

## APLU BAA Vision Document

### **\*\*High level executive summary and outline\*\***

The Association of Public and Land Grant Universities' Board on Agriculture Assembly envisions a future where American agriculture provides the nation with improved personal, financial, and environmental health and prosperity. American agriculture squarely occupies the nexus of food, energy, health, and community. In the future we envision, America's farms, fields, ranches, forests, and fisheries will supply the food, fuel, feed, and fiber Americans need without reliance on foreign inputs, investments, or products. In this future, agriculture is a vital part of the solution to improving water and soil quality and environmental, ecosystem, and forest health while driving innovations that spur economic vitality and prosperity for America and beyond.

**The United States maintains a safe, abundant, and secure domestic supply of food and fiber for public health and national security for generations to come.**

Grocery stores in the United States are filled with a diversity of products. Produce, meats, grains, cheeses, and many other affordable, nutritious products produced in the United States line the shelves.<sup>1</sup> Our food system is the safest in the world, both with respect to consistent availability of food and the absence of foodborne disease.<sup>2</sup> Disruptive global events that have recently shaken global agricultural markets, such as Russia's invasion of Ukraine, a powerhouse agricultural exporter,<sup>3</sup> failed to produce panic in the United States because our domestic food supply is stable. This was no accident. It is the result of an intentional effort to support agriculture research, Extension, and teaching in every U.S. state and territory.

The journey to ensure the safety, abundance, and security of America's food supply began in 1862 with the establishment of the Land-grant university system and with the U.S. Department of Agriculture, which provides direct support for the universities' mission. Land-grant institutions were created to drive innovation through research, spread knowledge through Extension, and educate an agricultural workforce. Over the past 150 years, support for this mission rose steadily, with past investments serving as the foundation for our agricultural system today. But now the system is in a critically endangered position. Staffing cuts, reduced research dollars, and crumbling infrastructure have diminished the capacity of trusted Land-grant institutions and non-Land-grant colleges of agriculture to serve students or address local agricultural challenges. Consequently, commercially produced, nationally oriented solutions become the only options available.

All agriculture experiences geographically specific challenges – regional agricultural success is what makes our nation's food system resilient and responsive; seeds produced in the Plains will not work as well in Florida or New Mexico. Locally or regionally tailored innovations, however, developed by researchers in conversation with local producers, will increase success and reduce overall reliance on

---

<sup>1</sup> [Insert AgInnovation reference that 87% of food consumed in the US was produced domestically.]

<sup>2</sup> [https://impact.economist.com/sustainability/project/food-security-index/reports/Economist\\_Impact\\_GFSI\\_2022\\_Global\\_Report\\_Sep\\_2022.pdf](https://impact.economist.com/sustainability/project/food-security-index/reports/Economist_Impact_GFSI_2022_Global_Report_Sep_2022.pdf)

<sup>3</sup> <https://fas.usda.gov/sites/default/files/2022-04/Ukraine-Factsheet-April2022.pdf>

crop insurance and other supports, driving down premiums and increasing profitability and food security.<sup>4</sup>

The Association of Public and Land Grant Universities' (APLU) Board on Agriculture Assembly (BAA) envisions a future where producers can unquestionably rely on the capacity of their local land-grant institution's research and Extension experts to co-create solutions unique to their local agricultural challenges, ensuring a future where each region can rely on its neighbors for a secure, domestic supply of safe, accessible, and nutritious food for years to come. Current levels of federal investment will not support this future; opportunities are already being lost.

#### *Research and Extension respond to the spotted lanternfly*

Fruit and forest products are an important part of the mid-Atlantic agriculture industry. Ten years ago, a new, non-native, invasive pest, the spotted lanternfly, was found in **Pennsylvania**. This pest is now found in 45 Pennsylvania counties and parts of **Delaware, Maryland, New Jersey, Virginia, and West Virginia**. Affected farmers saw losses, but these individuals could not assess region-wide impacts or cost-effective solutions on their own. A team of researchers from **Pennsylvania State University** evaluated the direct impact of this pest on the quarantine zone in Pennsylvania as \$50.1 million per year and 484 lost jobs, and the team estimated that damages could reach \$554 million with 4,987 lost jobs if the pest spreads throughout Pennsylvania. Considering the large-scale and wide-spread implications, researchers prioritized learning more about the spotted lanternfly, including how to predict infestations based on weather conditions<sup>5</sup>. This research provided concrete strategies for an Extension management guide for farmers.<sup>6</sup>

#### *1890s research makes rice safer to eat*

The average American consumes more than 25 pounds of rice each year, and the United States is the fifth largest rice-exporting country in the world.<sup>7</sup> Rice is a crop of global importance, but the rice produced in south-central U.S. states, such as in **Missouri** and **Arkansas**, has been found to contain elevated arsenic concentrations.<sup>8</sup> Finding ways to reduce the levels of arsenic found in rice grown in these areas, which suffer from historical applications of arsenic-containing pesticides, are crucial for this industry. A research team from **Lincoln University**, in collaboration with the **University of Missouri**, Missouri University of Science and Technology, and USDA Agriculture Research Service, found soil amendments, resistant cultivars, and management practices that yielded more rice with less arsenic.<sup>9</sup> These results will help farmers grow more and healthier rice for Americans and for export.

