

Iowa (Iowa State University) Plan Of Work - FY2024

Review Report

Contributing Organizations

Iowa State University

Directors

Daniel Robison Signed

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Executive Summary

Overview

Iowa's agricultural sector is poised for future growth and transformation, capitalizing on the latest advancements in the bioeconomy, life sciences, food sciences, environmental sciences, and social sciences. Our vision is to expand beyond traditional crop and livestock production, fostering innovation and sustainable practices throughout the entire value chain of food, feed, fiber, biofuels, and bioproducts.

With our abundant natural resources, skilled workforce, and well-established infrastructure, Iowa is an ideal hub for businesses, communities, and families engaged in agriculture and biotech industries to thrive. Building upon our strategic location and robust transportation network, we will create an ecosystem that nurtures and supports the success of these industries.

Looking ahead, we recognize that ongoing demographic changes, technological innovations, and globalization bring both opportunities and challenges. Our focus is on developing sustainable, socially responsible, and environmentally sound systems for food, feed, fiber, fuel, and other value-added products. To tackle these challenges head-on, our proactive research and extension programs revolve around six critical areas:

- Community and Economic Development
- Food Production and Agricultural Systems
- Health Nutrition and Well Being
- Human Potential and Youth Development
- Natural Resources and Environmental Stewardship
- Transformative Technology

Our dedicated team of researchers, educators, and Extension and Outreach professionals collaborate closely to drive innovation and implement solutions that have a positive impact on society and the environment. We are committed to fostering interdisciplinary collaborations and integrating cutting-edge technologies to create a more sustainable and efficient agricultural ecosystem.

As we forge ahead, our vibrant research and Extension and Outreach community spans diverse disciplines, from fundamental research to practical applications, to address the challenges and opportunities in feed, food, fiber, and fuel production. Our outcomes are a testament to the collaborative efforts of scientists and Extension and Outreach professionals from various departments and colleges. Together, we advance the capacity and productivity of our agricultural systems, ensuring an ample supply of nutritious food while promoting the integration of research and Extension and Outreach activities.

Our endeavors are made possible through funding from key grants, including the Hatch and Smith-Lever capacity grants. These critical resources enable us to leverage additional external funding, resulting in more applied research, tangible real-world applications, and enhanced integration of research and Extension and Outreach initiatives. Through these concerted efforts, we aim to pioneer the future of agriculture and contribute to the well-being of our communities, state, and beyond.

Critical Issue: Community and Economic Development

N/A

Critical Issue: Food Production and Agricultural Systems

N/A

Critical Issue: Health, Nutrition and Well-being

N/A

Critical Issue: Human Potential and Youth Development

N/A

Critical Issue: Natural Resources and Environmental Stewardship

N/A

Critical Issue: Transformative Technology

N/A

Merit and Scientific Peer Review Process

No significant changes.

Stakeholder Input

Actions to seek stakeholder input that encourage their participation

No significant changes.

Methods to identify individuals and groups

No significant changes.

Methods for collecting stakeholder input

No significant method changes to report. It is important to note, however, in 2022 – 2023 ISU Extension and Outreach distributed a statewide survey to gain information regarding how lowans prefer to access, receive, and engage in informal education. The survey was distributed via Qualtrics panels to try to reach parity with Iowa's ethnicity, race, gender, age, and household income demographics. The survey was also distributed via ISU Extension and Outreach media channels. Survey data, currently being analyzed, will guide future decisions regarding audience interaction strategies, marketing efforts, and general funding decisions regarding educational programs that are offered across the state.

A statement of how the input will be considered

No significant changes to report. It is important to note, however, findings from the statewide survey regarding how lowans prefer to access, receive, and engage in informal education will guide ISU Extension and Outreach in optimizing the balance among in-person, virtual, hybrid, and blended learning experiences in its portfolio of educational offerings.

Critical Issues

Active

Community and Economic Development

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Economic issues facing Iowa communities are numerous and include an aging workforce, an influx of immigrants, and changing economic structures. A combination of factors such as aging infrastructure, including housing; resistance to additional taxation; depopulation; and lower population density is pushing small local governments' budgets to their limits. Severe storm and flood damage, a problem that has been increasing in recent years, exacerbates economic issues in communities of all sizes. Many local governments face shrinking budgets and need strategies and tools for doing more with less. Life in Iowa's small and large communities is affected by global issues such as the price of fossil fuels and instability in the global economy. Our research, education, and extension will continue to enhance the economic health of communities, grow community leadership and civic engagement, and improve the quality of life for all Iowans. Examples of research and extension project/program focuses within this critical issue include economic modeling, workforce development, college and career readiness, company growth and productivity, housing assessments, community sustainability, community health, community and regional planning, community leadership development, civic engagement, industrial design, farm business management, diffusion of innovation, farm transition and beginning farmers, and farming risk management.

