

Land-grant university research and Extension strengthen nutrition, health and well-being.

Chronic diseases are the leading cause of illness, disability and death in America. Research and Extension are fighting back.

- Over half of adults who participated in a **Texas** diabetes education program now choose healthier foods, monitor glucose levels during exercise, and control their diabetes to avoid interference with daily life. These changes could help participants save up to \$94,021 in lifetime health care costs. *Texas A&M AgriLife Extension; funded by State Appropriations, Smith-Lever 3d (EFNEP, Farm Safety, NTAE, CYFAR, FRTEP) Capacity Funds.*
- Scientists in **Illinois** identified a key driver of diabetic kidney fibrosis in mice, suggesting a new path toward therapies that could prevent or delay kidney failure in humans. *Illinois Agricultural Experiment Station.*
- Researchers in **Virginia** shed light on how obesity affects ovarian cancer cell survival and spread, providing insights for interventions. *Virginia Agricultural Experiment Station; funded by Hatch Capacity Funds.*
- Good nutrition can help prevent and manage chronic diseases and lower healthcare expenses. The Expanded Food and Nutrition Education Program (EFNEP) is a nationwide Extension program that teaches adults and youths how to choose and prepare ample, affordable, healthy foods. These programs have helped participants reduce fat, sugar and sodium intake and increase fruit and vegetable intake. In **Colorado**, 98% of participants in 2025 enhanced diet quality. Participants in **Guam** improved food-related behaviors and saved over \$88 per month. *Colorado State University Extension, University of Guam Land Grant Extension Service; funded by Smith-Lever 3d (EFNEP, Farm Safety, NTAE, CYFAR, FRTEP) Capacity Funds, Other USDA Capacity - Extension, State Appropriations.*

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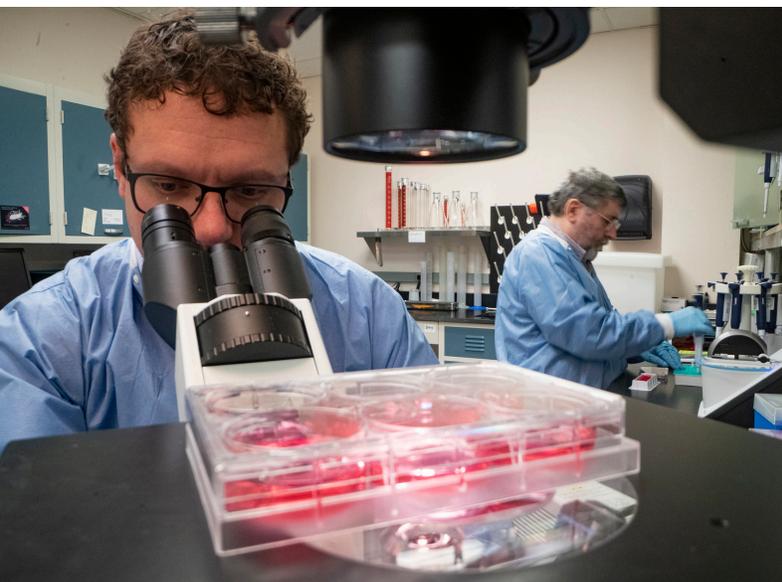
The National Land-grant Impacts Database (NIDB) documents the impacts of land-grant universities' (LGU) research, education and Cooperative Extension. The featured projects and programs are supported by a variety of funding sources and partners. Much of this work is supported by USDA's National Institute of Food and Agriculture capacity and competitive grants programs. Capacity funding forms the foundation for the LGU's agricultural research and Extension system.

This document was prepared by the NIDB communications team. The Association of Public and Land-grant Universities' Board on Agriculture Assembly manages the NIDB.

- Sugary drinks contribute to diabetes, heart disease and dental decay. Researchers in **California** found new ways to boost the impression of sweetness and maintain consumer acceptance of drinks that have 25%–30% less sugar. This facilitates development of viable healthier options. *California Agricultural Experiment Station; funded by Hatch Capacity Funds.*
- Researchers in **Arkansas** analyzed how GLP-1 weight loss medications affect food and beverage consumption and industry trends, providing key insights for food and beverage companies, restaurants, healthcare professionals, policymakers and other stakeholders. *Arkansas Agricultural Experiment Station; funded by State Appropriations.*

Innovative research is harnessing bioactive compounds in food.

- **Indiana** scientists developed corn with higher levels of antioxidant carotenoids that are crucial for eye and brain health. This corn can be used in nutritious food products and fed to poultry so they produce eggs with higher carotenoid levels. *Purdue University Research; funded by Hatch Capacity Funds.*
- Researchers in **Arkansas** produced a new 3D-printable sorghum protein gel that is better able to encapsulate healthy oils, fat-soluble vitamins and other medicines without losing structural integrity. *Arkansas Agricultural Experiment Station; funded by Non-Profit Grants & Contracts, Other USDA Competitive.*



Bacterial and viral diseases cause serious illness and deaths each year, but research at land-grant universities has identified new tools for fighting infections.

