V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Food Safety

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
135	Aquatic and Terrestrial Wildlife			3%	
211	Insects, Mites, and Other Arthropods Affecting Plants			3%	
212	Pathogens and Nematodes Affecting Plants			5%	
302	Nutrient Utilization in Animals			7%	
305	Animal Physiological Processes			7%	
308	Improved Animal Products (Before Harvest)			5%	
311	Animal Diseases			12%	
315	Animal Welfare/Well-Being and Protection			2%	
403	Waste Disposal, Recycling, and Reuse			2%	
501	New and Improved Food Processing Technologies			12%	
502	New and Improved Food Products			10%	
503	Quality Maintenance in Storing and Marketing Food Products			2%	
701	Nutrient Composition of Food			3%	
702	Requirements and Function of Nutrients and Other Food Components			7%	
704	Nutrition and Hunger in the Population			3%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins			17%	
	Total			100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Plan	0.0	0.0	25.0	0.0
Actual Paid Professional	0.0	0.0	23.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	890035	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	890035	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The development and evaluation of improved technologies in food processing, and on-farm food safety practices have received increasing attention from faculty in several departments. Research is being conducted on several important food toxins and their causal organisms (e.g. Asprgillus), mastitis resistance as a component of on-farm food safety, the development of new thermal food preservation technologies, biotoxins and food safety, nanotechnology applications in food sensors, residual pesticides in foods, symbiotic associations between antibiotic producing bacteria and honeybees, vitamin D deficiencies, and several other areas.

2. Brief description of the target audience

Integrated activity for our Formula Grant programs targets a broad group of stakeholder audiences in agricultural, natural resources, and the public. Examples can be seen in our stakeholder section information provided elsewhere in this report.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2012
Actual: 4

Patents listed

Title: DISPOSABLE-TIP ELECTRODE DESIGN
Inventors: Sundaram Gunasekaran; Jiang Yang
Hatch Grant #: 11-CRHF-0-6055
Date Reported to the Federal Government: 10-19-2011

Title: ELECTROCHEMICAL DETECTION OF MILK ALLERGEN, B-LACTAGLOBULIN (BLG)
Inventors: Sundaram Gunasekaran, Jiang Yang
Hatch Grant #: 11-CRHF-0-6055
Date Reported to the Federal Government: 3-16-2012

Title: ELECTROCHEMICAL METHOD TO REMOVE MILK FOULING
Inventors: Sundaram Gunasekaran, Jiang Yang
Hatch Grant #: 11-CRHF-0-6055
Date Reported to the Federal Government: 3-16-2012

Title: COCKTAILS OF NATURALLY OCCURRING CHEMICALS FOR INDUCING APOPTOSIS IN CANCER CELLS
Inventors: Kirk Parkin
Hatch Grant #: 11-CRHF-0-6055
Date Reported to the Federal Government: 11-15-2011

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	0	39	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Output measures for this project include patents, graduate students trained, and publications. This estimated output will be refined as we gain experience with this measure for Formula Grant supported work. Graduate Students Trained:

Year	Actual
2012	21

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Outcome measures for this work are both qualitative and quantitative. We will rely on feedback from stakeholder groups, advisory boards, and individual constituents, as well as from UW Extension teams on the relevance, importance and impact of our research program. The output measures listed earlier will also serve as outcome measures in that patents graduate degrees and publications all include an element of critical review and assessment of uniqueness, originality, contribution to the science and knowledge base, or other performance criteria. Finally, we will use the Thomson ISI Essential Science for agricultural science as one of our measures of impact of our research program. Our target for these outcome measures is to be ranked in the top 5 institutions in the United States. We will continue to develop impact statements for individual projects which have shown exemplary and significant impact. Publications:

Outcome #1

1. Outcome Measures

Outcome measures for this work are both qualitative and quantitative. We will rely on feedback from stakeholder groups, advisory boards, and individual constituents, as well as from UW Extension teams on the relevance, importance and impact of our research program. The output measures listed earlier will also serve as outcome measures in that patents graduate degrees and publications all include an element of critical review and assessment of uniqueness, originality, contribution to the science and knowledge base, or other performance criteria. Finally, we will use the Thomson ISI Essential Science for agricultural science as one of our measures of impact of our research program. Our target for these outcome measures is to be ranked in the top 5 institutions in the United States. We will continue to develop impact statements for individual projects which have shown exemplary and significant impact. Publications:

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	39

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Wisconsin Agricultural Experiment Station has a broad list of stakeholders who potentially benefit from the research and extension/outreach from the Wisconsin Formula Grant program. This list of stakeholders includes:
*General agriculture
*Food processing and marketing industry
*Animal and dairy related agriculture
*Plant and cropping system interests including vegetables
*Green industry (turf, ornamentals, etc.)
*Biotechnology
*Bio-energy and bio-economy groups
*Sustainable and organic food producers
*Environmental groups and interests
*Consumer and non-traditional groups
*Governmental agencies and officials
*Scientific community

What has been done

Each year through a competitive, investigator-driven, peer-reviewed process, the Wisconsin Agricultural Experiment Station funds approximately 131 research and integrated activity projects focused on national, regional, and local issues and priorities linked to stakeholder interests. In addition to serving stakeholder needs through these competitively funded projects (which address critical applied research as well as basic science questions), this program sets a priority on training our next generation of applied and science based professionals through its graduate student training mission.

Results

In fiscal year 2012, the Wisconsin Agricultural Experiment Station funded projects resulted in 239 publications, 10 patents, and 131 graduate students trained. The Wisconsin Agricultural Experiment Station also tracks the Thompson ISI Essential Science indicator as a measure of impact. Our goal is to remain in the top five. Examples of representative impacts resulting from individually funded projects within our portfolio are described, to the extent possible, in the Summary of this Annual Report.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
403	Waste Disposal, Recycling, and Reuse
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
704	Nutrition and Hunger in the Population
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

A variety of factors could affect the outcomes of this project including those listed above. However, the breadth of the program makes it unlikely that the outputs would be completely disrupted unless there was some major natural, economic, or public policy disruption. A major change in Federal policy or appropriation affecting the Formula Grant program could affect our ability to produce our outcomes. UW-Madison has implemented a policy change regarding tuition remission. Formula Grants have previously been exempt from tuition remission charges in the UW-System, but are no longer exempt. Since these funds do not allow tuition remission, we continue to discuss alternatives to meeting our Formula Grant missions in order to continue training graduate students. We continue to make graduate student training the priority of our program.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

N/A

Key Items of Evaluation

N/A