USDA, INVESTMENT IN AG RESEARCH FEEDS FAMILIES AND FUELS THE FUTURE

1. INCREASE AGRICULTURAL PRODUCTIVITY

2. MEET CLIMATE CHALLENGES & STRENGTHEN THE BIOECONOMY

3. PROTECT NATURAL RESOURCES FOR FUTURE GENERATIONS

4. PROMOTE HEALTHY FAMILIES

5. MAKE SURE OUR FOOD IS SAFE TO EAT

6. INSPIRE FUTURE AG SCIENTISTS

Every dollar invested in agricultural research generates $20 for the broader U.S. economy.
INCREASE AGRICULTURAL PRODUCTIVITY

With climate variability, extreme weather conditions can make it difficult for farmers to meet consumer food demands with sufficient quantities of low-cost products. To address these challenges, USDA-funded researchers are studying wheat and barley from 2005-2017 to develop new varieties adapted to changing environments. These varieties represent approximately 10 percent of the wheat harvested and 4 percent of the barley harvested in the United States, with respective production values of $1.8 billion and $61 million.

The rapidly increasing population that is projected to reach nearly 10 billion by the year 2050 is more than doubling global food demands. To meet these demands, breeders are using genomics to accelerate the development of high-performing, resilient crops and livestock.

USDA-funded researchers are expanding the genetic toolkit in dairy cattle breeding by identifying genetic markers for milk yield and health. These tools are already accelerating the rate of increase in milk production by 50-100%, with even more rapid gains in traditionally hard-to-improve traits such as fertility and lifespan.

USDA researchers and international partners have identified molecular markers for cooking time in common bean. Breeders used these tools to develop a new bean variety that cooks in one to two hours less than the original variety. As a result, more protein is retained in the beans, less firewood is required to cook the beans, and less carbon is emitted during the cooking process.

Farmers need weather data—like drought warnings—as early as possible to make critical decisions that may make or break their crop yields and food animal production. Researchers at the USDA Hydrology and Remote Sensing Labs are using satellite data to inform farmers about drought at early stages. Satellites transmit time-sensitive imagery and other data to show drought impacts on agricultural lands. What can be accomplished with a billion dry tons of sustainable biomass? The USDA’s Billion Ton Bioeconomy envisions a future with increased production values of $1.8 billion and 4 percent of the barley harvested and biomass? The USDA’s Billion Ton Bioeconomy envisions a future with increased production values of $1.8 billion and 4 percent of the barley harvested and biomass?

Over the next five years, food, agricultural, natural resources, and environmental sciences are projected to generate nearly 58,000 new jobs. However, only 35,000 students will graduate from U.S. colleges of agriculture—less than those in qualified workers. USDA therefore invests in developing the next generation of scientists in these fields and is committed to building a diverse workforce that represents broader U.S. demographics. For example, the Hispanic Serving Institutions (HSI) Education Grant program strengthens the educational capacities of HSIs and offers students experiential learning opportunities.

Through this program, NIFA also partners with ARS to offer 12 summer internships every year that enable students to work under the supervision of an ARS mentor on a groundbreaking project.

REFERENCES AND FOOTNOTES:

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