

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger: Potatoes

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	5%		10%	
202	Plant Genetic Resources	5%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	5%		10%	
205	Plant Management Systems	25%		10%	
212	Pathogens and Nematodes Affecting Plants	20%		10%	
216	Integrated Pest Management Systems	15%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	10%		20%	
603	Market Economics	5%		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
Plan	4.7	0.0	5.0	0.0
Actual	5.0	0.0	11.8	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
182287	0	175381	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
182287	0	175381	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
114000	0	3627382	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Global food security and hunger: Potatoes team is made up of 14 faculty members contributing a total of 5.0 FTEs to this project. Team members generated \$768,761 in external grant support and made 8,813 direct teaching contacts. Team members produced five peer-reviewed Extension publications and 11 articles in professional and scientific journals. The Team has three major areas of focus:

- Production and Economics
- Food Quality and Safety
- Integrated Pest Management

The potato team actively intergrates research and extension functions, conducting laboratory and field experiments to manage pathogens and to improve production systems. The results from research are communicated through scientific publications, through the widely circulated Spudvine newsletter, and at the international Idaho Potato Conference. Faculty presented cutting-edge information to about 250 scientists and producers at the 2010 Idaho Potato Conference, and also presented Spanish-language training for farm workers on using and maintaining specialized farming equipment, potato diseases, and pesticide use and safety.

2. Brief description of the target audience

Idaho and PNW growers, seed potato producers, Potato industry representatives, Idaho Potato Commission Research Committee members, State Department of Agriculture personnel, agriculture and potato-related media, field agronomists, fieldmen, and consultants.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	7000	150000	0	0
Actual	8569	51890	244	0

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

Patent Applications Submitted

Year: 2010
 Plan: 4
 Actual: 3

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	12	15	
Actual	5	29	34

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Newsletters.

Year	Target	Actual
2010	9	10

Output #2

Output Measure

- Workshops and Seminars.

Year	Target	Actual
2010	60	139

Output #3

Output Measure

- Popular Press Articles.

Year	Target	Actual
2010	17	25

Output #4

Output Measure

- Field Days.

Year	Target	Actual
2010	7	9

Output #5

Output Measure

- Individual Consultations.

Year	Target	Actual
2010	65	240

Output #6

Output Measure

- Graduate Students.

Year	Target	Actual
2010	3	1

Output #7

Output Measure

- Professional Meetings.

Year	Target	Actual
2010	11	18

Output #8

Output Measure

- Email Information Dissemination.

Year	Target	Actual
2010	110	311

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Growers apply best potato management practices. I: Number of growers adopting recommended practices
2	O: Growers are aware of pest incidence. I: Number of Subscribers to pest alert website
3	O: Growers are knowledgeable about best potato management practices. I: Number of participants attending educational programs.
4	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

Outcome #1

1. Outcome Measures

O: Growers apply best potato management practices. I: Number of growers adopting recommended practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	130	95

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pink rot, late blight and silver scurf can cause serious economic losses to potatoes in storage. For the last several years substantial research and extension efforts have been on post-harvest product application for disease control.

What has been done

Initial research in the use of phosphorous acid began at the University of Idaho. Numerous presentations, newsletters and trade journal articles have been made. Due to severe disease pressure nationwide, industry use of the product is now widespread. Numerous phone calls and emails were answered this year regarding use, efficacy and application. Presentations and articles were developed highlighting the top 10 things to know about phosphorous acid applications.

Results

Nationwide and statewide use of phosphorous acid was seen this fall especially in areas of substantial risk of disease in storage. This application reduced grower risk of disease development in storage. Knowledge of action was identified by personal correspondence with potato growers and persons in the industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)

205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #2

1. Outcome Measures

O: Growers are aware of pest incidence. I: Number of Subscribers to pest alert website

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	380	326

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The presence of pests, particularly economically important insects and fungal pathogens can cause both yield and quality problems for potato producers and industry.

What has been done

A pest hotline (with the help of a \$4000 grant from Syngenta) was made available to growers and other industry personnel. Pest reports on aphids, as well as early and late blight were recorded on a weekly basis while potatoes were in the fields.

Results

Growers have knowledge of what pests are present and where the outbreak occurred. Management protocols are then implemented or not, based on University recommendations. This information aids growers to make decisions about which products to use and how frequently they need to be applied. These practices often result in lowered pesticide inputs with increased profits for the producers and lowered impacts on the environment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

216 Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

O: Growers are knowledgeable about best potato management practices. I: Number of participants attending educational programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	75	371

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

We identified two major insect problems, the Potato Tuber Moth and the Lesser Onion Bulb Fly, which required comprehensive on-farm surveys and control measures.

What has been done

Following several years of educational programs to teach growers how to manage these pests, Extension conducted a comprehensive survey of potato storage facilities and fields for disease and insect population, migration and control.

Results

For the fifth consecutive year, Lesser Onion Bulb Fly identification, population surveys, and education programs were 98% effective.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems

503 Quality Maintenance in Storing and Marketing Food Products
603 Market Economics

Outcome #4

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Competing Programmatic Challenges

Brief Explanation

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)

Evaluation Results

Numerous workshop presentations were given at the University of Idaho Potato Conference in 2010. Results from the "Organic Potato Production Workshop" indicated a substantial increase in attendee (n=15) knowledge (scale of 1 to 5 with 1 = no understanding and 5 = complete understanding) from prior to the presentation 1.7 to after the presentations, 3.6, on "performance of different potato varieties in an organic system" and, 2.8, on "organic methods of potato storage and sprout control", respectively.

Key Items of Evaluation