---

<sup>4</sup> <https://www.ers.usda.gov/topics/farm-practices-management/risk-management/crop-insurance-at-a-glance/#:~:text=Federal%20Crop%20Insurance%20Program%20insured%20acreage,-Embed%20this%20chart&text=FCIP%20participation%20has%20increased%20steadily,for%20the%202021%20crop%20year.>

<sup>5</sup> <https://nidb.landgrantimpacts.org/impacts/show/6372>

<sup>6</sup> <https://extension.psu.edu/spotted-lanternfly-management-guide>

<sup>7</sup> <https://www.usarice.com/thinkrice/discover-us-rice/us-rice-facts#:~:text=U.S.%20Grown%20Rice%20Facts&text=The%20average%20American%20consumes%2027,over%2015%20vitamins%20and%20minerals.>

<sup>8</sup> <https://pubs.acs.org/doi/abs/10.1021/es061489k>

<sup>9</sup> <https://www.liebertpub.com/doi/full/10.1089/ees.2010.0481>

## **Rural communities are economically and environmentally healthy places to live.**

Many rural residents enjoy natural amenities, beautiful landscapes, and tight-knit communities. During and since the COVID-19 pandemic, net migration into these areas has caused the rural population to increase, a new trend that follows decades of population decline and is likely reflective of new flexibilities with respect to remote work.<sup>10,11</sup> However, the influx of new residents, and the corresponding growth in amenities and opportunities, is not equally distributed. As before the pandemic, rural America struggles to provide its residents with economic opportunities, access to healthcare, transportation, broadband, and educational opportunities.<sup>12</sup> There is also increasing acknowledgement that many, especially underserved, rural populations face a disproportionate level of legacy pollution, the result of extractive industries that have left environmental degradation.<sup>13</sup> With such a diversity of needs across a varied landscape, communities need local, tailored solutions to address their unique challenges.

APLU's BAA envisions a future where customized, science-based interventions improve the quality of life in rural communities across the country, transforming all of them into economically and environmentally healthy places to live, work, and raise a family.

### *Drought monitoring saves farmers money*

Farm income underpins the economic health of rural areas, and yet, farming is risky business. In New Mexico, for example, agricultural communities weathered 12 drought events between 2000 and 2020, resulting in significant economic losses – droughts cost New Mexico approximately \$100-250 million per event. But the more a community knows about the potential frequency, duration, severity, and impacts of a drought, the better its decisions can be in developing appropriate responses, for example with investments in risk management. **New Mexico State University** researchers developed drought monitoring tools that help determine when drought is developing, which areas are impacted, and how severe the conditions are, giving communities a well-needed heads up to prepare.

### *Tribal colleges promote rural economic development*

When Tribal Colleges were awarded land grant status in 1994, the **United Tribes Technical College in North Dakota** significantly expanded its programming for culturally relevant wellness promotion. For example, the College assisted students and community members interested in producing local foods for sale at farmers markets and community events. These small markets, however, do not support the wide-scale development of traditional foods that would make them more accessible to all. In response, UTTC created the 5-Tribes Community Kitchen, a fully operational commercial kitchen that lets students and partners create products for grocery stores, food pantries, and restaurants from food grown on campus. Using this kitchen, students can hone business ideas and skills that they can spin off into new commercial enterprises for community development.

---

<sup>10</sup> <https://www.ers.usda.gov/publications/pub-details/?pubid=107837>

<sup>11</sup> <https://carsey.unh.edu/publication/snapshot/recent-data-suggest-rural-america-is-growing-again>

<sup>12</sup> <https://www.ers.usda.gov/topics/rural-economy-population/>

<sup>13</sup> [https://www.epa.gov/system/files?file=documents/2022-04/epa-rural-fact-sheet\\_3.25\\_vcleared\\_epa-comments\\_final.pdf](https://www.epa.gov/system/files?file=documents/2022-04/epa-rural-fact-sheet_3.25_vcleared_epa-comments_final.pdf)

### *Forestry and natural resources research keeps rural lands healthy*

Rural communities near forests receive myriad benefits, from clean air and water to robust wild pollinator populations. Recently, however, wildfires have become a year-round threat to communities near forests. In the last decade, researchers have established many of the dangers associated with wildfire smoke, such as exposure to unhealthy air quality, the impacts on animal health and crop production, and the degree to which soil erosion impacts water quality. The scope of the issue is so broad, and the implications so important, that researchers, for example at **Washington State University**, are examining all the interconnecting pieces to begin untangling what needs to happen next, paving the way for investments in smoke forecast modeling, chronic exposure mitigation, and new controlled burn best practices.<sup>14</sup>