Science Emphasis Areas: Family & Consumer Sciences

Research Projects: 6

Extension Programs: 5

Active

Food Production and Agricultural Systems

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Agricultural production and related upstream and downstream industries make up the single largest sector of Iowa's economy and are important to rural communities in the state. Technology development, via scientific discovery, both basic and applied, is needed to improve the efficiency, safety, and sustainability of food production. The adoption of new technologies and practices by farmers holds economic, environmental, and social implications at the farm, community, and market levels. Production, marketing, and business skills are needed by farmers to effectively evaluate new opportunities and navigate emerging challenges. Iowa's changing climate, especially increased amounts of rainfall during rain events, also requires multidisciplinary research to solve related agricultural problems. Our research, education, and extension will continue to provide a safe, sustainable, accessible, and affordable food supply for Iowa, the nation, and the world. Examples of research and extension project/program focuses within this critical issue include commercial agriculture production efficiencies and productivity, cropping systems research, meat sciences, improvements in animal nutrition, commercial food safety, security, and production, regional and local food production, production animal systems, and integrated pest management.

Science Emphasis Areas: Agroclimate Science, Food Safety, Sustainable Agricultural Production Systems

Research Projects: 39

Extension Programs: 8

Active

Health, Nutrition and Well-being

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

The percentages of Iowa children, youth, and adults who are overweight/obese are 32%, 28%, and 64%, respectively. Of Iowa's 21 "completely rural" counties, almost half have health outcomes indicating poorer health among their residents. Regular physical activity is important for an individual's health, sense of well-being, stress management, and maintenance of a healthy body weight. 83% of adult Iowans do not meet the recommended physical activity guidelines. Health can also be compromised by a foodborne illness (FBI), which can result from improper food handling or storage at home and, in some cases, lead to long-term complications or even death. The costs of FBI, including medical expenses and lost productivity, can cause hardship for families. Health, nutrition, and well-being sciences encompass areas such as personal wellness, food science, human nutrition, and kinesiology, all aimed at maintaining and advancing the overall health of Iowans. Examples of research and extension projects/programs addressing this critical issue include dietary guidance; proper handling, preparation, storage, and preservation of food at home; physical fitness; mental health; stress management; financial health; caregiving; parenting; and prevention sciences, including topics such as opioid/substance abuse prevention.

Science Emphasis Areas: Education and Multicultural Alliances, Family & Consumer Sciences, Food Safety, Human Nutrition, Youth Development

Research Projects: 8

Extension Programs: 1

Active

Human Potential and Youth Development

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Iowa is changing, with an increase in older adults and an increased racial, ethnic, and socioeconomic diversity. Iowans support working collaboratively with local, state, and federal partners to impact public issues such as poverty, financial instability, mental health stress management, support for older adults, the quality of family relationships, and child and youth success academically, socially, and emotionally. Our research, education, and extension projects and programs will help families across socioeconomic status, ethnicity, and race to increase knowledge and develop skills to improve decision-making related to caring for children and other family members, parenting effectively, helping children and

youth succeed academically, socially, emotionally, and in career readiness, supporting older adults, adopting less risky behaviors and lifestyle choices, and managing and maximizing financial resources.

Science Emphasis Areas: Education and Multicultural Alliances, Family & Consumer Sciences, Youth Development

Research Projects: 3

Extension Programs: 4

Active

Natural Resources and Environmental Stewardship

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Wise management of all natural resources, including water, soil, air, and other resources, is needed to sustain our nation's ability to produce food, feed, fiber, and bioproducts/biofuels, as well as support environmental goods and services and economic and social functions. Without attention to environmental goods and services, our quality of life would be greatly impacted. The focus areas of this program encompass all of the natural resources within the highly human-modified agroecosystem. Proper stewardship of natural resources that provide the base inputs for modern agricultural production is foundational to sustaining the desired quantity and quality of food, feed, fiber, and biofuels, as well as the natural environment. Research projects and extension programs under this critical issue are designed to advance the sustainability and conservation of air, water, soil, plants, minerals, and biodiversity in Iowa's agricultural, forest, and forage/grassland production systems. Examples of research and extension project/program focuses that address this critical issue include nutrient reduction strategies, adoption of best management and conservation practices, master conservation courses, manure application, and nitrogen use efficiency.

Science Emphasis Areas: Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems, Sustainable Agricultural Production Systems

Research Projects: 18

Extension Programs: 4

Active

Transformative Technology

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Innovations and advancements that have a significant and profound impact on various aspects of society, industries, or individuals' lives are transformative. These technologies typically bring about substantial changes, disrupt existing systems, and create new opportunities and possibilities across many facets of society, including technical advancements, social change, and economic developments. Transformative technologies can span various fields, including,

but not limited to, information technology, healthcare, energy, transportation, communication, and agriculture. As such, these types of innovations often exemplify the concept of innovation and include, for example, artificial intelligence, genetic engineering, renewable energy technologies, environmental sensors, robotic assistants, and autonomous vehicles. These technologies have the potential to reshape industries, improve efficiency, solve complex problems, enhance productivity, revolutionize communication and connectivity, and transform the way we live, work, and interact with the world. They frequently drive innovation, create new business models, and lead to societal and economic transformations.

Science Emphasis Areas: Agroclimate Science, Environmental Systems, Sustainable Agricultural Production Systems

Research Projects: 5

Extension Programs: 0