

Agriculture and Food Research Initiative (AFRI)

The Food, Conservation, and Energy Act of 2008 establishes the **Agriculture and Food Research Initiative (AFRI)**, a **competitive grants program authorized at \$700 million annually, for research, extension, and education in support of our nation's food and agricultural systems**. This unique program, the successor to the National Research Initiative (NRI) and the Initiative for Future Agriculture and Food Systems (IFAFS), takes research and innovation beyond the development phase, into implementation through contemporary education and extension programs.

What is Agriculture and Food Research Initiative?

AFRI is the largest of several interrelated competitive grants programs administered by USDA's National Institute of Food and Agriculture (NIFA). AFRI prioritizes science for US agriculture in the areas of:

- plant health and production and plant products
- animal health and production and animal products
- food safety, nutrition, and health
- renewable energy, natural resources, and environment
- agriculture systems and technology
- agriculture economics and rural communities



Supporting an AFRI funding level of at least \$350 million for FY 2011, with a goal of increasing funding for the program annually by a minimum of \$50 million, will show strong commitment to science in the AFRI program areas.

A report by the Economic Research Service (ERS) found “strong and consistent evidence” that investment in agricultural research has yielded “**high returns per dollar spent**” citing mean annual rates of return of **53%**. Yet, our nation’s investment in agricultural research has been declining, threatening our ability to sustain a strong research portfolio. Supporting AFRI with a budget request of \$350 million in FY 2011, with the goal of achieving \$550 million in funding *at a minimum* by FY 2015, will ensure that America’s food and agricultural system remains sustainable and competitive, while also protecting the natural resource base and environment, enhancing human nutrition and fostering vibrant rural communities.

Activities supported by AFRI include:

1. **Fundamental Research:** discovers the underlying processes and functions that make systems work.
2. **Applied Research:** expands on basic research findings showing how they can be advanced to benefit individuals and society.
3. **Integrated Programs:** brings together three components of the agricultural knowledge system—research, education, and extension—around a problem area or activity
4. **Extension:** communicates scientific research and related nutrition, health, and business knowledge to rural communities through adult education and other events.
5. **Education:** includes instruction about the science, business, and technology of agricultural production and the environment and natural resources it relies upon.



What's New?

In addition to many critical NRI and IFAFS priority funding areas carried over into the new AFRI, the 2008 Farm Bill added four important new priorities:

- conventional (classical) plant breeding;
- conventional (classical) animal breeding;
- domestic marketing strategies; and
- rural entrepreneurship.



Competitive Research Accomplishments from the USDA

Renewing US Agriculture, Food Systems and Natural Resources

Past investments in USDA competitive research, education and extension have led to many advances in several critical issue areas, including:

Meeting global demand for food production: A team of scientists identified the genes that regulate temperature tolerance in wheat in order to identify frost-susceptible varieties. The identification of these optimum gene combinations has enabled breeders to develop hardier winter wheat, which is vital in light of growing pressure to increase global food production.

Sustainable fuel production: Agricultural and biological engineers and other researchers have developed fast pyrolysis reactors for producing bio-oils from energy crops. With the use of this innovative technology, the cost of manufacturing biofuel is less and the product readily integrates into existing fuel systems. Furthermore, there is reduced waste with more complete conversion of biomass to fuel.

Mitigating and adapting to climate change: Researchers determined that shifts in the timing and frequency of major mid-latitude storms during the summer influenced the recent fire trends in the northern Rocky Mountains. Understanding the influence of climate change on potential wildfire seasons is essential for USDA Forest Service, government and communities to better plan wildfire prevention and control strategies.

Ecosystem health: An agro-ecologist examined how pasture management on a cattle ranch affects the surrounding wetlands' ability to trap nutrients. He and his colleagues found that ranchlands and pasturelands can offset nutrient-loading in waterways by using wetland ecosystems.

Food security and nutrition: Social scientists found that a 2000-calorie diet consisting primarily of calorie-dense foods costs about \$33 a day less than a diet consisting of low-calorie foods. Nutrition education programs that develop healthy meal plans for low income families can incorporate this information into their educational programs, helping to reduce exorbitant food costs.

Revitalizing family farms and communities: While the vast majority of all farms in the United States are small, their economic contributions are important to the nation. Researchers from an 1890's Land Grant Institution explored the linkages between small farms and rural communities, reviewing the opportunities and constraints to rural development. Their study developed tools that will enable policy makers to assign reliable and realistic values to the non-market contribution of agriculture and small farms to a region's economy and rural community development.

Food safety and quality: *Campylobacter* bacteria are a major cause of diarrhea in humans and the most common bacterial cause of the stomach flu worldwide. Even in the absence of antibiotics, researchers have found that antibiotic-resistant strains of *Campylobacter* grow more successfully in the intestinal track of poultry than the non-resistant strain. Now researchers can determine how to prevent the transference of resistant strains of *Campylobacter* throughout the food supply.

Strong support for AFRI will also help ensure the availability of the next generation of researchers, educators, extension agents and consultants needed to safeguard and keep competitive the American agricultural enterprise.