

2015 Montana State University Combined Research and Extension OGFM Multi-State and Integrated Activity Supplemental Forms

Status: Submitted

Date Submitted: 03/31/2016

I. Brief Summaries

- Use the 2015 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).

Planned Program Multistate & Integrated Activity NIFA-REPT & NIFA-PLAN

Note: Integrated activity advancements in research for the year 2015 are noted below and reflect research and outreach planned program priorities. Both the NIFA-REPT and NIFA-PLAN integrated activities reflect the dual nature of MSU COA, MAES and Extension in a collective effort via programs, people and facilities to serve Montana and the university's tripartite mission of teaching, research and outreach. Where research projects are listed, it can be assumed MSU Extension personnel and programs are involved either directly or on the periphery of the project.

Animal Sciences

Integrated research priorities in Animal Science privileges disease control, reproductive enhancement, and animal productivity. Scientists will continue investigating vaccines for rotavirus, strangles, respiratory diseases, and mastitis. Additionally, researchers will continue tracking and evaluating global economic changes in agribusiness livestock and food production. Long-term, larger projects include:

- 1.) Describing spatial and temporal distribution of Chache Valley virus and putative vectors in Montana, in addition to estimating areas of the state that are of high risk.
- 2.) Innovative animal and meat science research that identifies type and qualities of beef that a diverse and international consuming public desire.
- 3.) Determination of research needed to determine the potential benefits or pitfalls of integrating targeted sheep grazing and biological control insects to suppress spotted knapweed.
- 4.) Innovative animal and meat science research that identifies type and qualities of beef that a diverse and international consuming public desire.

Plant & Soil Sciences

Multistate and integrated research focuses on perennial forages, low-cost forage production, weed control, water conservation and the reduction of fuel and fertilizer in field crops and rangeland management.

Research will continue to lead to improved varieties of plants that benefit state, country and global agricultural producers. Much of the current research conducted in campus labs and in fields across the state will continue to be centered on disease resistance through genetics, the effects of bacterial diseases and the biochemistry and molecular genetics of plant diseases in addition to perennial forages, low-cost forage production, weed control, water conservation and the reduction of fuel and fertilizer in field crops and rangeland management. Research will continue to lead to improved varieties of plants that benefit state, country and global agricultural producers. Research in biology, chemistry, plant materials and physiology, plant pathology, plant reproduction and arboriculture will continue.

Farm and Ranch and Business Management

Research and programs will continue to provide content and programs relating to purchasing, government programs and regulations, operational planning and budgeting, contracts and estate planning. Each of these knowledge areas help to provide foresight and confidence in the management of crops, animals, marketing, finance and business organization for Montana's production agriculture industry. Multistate projects in our Department of Agricultural Economics and Economics and Extension Economist Specialists collectively seek to ensure the success of Montana's agricultural imports and exports in changing, global markets by recommending and watching markets and producing meaningful work as it relates to agricultural policy and legislation - both on a state and national level. Objective, research-based, economic information regarding the impacts of changes in the market remain a central priority. Research largely focuses on small grain producers, input costs, pest control, profit margins, feeding, and market quality production, requirements, marketing and environmental regulations.

Integrated Pest Management

Integrated research priorities in IPM include:

- 1.) Integrate molecular genetic tools to develop and improve Integrated Pest Management Programs for insect pests infesting wheat, barely, and pulse crops in the Montana and Northern Great Plains Region. Genetic information facilitates the discovery and development of new molecular insect control agents.
- 2.) Systems research of crop diversification through the investigation of adaptation, genetic diversity, and agronomic practices for alternative crops in the semiarid U.S. Northern Great Plains.
- 4.) Examine practical disease management options for crops grown in Montana through the use of fungicides to control folia pathogens and the role of viruses in our cropping systems.
- 4.) Develop alternative weed management in an effort to reduce dependence on herbicides and cultivation, through evaluation of the ecological underpinning of integrated weed management programs.
- 5.) Development of new and improved disease management tools for Montana sugar beet and potato growers through the use biological control agents, cultural controls, disease resistant cultivars, pesticides and the integration of these tools into comprehensive disease management programs.
- 6.) Study the impact of fallow management approaches.

Energy and Natural Resources

Integrated research in this field includes:

- 1.) Determination of research needed to determine the potential benefits or pitfalls of integrating targeted sheep grazing and biological control insects to suppress spotted knapweed.
- 2.) Improve integrated management of weeds in Montana through the investigation of ways to refine revegetation of weed-infested rangeland, and the management of two rangeland weeds: downy brome and tall buttercup.
- 3.) Systems research of crop diversification through the investigation of adaptation, genetic diversity, and agronomic practices for alternative crops in the semiarid U.S. Northern Great Plains.
- 4.) Research on the invasion of conifer trees into foothill rangelands threatening the ecological sustainability of acreage, which threaten the economic sustainability of western ranches and rural communities.
- 5.) Provide objective, research-based, economic information regarding the impacts of changes in market and policy conditions on the agricultural food and fiber sector to agricultural producers and agribusinesses.