- Researchers in **Connecticut** improved diagnostic tools and patented a vaccine approach for leptospirosis, a life-threatening bacterial disease that causes flu-like symptoms and leads to an estimated 60,000 human deaths worldwide each year. *Connecticut Storrs Agricultural Experiment Station; funded by National Institutes of Health.*
- A **Pennsylvania** study is paving the way for rapid development of T-cell vaccines that are more effective and longer lasting against viral diseases such as COVID-19 and influenza. This team's groundbreaking approach uses multiple types of artificial intelligence to predict ideal targets for vaccines, which means they don't have to wait for a new strain of a virus to arrive to develop a vaccine. *Pennsylvania Agricultural Experiment Station; funded by Hatch Capacity Funds.*
- Research and Extension in **Utah, Rhode Island, Kentucky, Oklahoma** and **Virginia** provided key genetic insights, innovative traps and insecticides and symptom treatment information to help people prevent and manage serious illnesses spread by ticks and mosquitoes, improving individual quality of life and easing the burden on public health systems. Rhode Island Cooperative Extension, *University of Kentucky Cooperative Extension Service, Oklahoma Cooperative Extension Service; Non-Profit Grants & Contracts, Smith-Lever (3b&c) Capacity Funds, State Appropriations, County Funding. Virginia Agricultural Experiment Station; Hatch Capacity Funds. Utah Agricultural Experiment Station; funded by Hatch Capacity Funds.*
- Scientists in **California** developed antiviral clothing and self-disinfecting nonwoven fabrics that can be used in personal protective equipment to provide greater protection. *California Agricultural Experiment Station; funded by Hatch Multistate Capacity Funds.*

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Foodborne illness affects one in six Americans each year, posing a significant public health and economic burden.

- Researchers in **North Carolina** developed chemical-free technologies to reduce harmful bacteria like *E.coli* — and boost antioxidants and other beneficial nutritional compounds — in hydroponic produce. *North Carolina A&T State University Agricultural Research Station; funded by Evans-Allen Capacity Funds.*
- A **Pennsylvania** study suggests artificial intelligence could significantly enhance the detection of anomalies like contamination or unauthorized additives in milk. *Pennsylvania Agricultural Experiment Station; funded by Hatch Capacity Funds.*
- Food safety education and certification programs led by Extension professionals in **Alabama, Maine, Rhode Island** and other states resulted in measurable gains in compliance and prevented outbreaks across the entire food system, from growers to processors to food businesses and consumers. *Auburn University Research, University of Maine Cooperative Extension, Rhode Island Cooperative Extension; funded by Hatch Capacity Funds, Smith-Lever (3b&c) Capacity Funds, State Appropriations.*

Older adults have unique health risks.

- Researchers in **multiple states** are working together to better understand aging and develop diet and exercise strategies tailored to older adults. In particular, discoveries about white blood cells

and brain receptors will help develop targeted therapeutics to slow or prevent inflammation and age-related chronic conditions. Recommended physical activity interventions could improve immune response and reduce muscle wasting. *University of Arizona, University of Arkansas, University of Connecticut, University of the District of Columbia, University of Illinois, Iowa State University, Louisiana State University, University of Maryland, University of Massachusetts, Mississippi State University, University of Nebraska, Ohio State University, Oregon State University, University of Rhode Island, Rutgers University, South Dakota State University, University of Tennessee, Texas A&M AgriLife Research, West Virginia University; funded by Hatch Multistate Capacity Funds.*

- In **Kansas**, Extension helps aging adults make informed health care decisions to improve health outcomes and protect their finances. In the past 12 years, they have completed more than 86,000 Medicare plan comparisons, resulting in nearly \$54 million in savings for beneficiaries. Another initiative prevents falls through improvements in older adults' strength and balance and living space modifications. Program completed in Kansas in 2025 will prevent an estimated 119 falls over the next three years, saving an estimated \$1.5 million in direct health care costs. *K-State Research and Extension; funded by Smith-Lever (3b&c) Capacity Funds, County Funding.*

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Healthy habits early in life have a long-lasting impact on health and well-being.

- Researchers in **multiple states** are working together and with collaborators to understand how parenting practices influence kids' eating behaviors and to develop educational tools and materials for parents. *University of the District of Columbia, University of Georgia, University of Hawaii, Kansas State University, University of Minnesota, Ohio State University, Oregon State University, University of Wyoming; funded by Hatch Multistate Capacity Funds.*
- Extension programs in schools are empowering kids to adopt long-term healthy habits. For example, training has helped **Iowa** childcare providers integrate gardening, nutrition education and local food into daily routines. Nearly 2,000 grade schoolers who participated in a **Texas** program showed measurable improvements in physical activity, fruit and vegetable consumption, screen-time behaviors, overall well-being and academic success. *Iowa State University Extension and Outreach, Texas A&M AgriLife Extension; funded by Smith-Lever (3b&c) Capacity Funds, State Appropriations.*



Extension programs nationwide have improved healthcare access in rural communities.

- Extension professionals in **South Dakota, Missouri, Indiana, Oregon, Washington, Illinois** and other states coordinate networks and lead trainings that strengthen community-based response to mental health challenges. Many programs and resources are tailored to address the disproportionately high levels of stress and suicide among farmers, providing free counseling, hotlines peer support groups and culturally and locally relevant events. Increased resources and capacity have likely played a role in reductions in suicide deaths in some states. *SDSU Extension, University of Missouri Extension, Purdue Extension, Washington State University Extension, Illinois Agricultural Experiment Station; funded by Smith-Lever (3b&c) Capacity Building Funds, Other USDA Competitive, State Appropriations.*
- In **Ohio**, a mobile health unit provides health screening and education has helped prevent some non-emergency visits to the emergency room, leading to considerable savings for both individuals and the healthcare system. *Central State University - Extension; funded by 1890 Extension Capacity Funds.*

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