

# 2016 Ohio State University Combined Research and Extension OGF Multi-State and Integrated Activity Supplemental Forms

Status: Submitted

Date Submitted: 03/29/2017

## I. Brief Summaries

- Use the 2016 Plan of Work in place of submitting a separate brief summaries document.

{NO DATA ENTERED}

- Separate Brief Summaries document (brief description of the multi-state and integrated program activities).**

All of the Ohio Agricultural Research and Development Center's (OARDC) 12 NIFA Planned Programs are formally integrated with OSU Extension, providing impacts for societal well-being. Programs 1 - 5 are jointly led, programs 6 - 12 are OARDC-led and programs 13 - 16 are OSU Extension-led.

### **Planned Program # 1: Climate Change**

Climate change impacts each of the planned programs within the research-Extension portfolio. Achievements within all planned programs are dependent to a greater or lesser extent upon stable and functioning ecosystems, and climate change threatens sustainable ecosystems. Understanding the current and potential impacts of climate change are essential for delivering a secure supply of food, fiber, and other associated products and services to society. These are addressed in this integrated program.

### **Planned Program # 2: Sustainable Energy**

The United States is highly dependent on crude oil imports to supplement its domestic sources for the creation of energy and other petroleum-based products. Greater energy and economic independence are now national concerns. Due to the rising costs of crude oil and the eventuality of declining supplies of crude oil, bio-based substitutes for petroleum-based energy and other products are in demand, as are other forms of sustainable energy. OARDC and OSU Extension, along with multiple partners, are exploring new opportunities for adding value to bio-based products, beyond traditional food and fiber markets. These efforts include the development of sustainable energy alternatives, as well as the commercialization of new products in the form of sustainable energy and advanced materials.

### **Planned Program # 3: Childhood Obesity**

Ohio State is committed to being a leader in the science of using food and nutrition to promote health and prevent disease. Many costly and preventable chronic conditions -- heart disease, stroke, cancer, diabetes, hypertension and obesity -- are affected by diet. And worldwide, inadequate nutrition is a major cause of developmental delays and death. Given the complex nature of obesity, the subject is broadly supported in scientific areas ranging from genetics for breeding plants and animals that can be processed into healthier food products, to education of school children about eating healthy. Thus, not all impacts relating to obesity, per se, are found in this planned program. OARDC and OSU Extension advance programs to ensure that nutritious foods are affordable and available, and provide guidance so that individuals and families are able to make informed, science-based decisions about their health and well-being. By building on the collaborations among faculty that span a breadth of expertise, and by joining with key partners in the public and private sectors, CFAES will create a healthier future for individuals and communities around the world.

### **Planned Program # 4: Food Safety**

Food safety is a major global concern. OARDC and OSU Extension lead programs for advancing broad food safety goals with efforts ranging from microbial assays to studies of food packaging. Due to the complexity of food systems, a robust research and Extension program is required to meet societal needs for a safe food supply. Out of this integrated research and Extension program comes science-based findings and communication strategies to inform national and global food safety programs.

#### **Planned Program # 5: Global Food Security and Hunger**

Global food security will continue to be a high priority item both nationally and globally. To meet growing demand, food scientists and other agricultural and environmental scientists continue to make advances toward a number of food security topics. Those topics include: techniques and processes that improve the quality of food; expanding food preservation; protecting against pathogens; advancing detection systems for identifying threats to food security; increasing both the quantity and quality of food stocks; and communicating the findings of this research worldwide.

#### **Planned Program # 6: Soil, Air and Water**

Soil, air, and water systems science, in combination with natural resource programs, are central to advancing impacts in all planned programs. The understanding of interactions among soil, water, and air resources provide a basis for delivering food, fiber, other associated products, and related services to society. Integrated activities also inform mitigation of environmental impacts from agricultural and natural resource industries.

#### **Planned Program # 7: Natural Resources and Environmental Systems**

The natural resources and environmental systems program focuses on managing and sustaining natural resources for the citizens of Ohio, the nation and the world. Integrated activities result in a sustainable flow of food, fiber, and environmental services, as well as positive economic impacts and social services from natural resource-based dependent activities such as tourism, hunting, fishing, bird watching, and park use.