Healthy Living, Nutrition and Food Safety

Integrated research priorities in Food Safety include animal viruses, vaccinations, global beef markets and invasive plants. Major projects include:

- 1.) Innovative animal and meat science research that identifies type and qualities of beef that a diverse and international consuming public desire.
- 2.) Determination of research needed to determine the potential benefits or pitfalls of integrating targeted sheep grazing and biological control insects to suppress spotted knapweed.
- 3.) Improve integrated management of weeds in Montana through the investigation of ways to refine revegetation of weed-infested rangeland, and the management of two rangeland weeds: downy brome and

tall buttercup.

Youth and Family Development

Integrated activity projects and programs support youth and that help them to become better caregivers for the elderly and disabled friends and family and offer resources for successfully parenting grandchildren and for managing their own aging process, including planning for transfer of wealth and managing personal finances.

Community Development

Integrated activity continues to work within expanding Community Foundation opportunities, to creating sustainable food systems in food deserts, to planning and preparing for emergencies to educating community officials and board members, across Montana.

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: 2015

Institution: Montana State University

State: Montana

NIFA-REPT Final	Integrated Activities (Hatch)	Multistate Extension Activities (Smith-Lever)	Integrated Activities (Smith-Lever)
Established target %	5.80	1.16	2.00
This FY Allocation (from 1088) \$	2,772,884.00	2,727,503.00	2,727,503.00
This FY Target Amount \$	160,827.00	31,639.03	54,550.56

Title of Planned Program Activity	Integrated Activities (Hatch)	Multistate Extension Activities (Smith-Lever)	Integrated Activities (Smith-Lever)
Animal Sciences \$	24,034.00	1,411.00	6,249.58
Plant and Soil Sciences \$	77,960.00	9,461.25	26,791.08
Farm and Ranch and Business Management \$	5,193.00	2,372.34	3,932.74
Integrated Pest Management \$	117,191.00	4,973.59	8,525.85
Energy and Natural Resources \$	1,157.00	1,742.10	3,637.86
Healthy Living, Nutrition and Food Safety \$	0.00	9,641.64	7,920.54
Youth and Family Development \$	0.00	3,926.84	2,867.80
Community Development \$	0.00	946.80	0.00
Total \$	225,535.00	34,475.56	59,925.45
Carryover \$	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):
Charles Boyer
Jeff Bader

Date Submitted: 03/31/2016

**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: Montana State University

State: Montana

1. Integrated Activities (Hatch Act Funds)

Estimated Costs

Title of Planned Program Activity	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Animal Sciences \$	24,034.00	24,034.00	24,034.00	24,034.00	24,034.00
Energy and Natural Resources \$	1,157.00	1,157.00	1,157.00	1,157.00	1,157.00
Farm and Ranch Management \$	5,193.00	5,193.00	5,193.00	5,193.00	5,193.00
Integrated Pest Management \$	117,191.00	117,191.00	117,191.00	117,191.00	117,191.00
Plant and Soil Sciences \$	77,960.00	77,960.00	77,960.00	77,960.00	77,960.00
Total \$	225,535.00	225,535.00	225,535.00	225,535.00	225,535.00

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

Estimated Costs

Title of Planned Program Activity	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Animal Sciences \$	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
Community Development \$	950.00	950.00	950.00	950.00	950.00
Energy and Natural Resources \$	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00
Farm and Ranch Management \$	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00
Healthy Living, Nutrition and Food Safety \$	9,700.00	9,700.00	9,700.00	9,700.00	9,700.00
Integrated Pest Management \$	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Plant and Soil Sciences \$	9,500.00	9,500.00	9,500.00	9,500.00	9,500.00
Youth and Family Development \$	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00
Total \$	34,800.00	34,800.00	34,800.00	34,800.00	34,800.00

3. Integrated Activities (Smith-Lever Act Funds)

Estimated Costs

Title of Planned Program Activity	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Animal Sciences \$	6,300.00	6,300.00	6,300.00	6,300.00	6,300.00
Community Development \$	100.00	100.00	100.00	100.00	100.00
Energy and Natural Resources \$	3,700.00	3,700.00	3,700.00	3,700.00	3,700.00
Farm and Ranch Management \$	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00
Healthy Living, Nutrition and Food Safety \$	8,000.00	8,000.00	8,000.00	8,000.00	8,000.00
Integrated Pest Management \$	8,550.00	8,550.00	8,550.00	8,550.00	8,550.00
Plant and Soil Sciences \$	27,000.00	27,000.00	27,000.00	27,000.00	27,000.00
Youth and Family Development \$	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00
Total \$	60,550.00	60,550.00	60,550.00	60,550.00	60,550.00

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