youth, promote civic engagement, bolster interest in agriculture, and help communities thrive.

### **Competitive USDA Grants**

In addition to USDA capacity funding, faculty compete for grant funding from the Agriculture and Food Research Initiative (AFRI). USDA grant funding supports both applied research, which can be translated quickly to the industry, as well as the more long-term basic and discovery research, which is important to solving our future challenges in food and agriculture. USDA competitive grants and fellowships for Food and Agriculture Sciences Education also support teaching programs in agriculture and related areas. These teaching programs are important if we are to continue preparing students to fill the growing demand for jobs in food, agriculture, environmental, and natural resource sciences.

The Research Facilities Act of the Farm Bill is also an important source of competitive grant funding to modernize agricultural research facilities. Access to high quality, modern facilities supports our ability to attract top-level talent, conduct cutting-edge research, and comply with evolving federal research regulations. Increasing funds for RFA in the Farm Bill is critical, especially given that an estimated 70% of research facilities at US public colleges of agriculture are at the end of their useful life with \$11.5 billion in deferred maintenance.

### **Stagnant Funding**

Despite the long history of the demonstrated value and impact of USDA capacity programs and competitive grants, funding for these programs has remained flat or only seen minimal increases for years. Data from the USDA Economic Research Service shows that \$1 in public investment in food and agriculture research has returned \$20 to the American economy. However, the same U.S. Economic Research Service data also noted spending on public agriculture research peaked in 2002 and declined to approximately where it was in 1970 by 2019, which demonstrates the decreasing purchasing power inflation has on flat funding. These alarming trends threaten the stability of the very system the U.S. relies on to cultivate the agricultural workforce, reinforce domestic preparedness against pests and diseases, and ensure the U.S. leadership in global food security and technology.

From a facilities perspective, the deferred maintenance and limited growth of the Research Facilities Act is leading to friction between the quality and scope of research possible and the available facilities to conduct the research. For example, the AREC in Winchester, Virginia has the faculty expertise to research the impact of changing weather patterns on specific crops, but the greenhouses are not designed to properly test the needed research. Further, and more troubling, federal regulation regarding contamination requirements for agriculture research are starting to outpace aging facility capabilities. This has the potential to limit researchers' ability to study and understand emerging diseases or invasive species.

### **Conclusion**

The combination of capacity funding, which puts scientists in well-equipped laboratories and puts extension professionals on the ground, along with the competitive funding that supports new innovations and discoveries, and the integration of all of this with our academic mission, is what makes the land-grant university system so impactful. USDA funding at universities also results in faculty being competitive for research funding from other federal agencies, state agencies, industry groups, and foundations. Annually, Virginia Tech receives \$16 million in capacity funding. Faculty in the College of Agriculture and Life Sciences alone are awarded \$17 million annually, on average, in USDA competitive funds, helping leverage an additional \$40 plus million from other competitive sources, such as the National Science Foundation, National Institutes of Health, and Department of Energy, to advance the food and agriculture industry.

Some additional impacts of USDA capacity and competitive funding at Virginia Tech include the following:

- Development of new diagnostic tools that identify disruptive pathogens in soybean fields across the US, which facilitates the selection of effective treatments, and saves billions of dollars globally.
- Identification of genes for breeding disease-resistant soybeans.
- Development of climate models to examine nitrogen loads in the Chesapeake Bay as more extreme weather events occur and with weather variability.
- Development of the Healthy Beverage Index to measure beverage intake patterns to assess healthy dietary patterns, which can be used to improve public health and assist in the battle against obesity and related chronic diseases.
- Extension funding to support Virginia's 4-H programs, which reach nearly 200,000 youth from urban and rural areas participating in youth education programs, many of which are from underrepresented groups that would not have access to such programs without 4-H.
- Delivery of outreach and education programs in high schools and hospitals to address the opioid crisis, a crisis that has impacted almost all communities in many ways including the agricultural community.
- Research and extension programs to combat invasive species, such as the spotted lanternfly, the brown marmorated stink bug, and avian flu, which cause millions of dollars in losses.
- Discovery that inclusion of gut microbiome data is an important factor in the prediction of feed efficiency in cattle.
- The Expanded Food and Nutrition Education Program (EFNEP) is an essential nutrition education program that targets low-income populations and is proven to improve diets, increase safe food handling practices, and help make food dollars go farther.

In summary, USDA capacity and competitive funding will continue to be increasingly important at our universities. As highlighted in the 2022 Global Agricultural Productivity Report, led out of Virginia Tech's College of Agriculture and Life Sciences, increased public investment in agricultural research and development is essential to accelerate productivity growth that is required for the world's agricultural systems to be sustainable and resilient to shocks.

At Virginia Tech, we aspire to be among the best colleges of agriculture and life sciences, and among the best land grant universities for the benefit of the agriculture industry and the people it serves. USDA funding is essential in meeting this mission.

Thank you for your support of agricultural research, extension, and education, and thank you for the opportunity to speak with you today.