#### **Planned Program # 8: Plant Systems**

Plant systems are a substantial component of Ohio's food, fiber, and agricultural industry, providing jobs, value-added products, and a supply of raw and manufactured products worldwide. Integrated activities occur in the areas of plant genetics, product quality during pre-harvest, plant management systems, plant biology, insects / mites / other arthropods that are plant pests, pathogens and nematodes, weed science, and integrated pest management.

#### **Planned Program # 9: Animal Systems**

Food animals are central to food security worldwide. The food animal industry in Ohio is a key contributor to the food, agricultural, and environmental economy. Integrated activities occur in the areas of animal physiology, animal health and diseases, systems for improved animal management including reproductive performance, improved animal products before harvesting, and animal genetics. Knowledge generated from this program will be applied worldwide.

#### **Planned Program # 10: Food, Agricultural, and Biological Engineering Systems**

The research activities of those working in this program underpin the work of all academic units and research and Extension field programs within the college, having impact from a local to an international level. Integrated activities occur in the creation of waste disposal systems, advancing recycling technologies, the creation of new-engineered systems including food processing, energy, and environment. The program also addresses improvements in structures and facilities, and in physical and mechanical infrastructure for the food, agricultural and environmental science enterprise, and in environmental mitigation and remediation.

#### **Planned Program # 11: Economics and Social Dimensions**

The broad goals of this program are to generate knowledge and distribute impartial information through the

application of social, economic, educational, and business principles to the challenges of agriculture, the food system, the environment, and economic development. Economic and social inquiry, whether focused on profitability, on human capital, or on maintaining environmental services and associated amenity values, have a long history of supporting the science behind agriculture and natural resource management and will continue to have impacts well beyond this planning period.

**Planned Program # 12: Human Health**

Agricultural production (both plant and animal), their residues, renewable natural resources, and the related manufacturing processes and products, all have human health and safety risks associated with them. Integrated activities in this program occur in the areas of food-related health issues, farm safety, and family/community health and safety issues.

**Planned Program 13: Advancing Employment and Income Opportunities**

Innovation, entrepreneurship, and an understanding of local and regional economics are keys to sustainable economic growth in Ohio. Formal and informal educational efforts involving individuals and groups of all sizes will focus on community economics, small businesses, job development, organizational leadership, community leadership, participatory community planning, and wealth creation throughout the state. In many cases, the efforts aim to engage community stakeholders in local applied research designed to create knowledge that empowers local development officials and the community at large to act on development issues of strategic economic importance.

**Planned Program 14: Enhancing Agriculture and the Environment**

Ohio's diverse agricultural, horticultural, and forestry industries contribute more than \$100 billion to the state's economy every year. OSU Extension (OSUE) will assist a variety of clients with technology, marketing, and educational support. The efforts of OSUE professionals will advance Ohio's position in the global marketplace. OSUE also will work to enhance and sustain the environment and natural areas in the state, balancing economic advancement with environmental sustainability. Topics addressed include, but are not limited to: nutrient (phosphorus) stewardship, invasive species, pesticide application education, specialty crops, farm management best practices, home gardening, supporting female farm operators, agricultural emergency management training, and transitioning farm operations to the next generation.

**Planned Program 15: Preparing Youth for Success**

As Ohio's economy continues the shift from an industrial to a knowledge base, its young people and volunteers supporting them need advanced skills to be successful. OSU Extension, through 4-H and other youth focused efforts, provides resources and support for volunteers who deliver programs focused on critical issues affecting youth. Through our volunteers, we are able to expand our reach to impact the lives of thousands of Ohio youth with quality programming, including fairs, 4-H clubs, camping, school enrichment, and more.

**Planned Program 16: Strengthening Families and Communities**

Key to sustaining and building Ohio's high standard of living is the health and economic strength of families and communities. OSU Extension teaches people how to apply practical information to their daily lives in order to make informed choices about everything from finances to healthy living to community issues. Educators and specialists teach nutrition, food safety, and other life choice skills to help Ohioans live healthy lives. OSUE works to help build strong families by offering programs and information to all Ohioans on childcare, parenting, family life, adult development and aging, and balancing life, jobs, and families. OSUE also teaches Ohioans to manage money and prepare for retirement.

