Urbana has an enduring and dynamic partnership with USDA. The College of Agricultural, Consumer and Environmental Sciences (ACES) at Urbana is home to the Illinois Agricultural Experiment Station, which supports research capacity and education infrastructure in Illinois. Hatch and other related formula funds support capacity for applied science to benefit Illinois in areas such as plant photosynthesis and genetics, soil and water conservation, animal performance, and human nutrition and health strategies. USDA's Agriculture and Food Research Initiative (AFRI) supports competitive research programs that are essential to the research portfolio in ACES and in other units on the campus.

The National Institute of Food and Agriculture (NIFA) supports University of Illinois Extension, whose network of educators reaches all 102 counties of Illinois with evidence-based outreach and engagement programs in five broad areas: energy and environmental stewardship; food safety and security; economic development and workforce preparedness; family health, financial security, and wellness; and youth development. NIFA provides capacity support to U of I Extension through Smith-Lever 3(b) & (c).

More than $5M in competitive USDA funding to the College of Veterinary Medicine advances agricultural animal health through basic and applied research into disease prevention and through training programs that help producers and veterinarians improve biosecurity and productivity on farms.

USDA-Supported Projects at Urbana-Champaign

AGRICULTURAL WEEDS | Two USDA projects, valued at nearly $1M, focus on waterhemp and Palmer amaranth — two of the most economically damaging agronomic weeds in the U.S. In one project, Illinois scientists are tracking the northward and westward expansion of Palmer amaranth with the goal of designing context-specific management strategies. The other project is aimed at understanding the genes involved in determining the sex of the weeds as a first step towards developing novel genetic control methods.

COVER CROPS | Multiple USDA projects, supported by more than $2.1M, are refining what we know about the conservation practice of cover cropping. Illinois scientists are using satellite imagery to determine suitability and potential benefits of cover crops across the Corn Belt, examining field-level data from over 150,000 acres to quantify profitability of cover crops, and analyzing 35-year datasets to understand soil microbial dynamics under cover crops.

ANIMAL HEALTH | Urbana's College of Veterinary Medicine has more than $5M in competitive USDA funding to support animal health research. These projects are focused on vaccine development and understanding the pathogenesis and transmission of agricultural animal diseases. For instance:

- Supporting the beef, pork and poultry industries by developing vaccines to fight important viral diseases, actively monitoring for disease threats, and preparing producers and veterinarians to respond in case of a disease outbreak.
- Fighting global hunger with novel approaches to reduce the impact of key livestock parasites.
ANIMAL HEALTH CONTINUED

• Delivering high-quality online learning focused on animal-disease training and other needs of rural veterinary practitioners and students, so these professionals can partner with producers to ensure on-farm biosecurity and increase productivity and efficiency.

FOOD DEHYDRATION | Supported with more than $900,000 in USDA-NIFA funds, Illinois researchers are engineering ultrasonic food dehydration technologies designed to reduce food spoilage and reduce energy consumption. The project leverages resources and expertise from the NSF Industry/University Cooperative Research Center to build industry partnerships and speed adoption.

GUT HEALTH | Scientists are still discovering the significance of the gut microbiome for human health. For example, Illinois researchers are investigating the contributions of the microbiome toward healthy brain development and aging, with $238,000 in support from USDA and nearly $2M from the National Institute on Aging. Another USDA-funded ($120,000) project is examining how the diet, especially avocado consumption, affects microbiome-mediated liver health in obese patients with non-alcoholic fatty liver disease.

POLLINATOR CONSERVATION | A $994,800 USDA project is examining soil as an overlooked aspect of neonicotinoid impacts on bees. Many bees are ground nesters, which puts them in direct contact with contaminated soil. The project aims to quantify the level of exposure in these bees, as well as the potential to tap into soil microbial communities to break down chemical contaminants.

LIVESTOCK FERTILITY | AFRI is supporting a $100,000 project to identify molecular pathways and biomarkers to predict seasonal infertility in male animals resulting from high temperatures. The same team has leveraged $1.1M of NIH funding to discover how sperm viability in the female reproductive tract can lead to improved artificial insemination, better herd management, and reduced use of hormones for synchronizing ovulation.

Impacts of the Illinois SNAP-Ed and EFNEP Investments

University of Illinois Extension and UIC leveraged $15.5M of total investment in Illinois’ 2019 Supplemental Nutrition Assistance Program Education (SNAP-Ed) to improve food access, promote healthy food choices, and help Illinois families save more money. In 2019, Illinois SNAP-Ed worked in 93 counties across 409 cities in Illinois. SNAP-Ed partnered with 1,827 different organizations to deliver educational programming to low-income families and create organizational changes that promote health. This work reached a total of 1.67 million residents with more than 575,000 adults and youth participating in educational programming throughout the state. Children who participated had greater awareness of the importance of having a healthy diet and were more willing to try new foods, and 6 in 10 adults who attended educational sessions said they would make a healthy change that week.

Using the $2.2M Expanded Food and Nutrition Education Program (EFNEP) investment, University of Illinois Extension taught 8,261 low-income Illinois residents to improve eating habits and food-related behaviors through evidence-based peer-education programming. After participating in programs, 92 percent of adults and 83 percent of youth made healthier food choices.