

## **GRAND CHALLENGES BRIEFS FOR LOCAL/REGIONAL ADAPTATION**

### **USAGE GUIDELINES**

[The Grand Challenges templates](#) are intended for use by local/regional institutions who want to show the work they are doing to address the Grand Challenges. Each template is designed to provide consistent messaging about the Challenge Area and the response of the LGU/AES system, local/regional branding and identity, and local/regional success stories related to the Challenge Area.

The templates can be downloaded and edited using Adobe InDesign. Please refer to the notes below as well as those provided in the InDesign file and in the example PDF.

### **STYLE GUIDE**

#### **Layout**

- View InDesign template in “Normal” (not “Preview”) to view rulers, guide lines, and spacers
- Extend Page 1 background photo to bleed line
- Use 0.25” document margins
- Leave all spacers intact
- Do not alter text box width; only adjust height to accommodate more text

#### **Text Formatting**

- Fonts used: Lucida Sans (title, headings, success stories, captions) and Garamond (body text)
- Bold institution and place names (e.g., University of Illinois, Illinois, Midwest)
- Underline hyperlinks
- Bold and italicize numbers reported in success stories

#### **Graphics**

- Use high-resolution, relevant photos or other visual aids
- Attribute visual aids as needed
- Follow institution guidelines for choosing, sizing, and spacing logos

# SUSTAINABILITY, COMPETITIVENESS & PROFITABILITY OF FOOD & AGRICULTURE

Rising energy costs, frequent extremes in weather, and social changes affect agricultural productivity, food security, and economic viability. Even in the absence of these factors, a business-as-usual approach to agriculture will continue to degrade soil, water, air, and other natural resources. Now more than ever, we must enhance the sustainability, competitiveness, and profitability of our food and agricultural systems.

As part of the Land-Grant University System, the **University of Illinois** is poised to address this challenge area. Doing so will require investment in interdisciplinary systems-level research and development of comprehensive datasets and holistic analytical tools.

## RESEARCH PRIORITIES

- Reduce agriculture's carbon footprint
- Improve the energy efficiency of agricultural systems
- Enhance crop and livestock productivity
- Improve soil health
- Find new ways to conserve water
- Develop non-chemical pest and weed control
- Improve producer profitability

## CAPACITY & RESOURCES

As part of the Land-Grant University System, the **University of Illinois** has access to:

- Research sites representing diverse ecosystems, communities, and food production systems
- State-of-the-art laboratories, greenhouses, computational centers, and tools
- Skilled scientists, educators, students, and staff
- Impartial, peer-reviewed science, technology, and recommendations
- Far-reaching Extension networks to work with and inform communities across the state and beyond
- Strong relationships with government agencies, farm and commodity groups, and the private sector

# SUCCESS STORIES

Research-based approaches can make agricultural systems more resilient to change, protect natural resources and ecosystem services, and keep agriculture and the economy at the frontier of global competitiveness. Over the years, the **University of Illinois** has shown how investments in research can have major impacts.

**95% of Illinois** swine producers and transporters have received training through **University of Illinois** research and Extension programs that ensure pig welfare and food safety. Certification gives producers access to more markets and allows them to sell products at a premium.

Small Farm Program trainings on running livestock enterprises helped **32,538 small farms** in the **Midwest** increase net farm income by an average of **\$4,500 per year**.

Growers using a new wireless soil moisture sensor system have seen less disease, better plant quality, and large water savings. One user reduced irrigation by **50%** and saved **43 millions gallons of water**.

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Land-grant University researchers are making advances that protect livestock health. For example, **Virginia Tech** researchers developed a quick, easy-to-use tool to detect bacteria that cause bovine respiratory disease. A new vaccine could save beef producers **\$10-15 million** each year by preventing epizootic bovine abortion, a disease that causes loss of pregnancy or unhealthy calves. *iStock photo.*



Extension specialists share information with beekeepers, farmers, home gardeners, regulatory agencies, and others. Beekeepers following research-based recommendations saved **10,500 honey bee colonies**, worth over **\$5,750,000** each year. *iStock photo.*



The Grand Challenges are part of the *Science Roadmap for Food and Agriculture* developed by the Experiment Station Committee on Organization and Policy (ESCOP) to guide food and agricultural research. A unit of the Association of Public and Land-grant Universities, ESCOP governs the research activities of Land-grant Universities and Agricultural Experiment Stations. Borne out of the Hatch Act of 1887 and the Evans-Allen Act of 1977, these premier institutions are supported by USDA NIFA and by collaborations across federal, regional, state, nonprofits, and private institutions. For more information: [escop.info](http://escop.info).

 Experiment Station  
Committee on Organization  
and Policy (ESCOP)

Learn more about University of Illinois research:  
[aces.illinois.edu](http://aces.illinois.edu)



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