**U.S. Department of Agriculture  
National Institute of Food and Agriculture  
Supplement to the Annual Report of Accomplishments and Results  
Actual Expenditures of Federal Funding for Multistate Extension and Integrated Activities  
(OMB 0524-0036)  
Fiscal Year: 2016**

**Institution: Ohio State University**

**State: Ohio**

<b>NIFA-REPT Final</b>	<b>Integrated Activities (Hatch)</b>	<b>Multistate Extension Activities (Smith-Lever)</b>	<b>Integrated Activities (Smith-Lever)</b>
<b>Established target %</b>	25.00	25.00	25.00
<b>This FY Allocation (from 1088) \$</b>	7,622,831.00	11,315,915.00	11,315,915.00
<b>This FY Target Amount \$</b>	1,905,708.00	2,828,979.00	2,828,979.00

<b>Title of Planned Program Activity</b>	<b>Integrated Activities (Hatch)</b>	<b>Multistate Extension Activities (Smith-Lever)</b>	<b>Integrated Activities (Smith-Lever)</b>
Climate Change \$	43,927.00	86,887.00	101,418.00
Sustainable Energy \$	125,212.00	259,458.00	302,849.00
Childhood Obesity \$	2,531.00	11,455.00	13,370.00
Food Safety \$	68,218.00	57,274.00	66,852.00
Global Food Security and Hunger \$	143,486.00	195,497.00	228,191.00
Soil, Air and Water \$	102,136.00	0.00	0.00
Natural Resources and Environmental Systems \$	0.00	0.00	0.00
Plants Systems \$	942,686.00	0.00	0.00
Animals Systems \$	467,190.00	0.00	0.00
Food, Agriculture, and Biological Engineering Systems \$	161,362.00	0.00	0.00
Economics and Social Dimensions \$	282,804.00	0.00	0.00
Human Health \$	59,761.00	0.00	0.00
Advancing Employment and Income Opportunities \$	0.00	518,916.00	605,697.00

Title of Planned Program Activity	Integrated Activities (Hatch)	Multistate Extension Activities (Smith-Lever)	Integrated Activities (Smith-Lever)
Enhancing Agriculture and the Environment \$	0.00	1,281,590.00	1,495,919.00
Preparing Youth for Success \$	0.00	413,238.00	482,346.00
Strengthening Families and Communities \$	0.00	389,462.00	454,594.00
<b>Total \$</b>	2,399,313.00	3,213,777.00	3,751,236.00
<b>Carryover \$</b>	0.00	0.00	0.00

**Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays represented here accurately reflect allowable expenditures of Federal funds only in satisfying AREERA requirements.**

**Director(s):**

David Benfield  
 Roger Rennekamp

**Date Submitted: 03/29/2017**

**U.S. Department of Agriculture  
National Institute of Food and Agriculture  
Supplement to the 5-Year Plan of Work  
Multistate Extension Activities and Integrated Activities  
(OMB 0524-0036)**

**Institution: Ohio State University**

**State: Ohio**

**1. Integrated Activities (Hatch Act Funds)**

**Estimated Costs**

<b>Title of Planned Program Activity</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Advancing Employment and Income Opportunities \$	0.00	0.00	0.00	0.00	0.00
Animals Systems \$	467,000.00	467,000.00	467,000.00	467,000.00	467,000.00
Childhood Obesity \$	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00
Climate Change \$	44,000.00	44,000.00	44,000.00	44,000.00	44,000.00
Economics and Social Dimensions \$	283,000.00	283,000.00	283,000.00	283,000.00	283,000.00
Enhancing Agriculture and the Environment \$	0.00	0.00	0.00	0.00	0.00
Food Safety \$	68,000.00	68,000.00	68,000.00	68,000.00	68,000.00
Food, Agriculture, and Biological Engineering Systems \$	161,000.00	161,000.00	161,000.00	161,000.00	161,000.00
Global Food Security and Hunger \$	143,000.00	143,000.00	143,000.00	143,000.00	143,000.00
Human Health \$	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00
Natural Resources and Environmental Systems \$	0.00	0.00	0.00	0.00	0.00
Plants Systems \$	943,000.00	943,000.00	943,000.00	943,000.00	943,000.00
Preparing Youth for Success \$	0.00	0.00	0.00	0.00	0.00
Soil, Air and Water \$	102,000.00	102,000.00	102,000.00	102,000.00	102,000.00
Strengthening Families and Communities \$	0.00	0.00	0.00	0.00	0.00
Sustainable Energy \$	125,000.00	125,000.00	125,000.00	125,000.00	125,000.00
<b>Total \$</b>	<b>2,399,000.00</b>	<b>2,399,000.00</b>	<b>2,399,000.00</b>	<b>2,399,000.00</b>	<b>2,399,000.00</b>

