

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Global Food Security and Hunger

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
205	Plant Management Systems	30%		10%	
212	Pathogens and Nematodes Affecting Plants	30%		5%	
213	Weeds Affecting Plants	20%		5%	
302	Nutrient Utilization in Animals	0%		15%	
303	Genetic Improvement of Animals	0%		30%	
305	Animal Physiological Processes	0%		10%	
311	Animal Diseases	0%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		5%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
702	Requirements and Function of Nutrients and Other Food Components	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	2.5	0.0	70.9	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
106000	0	3675111	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
106000	0	3675111	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
59496	0	35569056	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the following associated multistate research committees: NC0007, NC0140, NC0205, NC1023, NC1025, NC1029, NC1035, NC1037, NC1038, NC1040, NC1131, NC1168, NC1170, NE1020, NE1028, NE1034, NE1042, NRSP4, NRSP8, S0294, S1025, S1027, S1032, S1033, S1039, S1040, W1009, W1045, W1173, W2168, W2177, and others.

Research is conducted across most disciplines in agriculture, defined in its broadest sense, from basic to applied, to make advances in feed, food, fiber and fuel production to help increase capacity and provide an adequate and nutritious food supply.

Research and extension faculty and staff disseminate research-based information at presentations (meetings, workshops, invited presentations, field days) and through radio spots, TV interviews, printed and electronic fact sheets and pod casts. They make use of electronic media coverage (website, e-newsletters, FAX newsletters, CDs), conduct online courses, and provide individual consultations (phone, e-mail, and in-person) as needed to share knowledge. Research discoveries are published in peer-reviewed journals and popular press, in a variety of formats.

Additional information is reported under the program "Global Food Security and Hunger - Ensuring Profitable Producers."

2. Brief description of the target audience

Crop and livestock producers, certified crop advisors, agribusiness personnel, chemical manufacturers, horticulture professionals, fruit and vegetable producers, commodity organizations, agencies (federal, state and local), commercial manure applicators, land owners, agricultural lenders, beginning and returning farmers, policy makers, high school, college, and community college students and instructors, media.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA}	{NO DATA}	{NO DATA}	{NO DATA}
Actual	13131	0	0	0

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

Patent Applications Submitted

Year: 2010

Plan:

Actual: 5

Patents listed

7,625,703: Calpastatin (CAST) alleles

7,696,410: Rps-1-.kappa. nucleotide sequence and proteins

7,700,291: Genetic test for the identification of dwarfism in cattle

7,722,909: Terpene ester compounds as autoxidation inhibitors for frying oils

7,833,748: Identification of syn-stemodene synthase

United States Patent Application 20100005547: January 7, 2010: BACKBONE-FREE LOW TRANSGENE COPY TRANSGENIC PLANTS

United States Patent Application 20100122375: May 13, 2010: COMPOSITIONS AND METHODS FOR ENHANCING DISEASE RESISTANCE IN PLANTS

United States Patent Application 20100151097: June 17, 2010: OPTIMIZATION OF COLICIN PRODUCTION

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of acres where an herbicide weed resistance management program has been implemented.
2	Number of acres impacted by soybean protection management strategies.

Outcome #1

1. Outcome Measures

Number of acres where an herbicide weed resistance management program has been implemented.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4400000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Glyphosate is used on more than 75% of the corn and soybean acres in Iowa. Over-reliance on glyphosate is resulting in the evolution of glyphosate-resistant bio-types. This will result in an increased use of other herbicides and tillage to manage the weed populations.

What has been done

Research on fields across Iowa confirmed the presence of glyphosate-resistant weeds. ISU Extension produced press releases, newsletters, and radio spots, and educational events to educate producers and agribusiness personnel on how to implement weed management programs to minimize the risk of selecting for resistant weeds.

Results

Producers, agribusiness personnel, and the manufacturer have become more aware of this developing problem. Heightened grower awareness has prompted more inquiries on appropriate procedures to minimize risk from ISU Extension. The seed company who produces Roundup Ready soybean is paying farmers up to \$3/A for applying a preemergence product that offsets the potential problem of glyphosate resistance, a strong endorsement for something Extension has promoted since the introduction of Roundup-Ready soybean since 1996. Observations suggest that there has been a 20% reduction in acres relying solely on glyphosate over the previous two years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

213 Weeds Affecting Plants

Outcome #2

1. Outcome Measures

Number of acres impacted by soybean protection management strategies.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In Iowa soybean sudden death syndrome (SDS) caused yield losses in nearly 9,000,000 acres, with losses exceeding 50% on some fields during 2010.

What has been done

Iowa State University (ISU) initiated new applied research involving seed treatments, cultural practices and understanding the biology of this disease. Several publications (PM 3009, fact sheets for ISA and Farm Progress Show, CSI 0004) and news articles were developed to help growers and agribusiness professionals better understand how to manage this disease.

Results

Educational presentations reached more than 2,000 producers and 1,000 agribusiness professionals. Extension field agronomists estimated the percent of acres in their counties that had SDS. Multiplying those percents by the number of acres to be planted to soybean as reported by NASS in those counties equals 2M acres. Anecdotal responses from producers regarding field observations made late in the growing season resulted in ISU researchers initiating research plots on SDS and Goss's Wilt in the 2011 growing season to answer questions that arose during the 2010 season. Articles about SDS in the Integrated Crop Management newsletter were viewed 7,424 times between Sept 2010 and Jan 2011. An SDS video on the College of Agriculture and Life Sciences website was viewed 1037 times between September 1, 2010 and January 31, 2011, making it the most accessed video to date.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Evaluation Results

Key Items of Evaluation