### **Americans have better, more nourishing diets and longer, healthier lives.**

The U.S. agricultural system is a marvel of ingenuity and technology. In the mid-twentieth century, charged with ending hunger and malnutrition in America and across the globe, armies of researchers and Extension professionals worked with American farmers and ranchers to build a system that produces more calories per acre than the world had ever seen. They succeeded, and today, Americans have easy access to inexpensive calories. But there was an unseen cost – calories alone do not make for a nutritious diet.<sup>15</sup> Today, poor nutrition is now a primary cause of illness in the United States.<sup>16</sup>

More than half of Americans have diabetes or pre-diabetes. If you include other diet-related conditions like obesity, high blood sugar, high blood pressure, high blood cholesterol, and cardiovascular disease, fewer than seven percent of Americans can be considered “healthy.”<sup>17</sup> Poor nutrition is shortening American lives, burdening American children with obesity, and threatening to destabilize our healthcare system. Healthcare costs continue to rise, primarily to treat diet-related diseases.<sup>18</sup> What is needed is nutritious food that is accessible and affordable.

APLU’s BAA envisions a future where Americans have better, more nourishing diets and longer, healthier lives by cutting in half the number of Americans with diet-related diseases. Part of this change must come from the agricultural sector, where improvements in agronomy and crop technologies can make nutritious food more accessible and affordable, and part must come from Extension and education, which will also be needed to translate academic research ideas and new technologies to producers and, subsequently, consumers.

Just as the agricultural community heard the call for more calories to combat malnutrition in the last century, we stand ready to answer one of this century’s most pressing humanitarian needs. What is needed now is support for the army of researchers and Extension professionals who have been working tirelessly on these pressing issues to scale our many successes to the national level.

---

<sup>14</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7932990/>

<sup>15</sup> <https://www.pnas.org/doi/full/10.1073/pnas.0912953109>

<sup>16</sup> [https://www.usda.gov/nutrition-](https://www.usda.gov/nutrition-security#:~:text=Poor%20nutrition%20is%20a%20leading,care%20costs%20and%20decreased%20productivity.)

[security#:~:text=Poor%20nutrition%20is%20a%20leading,care%20costs%20and%20decreased%20productivity.](https://www.usda.gov/nutrition-security#:~:text=Poor%20nutrition%20is%20a%20leading,care%20costs%20and%20decreased%20productivity.)

<sup>17</sup> [https://www.agriculture.senate.gov/imo/media/doc/Testimony\\_Mozaffarian\\_11.02.2021\\_UPDATED1.pdf](https://www.agriculture.senate.gov/imo/media/doc/Testimony_Mozaffarian_11.02.2021_UPDATED1.pdf)

<sup>18</sup> <https://www.rockefellerfoundation.org/wp-content/uploads/2021/07/True-Cost-of-Food-Full-Report-Final.pdf>

### *Agriculture research can make loved foods healthier*

Americans love deep fried fish and chicken, especially those sold at fast-food restaurants. The dietary fat from these foods has been associated with coronary heart disease, obesity, type 2 diabetes, and cancers, but the quality and type of the oil used for frying can significantly influence how much fat is taken up after eating them. Researchers at **North Carolina A&T State University**, an 1890 historically Black university, are developing a novel frying technique that uses an oleogel instead of canola oil to fry fish and chicken. Combined with a thyme essential oil and an edible sweet potato starch coating, this technique reduces the fat uptake from fried chicken compared to chicken fried in canola oil with no reduction in moisture or compromise in color, texture, or shelf-life.

### *Extension makes healthy foods accessible*

Making sure fresh fruits and vegetables are part of one's diet is essential for maintaining health, but these foods are not always easily accessible or affordable. Growing Together is a multi-state SNAP-Ed donation garden collaborative that promotes access to healthy, garden-grown foods and provides garden education for individuals who are nutrition insecure. The collaborative includes Extension in **Iowa, Michigan, Montana, Indiana, Illinois, Nebraska, Wisconsin, Wyoming, and South Dakota**, which meet regularly to share best practices even as each state tailors its efforts to best meet local needs. Over the past three years, this Extension-based collaborative has donated more than 600,000 pounds of fruits and vegetables to 878 distribution sites serving 375,000 people.<sup>19</sup>

---

<sup>19</sup> [https://drive.google.com/file/d/1EbeRCDY9YZpe\\_pzLdPqkAP29JunuUuqu/view](https://drive.google.com/file/d/1EbeRCDY9YZpe_pzLdPqkAP29JunuUuqu/view)