**2. Multistate Extension Activities (Smith-Lever Act Funds)**

**Estimated Costs**

<b>Title of Planned Program Activity</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Advancing Employment and Income Opportunities \$	456,784.00	456,784.00	456,784.00	456,784.00	456,784.00
Animals Systems \$	0.00	0.00	0.00	0.00	0.00
Childhood Obesity \$	10,083.00	10,083.00	10,083.00	10,083.00	10,083.00
Climate Change \$	76,484.00	76,484.00	76,484.00	76,484.00	76,484.00
Economics and Social Dimensions \$	0.00	0.00	0.00	0.00	0.00
Enhancing Agriculture and the Environment \$	1,128,141.00	1,128,141.00	1,128,141.00	1,128,141.00	1,128,141.00
Food Safety \$	50,416.00	50,416.00	50,416.00	50,416.00	50,416.00
Food, Agriculture, and Biological Engineering Systems \$	0.00	0.00	0.00	0.00	0.00
Global Food Security and Hunger \$	172,089.00	172,089.00	172,089.00	172,089.00	172,089.00
Human Health \$	0.00	0.00	0.00	0.00	0.00
Natural Resources and Environmental Systems \$	0.00	0.00	0.00	0.00	0.00
Plants Systems \$	0.00	0.00	0.00	0.00	0.00
Preparing Youth for Success \$	363,760.00	363,760.00	363,760.00	363,760.00	363,760.00
Soil, Air and Water \$	0.00	0.00	0.00	0.00	0.00
Strengthening Families and Communities \$	342,830.00	342,830.00	342,830.00	342,830.00	342,830.00
Sustainable Energy \$	228,392.00	228,392.00	228,392.00	228,392.00	228,392.00
<b>Total \$</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>

**3. Integrated Activities (Smith-Lever Act Funds)**

**Estimated Costs**

<b>Title of Planned Program Activity</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Advancing Employment and Income Opportunities \$	456,784.00	456,784.00	456,784.00	456,784.00	456,784.00
Animals Systems \$	0.00	0.00	0.00	0.00	0.00
Childhood Obesity \$	10,083.00	10,083.00	10,083.00	10,083.00	10,083.00
Climate Change \$	76,484.00	76,484.00	76,484.00	76,484.00	76,484.00
Economics and Social Dimensions \$	0.00	0.00	0.00	0.00	0.00
Enhancing Agriculture and the Environment \$	1,128,141.00	1,128,141.00	1,128,141.00	1,128,141.00	1,128,141.00
Food Safety \$	50,416.00	50,416.00	50,416.00	50,416.00	50,416.00

**Estimated Costs**

<b>Title of Planned Program Activity</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Food, Agriculture, and Biological Engineering Systems \$	0.00	0.00	0.00	0.00	0.00
Global Food Security and Hunger \$	172,089.00	172,089.00	172,089.00	172,089.00	172,089.00
Human Health \$	0.00	0.00	0.00	0.00	0.00
Natural Resources and Environmental Systems \$	0.00	0.00	0.00	0.00	0.00
Plants Systems \$	0.00	0.00	0.00	0.00	0.00
Preparing Youth for Success \$	363,760.00	363,760.00	363,760.00	363,760.00	363,760.00
Soil, Air and Water \$	0.00	0.00	0.00	0.00	0.00
Strengthening Families and Communities \$	342,830.00	342,830.00	342,830.00	342,830.00	342,830.00
Sustainable Energy \$	228,392.00	228,392.00	228,392.00	228,392.00	228,392.00
<b>Total \$</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>	<b>2,828,979.00</b>

**Director(s):**

David Benfield  
Roger Rennekamp

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