

Diversity of ARS Research

Whether you start your day with a cup of yogurt, a bowl of grits, or a stack of pancakes, you're probably eating food that's benefited from the work of Agricultural Research Service scientists and their many public and private-sector research partners.

ARS scientists have boosted the nutritional properties of some yogurts and developed protective films for packaging it and other dairy products. They've also bred disease- and insect-resistant lines of corn, the kernels of which are dried and ground to make hominy. And our research has helped establish safety procedures to protect wheat, eggs, milk, and other products from foodborne pathogens, ensuring that food purchased in the United States is among the safest in the world.

ARS research has improved the quality, availability, and affordability of a variety of other foods, as well. But the positive influences of ARS research are as pervasive in most aspects of daily life as they are in the kitchen. Clothing, medical equipment, insect repellents, vaccines—ARS scientists have made major contributions to them all.

In fact, ARS scientists have made too many contributions to crop, animal, nutrition, and natural resources research to fit into a magazine of this size, but even a small sampling of their achievements shows the breadth and significance of their work.

One area in which ARS has made major contributions is in homeland security. Over the last century, improved technology has made international travel increasingly affordable, leading to a boom in international trade. The benefits of an increasingly global society are accompanied by some risks—such as the heightened danger for disease transmission. ARS researchers are investigating how to identify, eradicate, and control foreign animal and plant diseases so our country will be prepared should a dangerous foreign disease ever cross our borders.

ARS scientists are also investigating how to treat and contain domestic disease threats. Their research has saved the U.S. livestock and aquaculture industries—and consumers—billions of dollars.

Sustainable agriculture and stewardship are also research priorities. Agency scientists have investigated how agricultural practices influence soil, water, and air quality and provided guidelines for agricultural professionals and policymakers. They're also making major strides in the field of climate change.

That carbon dioxide levels are rising is an established fact, but exactly how this change will affect the planet is still the subject of some debate. ARS researchers are investigating the potential impact of anticipated rises in CO₂ on weeds, crops, trees, and other plants. They're also researching potential changes in soil, air, and water quality and anticipating the impact on agriculture in the United States and around the world. And they're investigating how insects and animals adapt to changes in their environment. This information is essential for developing

animal-care protocols and predicting how climate change will influence important agricultural pests.

ARS scientists have also developed technology and protocols for preserving the genetic diversity of agricultural crops. The genetic resources collected by the National Plant Germplasm System have been made publicly available to researchers around the world, and the materials have been essential for research on improving crop nutrition, yield, stress tolerance, and disease resistance. The National Animal Germplasm Program provides the same service for important agricultural animals for research on characteristics such as hardiness, reproductive quality, and desirable commercial traits.

Energy is another commodity that touches every aspect of modern life, and ARS researchers are at the forefront of efforts to produce renewable energy. What's the most economic, efficient, and sustainable way to unlock the energy available in plant cells? Which crops are best suited to the task? How can we best utilize the byproducts of the plant-to-fuel conversion process? ARS scientists have made major strides toward answering these questions and developing alternative energy sources to reduce our nation's dependence on foreign oil.

Of course, some of the agency's most significant accomplishments can't be seen at all. For example, when's the last time livestock producers had to deal with screwworms or hog cholera? Once considered significant threats to U.S. agriculture, both have been eradicated from the United States, thanks in part to ARS scientists whose research helped to control and eliminate them. Similar research has also significantly reduced the negative influence of other pest and disease threats.

Since ARS was established in 1953, the agency's scientists have made many extraordinary scientific contributions to nutrition and food safety, animal production and protection, natural resources and sustainable agricultural systems, and crop production and protection.

The agency's mission statement reads: "ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to ensure high-quality, safe food and other agricultural products; assess the nutritional needs of Americans; sustain a competitive agricultural economy; enhance the natural resource base and the environment; and provide economic opportunities for rural citizens, communities, and society as a whole."

Throughout its history, ARS has honored the spirit of this mission by finding solutions to agricultural problems that affect Americans every day, from field to table, and our scientists continue this tradition today.

Edward B. Knipping
ARS Administrator
Washington, D.C.